November 2022 2022/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I B.C.A **Programming in C – RIC1(7)**

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Small computers have memories that are organized into 8-bit multiples called _____.
2. _____ function is used to get input data in C program.
3. A _____ is a collection of information stored as a separate entity within the computer memory.
4. A _____ is a function that represents the location.
5. _____ contain multiple members that share the same storage area.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. A _____ constant is a base-10 number that contains a decimal point.

   a) floating-point b) symbolic c) string d) decimal

7. Which of the following printf conversion character is used to display the data items as a signed decimal integer.

   a) d b) f c) i d) u

8. _____ is a process by which a function calls itself repeatedly until some specified condition has been satisfied.

   a) function b) pointers c) recursion d) file

9. The _____ function accepts two strings as argument and return an integer value.

   a) len b) strtrim c) strcon d) strcmpi

10. The individual structure element are referred to as _____.

    a) address b) pointer c) structure d) union

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is a variable?
12. List out the two factors contribute to the legibility of writing C program.
13. State two advantage to the use of function.
14. Give the syntax to declare an array in C.
15. State any two difference between Structure and Union.

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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I B.C.A **Programming in C – RIC1(7)**

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Summarize two different ways that a large computer can be shared by many different users.
17. Write a program to check whether the given String is a palindrome or not.
18. Describe the manner in which an actual argument passes information to a function.
19. Discuss about passing pointers to a function with suitable example.
20. How to read and write a data file in C? Explain with example.
21. Draw block diagram of computer and explain various blocks.
22. Illustrate the operations of Pointers.
23. Represent schematically the self referential structure in C.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. What is an Operator? Describe different types of operators that are included in C.
25. Explain about branching statement with suitable example.
26. Enumerate different storage classes in C. Write briefly any two storage class with example.
27. How are multidimensional array defined? Compare with one dimensional array using suitable program.
28. Illustrate with example the open and close a data file in C.

---------- ***All the Best*** ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I B.Sc. Computer Science

Digital Electronics and Microprocessor(Integrated) – QIC2(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Radix of octal is _____.
2. NAND & NOR are _____ gates.
3. Combinational logic is a type of _____ logic.
4. _____ is a device which stores a single bit.
5. A _____ is a controlling unit of microcomputer.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. 00011001 is the decimal equivalent of

   a) 25 b) 9 c) 52 d) 32

7. A _____ is used to add two single digit binary number.

   a) half Adder b) full Adder c) multiplexer d) demultiplexer

8. Which are fundamental logic gates?

   a) AND,OR& NOT b) NAND & NOR c) NAND d) XOR

9. In which Flip Flop the present input will be the next output

   a) JK b) RS c) D d) T

10. In the case of, Zero-address instruction method the operands are stored in _____.

    a) registers b) accumulators

    c) push down stack d) cache

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is a register?
12. What is Boolean Function?
13. Where is RS Flip Flop used?
14. Define Decoder.
15. What is memory cycle time?

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I B.Sc. Computer Science

Digital Electronics and Microprocessor(Integrated) – QIC2(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Solve: Convert $(526)_{10}$ to Binary, Octal & Hexadecimal.
17. List out properties of Boolean algebra.
18. Solve the problem using K-map: F(P,Q,R,S)=∑(0,2,5,7,8,10,13,15).
19. Explain BCD Counter.
20. Illustrate RS flip flop with neat circuit diagram.
21. List out any seven Arithmetic Instruction in 8085.
22. Write short note on Addressing modes in 8085.
23. Write a procedure for Quine-McCluskey Tabulation method.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain about types of Shift Register.
25. Analyze the universality of NAND & NOR Gates.
26. Differentiate between Multiplexer (MUX) and Demultiplexer (DEMUX).
27. Illustrate Ripple counter with neat diagram.
28. Describe the architecture of 8005.

---------- ***All the Best*** ----------

April 2023 2022/2021/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)**– Applicable to candidates admitted in the year 2022 & 2021

I B.Sc. Computer Science

Object Oriented Programming with C++ QIIC3(7)

I & II B.C.A. Object Oriented Programming with C++ RIIC3(7)

Time: Three Hours **Maximum Marks : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. The _____ statement is used to make decisions.
2. _____ is the default return value of functions in C++.
3. A constructor to initialize an object with the values of another object is called _____ operator.
4. There are _____ specifiers used to derive a class.
5. _____ header file is used for reading and writing to a file.

II. Choose the correct answer **(5X1=5 Marks)**

6. Wrapping data and its related functionality into a single entity is known as _____
   a) Abstraction b) Encapsulation
   c) Polymorphism d) Modularity
7. Which of the following accesses the tenth element stored in array?
   a) array[9]; b) array[10];
   c) array[8]; d) array[11];
8. Destructor has a same name as the constructor and it is preceded by
   a) ! b) ? c) ~ d) $
9. The friend functions and the member functions of a friend class can directly access the _____ data.
   a) Private and protected b) Private and public
   c) Protected and public d) Private, protected and public
10. By default, all the files are opened in which of the following mode
    a) Binary Mode b) Text Mode c) Sequential Mode d) Character Mode

April 2023 2022/2021/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)**– Applicable to candidates admitted in the year 2022 & 2021

I B.Sc. Computer Science

Object Oriented Programming with C++ QIIC3(7)

I & II B.C.A. Object Oriented Programming with C++ RIIC3(7)

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. List out the characteristics of OOP.
12. Define nesting of member function.
13. What is the use of copy constructor?
14. What is meant by pure virtual function?
15. List any four file modes and their purpose.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the features of Object-oriented programming.
17. Discuss about call by reference with an example.
18. Classify the various type conversions in C++.
19. Explain "this pointer" in C++.
20. Give a note on error handling during file operations.
21. Write a program in C++ for Function Overloading.
22. Discuss on the various manipulations of strings using operators.
23. Give a brief note on pointers to objects with an example.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate on the benefits of OOPS and explain the various Control structures in C++.
25. Enumerate the importance of the below functions with example
    i) Inline function ii) Friend functions
26. Determine the rules for Overloading Operators and explain Dynamic constructor.
27. Classify and elaborate on Inheritance in C++ with example.
28. Elucidate Open, Close and Write operations of a file in C++ with suitable programming examples.

----------All the Best ----------

April 2023 2022/2021/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)**– Applicable to candidates admitted in the year 2022 & 2021

I B.Sc. Computer Science

Object Oriented Programming with C++ QIIC3(7)

I & II B.C.A. Object Oriented Programming with C++ RIIC3(7)

Time: Three Hours **Maximum Marks : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

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Object Oriented Programming with C++ QIIC3(7)

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11. List out the characteristics of OOP.
12. Define nesting of member function.
13. What is the use of copy constructor?
14. What is meant by pure virtual function?
15. List any four file modes and their purpose.

Section – B

(5 x 7 = 35 Marks)

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Section – C

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April 2023 2022/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular)**– Applicable to candidates admitted in the year 2022

I B.Sc. Computer Science **Data Structures – QIIC4(7)**

I B.C.A. **Data Structures – RIIC4(7)**

Time: Three Hours **Maximum Marks : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. _____ is very useful in situation when data have to stored and then retrieved in reverse order.
2. If the size of the stack is 10 and we try to add the 11^{th} element in the stack then the condition is known as _____.
3. A linear data structure in which insertion and deletion operations can be performed from both ends is _____.
4. _____ level is where the model becomes compatible executable code.
5. A node that is connected to all lower-level nodes is called _____.

II. Choose the correct answer **(5X1=5 Marks)**

6. When a pop() operation is called on an empty queue, what is the condition called?
   a) Overflow b) Underflow c) Syntax error d) Garbage value
7. Which of the following data structures can be used to implement Queues?
   a) Stack b) Arrays c) Linked list d) All the above
8. Which of the following sorting algorithms provide the best time complexity in the worst-case scenario?
   a) Merge Sort b) Quick Sort c) Bubble Sort d) Selection Sort
9. Which one of the following is the process of inserting an element in the stack?
   a) Insert b) Add c) Push d) Pop
10. Which data structure is the best for implementing a priority queue?
    a) Stack b) Linked List c) Array d) Heap

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CHENNAI – 600 018

II SEMESTER **(Regular)**– Applicable to candidates admitted in the year 2022

I B.Sc. Computer Science **Data Structures – QIIC4(7)**

I B.C.A. **Data Structures – RIIC4(7)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. Define Data Structure.
12. What is linked lists?
13. Explain the operation in a Stack.
14. Define Binary Trees.
15. List out types of Sort.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Discuss about Asymptotic Notations with example.
17. Illustrate header linked list with example.
18. Explain Quick sort with example.
19. Discuss Shortest paths with necessary diagram.
20. Describe about Bubble sort with example.
21. Explain Priority Queue with example.
22. Elaborate Memory allocation in detail.
23. Discuss about Traversing a graph with example.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elucidate Traversing linear arrays with suitable examples.
25. Construct a linked list with 'n' number of nodes and formulate an algorithm to do insertion operation on it.
26. Describe about Tower of Hanoi with necessary diagram.
27. Illustrate Warshall's Algorithm with example.
28. Elaborate Merge sort with an example.

----------All the Best ----------

November 2022 2021/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.Sc.Computer Science/ II B.C.A.

Programming in Java(Integrated) - QIIIC5(7)/ RIIIC6(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ is the extension of java code file.
2. _____ condition occurs when two or more threads waits indefinitely for each other to relinquish locks.
3. An _____ is a special kind of Java program that a browser enabled with Java technology can download from the internet and run.
4. A _____ is a small piece of information that is persisted between the multiple client requests.
5. _____ class defines objects which can connect Java applications to a JDBC driver.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Which component is used to compile, debug and execute the java programs?

   a) JRE b) JIT c) JDK d) JVM

7. A _____ is a collection of related classes and interfaces.

   a) Applet b) Packages c) Interface d) Swing

8. The applet takes appropriate action and then quickly return control to _____

   a) Swing b) Event c) AWT d) Object

9. _____ is a language used to create other language that defines components of a document.

   a) XML b) HTML c) XHTML d) SGML

10. Select the packages in which JDBC classes are defined.

    a) jdbc and javax.jdbc b) rdb and javax.rdb

    c) jdbc and java.jdbc.sql d) sql and javax.sql

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.Sc.Computer Science/ II B.C.A.

Programming in Java(Integrated) - QIIIC5(7)/ RIIIC6(7)

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. List the data types available in java.
12. What is Package? Give an example.
13. Explain full form of AWT.
14. What is the use of cookie in java?
15. Define Servlet.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Define Array. Explain One Dimensional Array with example.
17. Differentiate “throw” and “throws” statements with Example.
18. Write a Method Used in Graphic Class in Applet with example.
19. Illustrate on packages in Java.
20. Briefly explain the Creation of a ODBC connectivity
21. Enumerate various features of java.
22. Explain about Multithreading and Life Cycle of Thread.
23. Classify any five Graphical user components.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain all the control statement and Iteration statement with syntax and example.
25. Describe about Abstract Class and Final Class with example in Inheritance.
26. Write a brief note on development and execution of simple Applet.
27. Elaborate on Handling HTTP requests and responses.
28. Discuss the life cycle of the servlet.

---------- ***All the Best*** ----------

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CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.Sc.Computer Science

Computer Graphics – QIIICE1A(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. GUI stands for _____.
2. The higher number of pixels gives us a _____ image.
3. DDA stands for_____.
4. Random scan systems are used for _____.
5. RGB color model is used for_____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. CAD stands for -
   a) Computer art design b) Computer-aided design
   c) Car art design d) Computer animation design
7. Which one of the following is the primarily used output device?
   a) Video monitor b) Scanner c) Speaker d) Printer
8. Which of the following is not the pattern of line?
   a) Dotted line b) Dashed line c) Dark line d) Light line
9. The process of positioning an object along a straight line path from one coordinate point to another is called
   a) Translation b) Rotation c) Shear d) Viewing
10. The process of repositioning an object along a circular path is called
    a) Translation b) Rotation c) Scaling d) Shears

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. List out some input devices.
12. State on line attributes.
13. What is Clipping?
14. Define Depth queuing.
15. What is Scaling?

November 2022 2021/UGR

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CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.Sc.Computer Science

Computer Graphics – QIIICE1A(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the working principles of Video display devices.
17. Discuss DDA algorithm in detail.
18. Differentiate Rotation and Scaling.
19. Describe Parallel projection in detail.
20. Explain the function of Depth buffer method.
21. Discuss Mid point circle generating algorithm.
22. Elaborate Cohen-Sutherland line clipping.
23. Illustrate on Translation.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate Raster scan displays.
25. Illustrate Bresenham's line drawing algorithm.
26. Elucidate Window to viewpoint co-ordinate transformation.
27. Describe Bezier curves in detail.
28. Explain Back face detection in detail.

---------- ***All the Best*** ----------

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Section – B

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Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate Raster scan displays.
25. Illustrate Bresenham's line drawing algorithm.
26. Elucidate Window to viewpoint co-ordinate transformation.
27. Describe Bezier curves in detail.
28. Explain Back face detection in detail.

---------- ***All the Best*** ----------

April 2023 2021/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.Sc. Computer Science/ II B.C.A.

Web Development with PHP and MySQL(Integrated)-Theory
- QIVC6T(7)/ RIVC8T(7)

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions **20 Marks**

I. Fill in the blanks **(5 x 1 = 5 Marks)**

1. _____ is the default file extension of PHP files.
2. _____ function converts a string to all uppercase.
3. The _____ method describes how to send data to the server.
4. The _____ element is used to render simple graphics such as line art, graphs, and other custom graphical elements on the client side.
5. _____ is used to collect user input for server processing.

II. Choose the correct answer **(5 x 1 = 5 Marks)**

6. What does **PHP** stand for?
   a) PHP stands for Preprocessor Home Page
   b) PHP stands for Pretext Hypertext Processor
   c) PHP stands for Hypertext Preprocessor
   d) PHP stands for Personal Hyper Processor
7. Which of the following function is used to sort an array in descending order?
   a) sort() b) asrot() c) dsort() d) rsort()
8. A class may contain its own constants and variables are called _____.
   a) Properties b) Method c) Operator d) Objects
9. Which of the following is not the form type for adding text?
   a) Text input b) Text area c) Password input d) Submit button
10. Which statement terminates the execution of a function?
    a) BEGIN…END b) RETURN c) ITERATE d) LOOP

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II B.Sc. Computer Science/ II B.C.A.

Web Development with PHP and MySQL(Integrated)-Theory

- QIVC6T(7)/ RIVC8T(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. How to declare variables in PHP?
12. Differentiate user defined and system defined functions.
13. Define the object.
14. What is call() in PHP?
15. Full form of SQL.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Differentiate switch and if else statements.
17. Classify Arrays in PHP with examples.
18. Write the purpose of the Get method and Post method.
19. Illustrate on HTML form controls.
20. How to manipulate data in MYSQL using PHP?
21. Brief notes on operators in PHP with examples.
22. Explain function concepts in PHP.
23. Elaborate on object Inheritance in PHP.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Discuss in detail PHP data types.
25. Enumerate the multidimensional Array with an example.
26. Elaborate Constructors and Destructors in PHP with examples.
27. Develop a PHP program to perform the following :

    (i) Opening a file (ii) Closing a file (iii) Reading a file

    (iv) Writing to a file (v) Copying a file
28. Describe the installation steps on My- Sql in the Windows Environment.

---------- All the Best ----------

April 2023 2021/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.Sc. Computer Science/ II B.C.A.

Internet of Things - QIVC7(7)/ RIVC7(7)

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions **20 Marks**

I. Fill in the blanks **(5 x 1 = 5 Marks)**

1. _____ layer is used for wireless connection in IoT devices.
2. The application-level protocol in which a few manager stations control a set of agents is called _____
3. The Raspberry Pi is defined as the _____
4. WAMP is an acronym that stands for _____
5. _____ part of the MapReduce is responsible for processing one or more chunks of data and producing the output results.

II. Choose the correct answer **(5 x 1 = 5 Marks)**

6. Which of the following cannot be considered an IoT device?
   a) Smartwatch b) Andriod Phone c) Laptop d) Tubelight
7. SNMP is the framework for managing devices in an internet using the _____
   a) TCP/IP protocol b) UDP c) SMTP d) FTP
8. Raspbian is _____
   a) Assembler b) Language c) Compiler d) OS
9. OS Amazon EC2 provides virtual computing environments, known as _____
   a) Chunks b) Instances c) Messages d) Garbages
10. _____ function is responsible for consolidating the results produced by each of the Map() functions/tasks.
    a) Reduce b) Map c) Reducer d) All of the mentioned

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IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.Sc. Computer Science/ II B.C.A.
Internet of Things - QIVC7(7)/ RIVC7(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define IoT.
12. Mention the properties of M2M.
13. List few examples where IoT Device is used.
14. Define WAMP.
15. What is Apache Storm?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the characteristics of IoT.
17. State the differences between IoT and M2M.
18. Illustrate with a diagram the basic building block of an IoT device.
19. Illustrate the functions of WAMP.
20. Analyze the significance of Data Analytics in IoT.
21. Compare the features of IPv4 and IPv6.
22. Explain the properties Xively cloud for IoT.
23. Outline the benefits of Apache Storm.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Appraise the features of IoT Enabling Technologies.
25. Assess the importance of IoT system management and explain the components of Simple Network Management Protocol in detail.
26. Explain the features of Raspberry Pi and its applications.
27. Describe the Amazon Web Services that are used to manage the IoT device.
28. Elucidate the significance of Hadoop MapReduce for batch data analysis.

---------- **All the Best** ----------

April 2023 2021/UGR

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IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

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Internet of Things - QIVC7(7)/ RIVC7(7)

Time: Three Hours **MAXIMUM MARKS : 100**

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II B.Sc. Computer Science/ II B.C.A.

Internet of Things - QIVC7(7)/ RIVC7(7)

Time: Three Hours **MAXIMUM MARKS : 100**

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Section – C

(3 x 15 = 45 Marks)

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26. Explain the features of Raspberry Pi and its applications.
27. Describe the Amazon Web Services that are used to manage the IoT device.
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November 2022 2020/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

Big Data Analytics - QVC5(6)/ RVC10(6)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Transaction of the bank data is called _____ type of data.
2. Data Analytics uses _____ to get insights from data.
3. Hadoop is a framework that works with a variety of related tools. Common cohorts include _____.
4. HDFS works in a _____ fashion.
5. You can run Pig in batch mode using _____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Data in _____ bytes size is called big data.
   a) Meta b) Giga c) Tera d) Peta
7. Data Analysis is a process of _____
   a) Inspecting data b) Data Cleaning
   c) Transforming of data d) All of the mentioned above
8. _____ has no support for ACID properties of transactions.
   a) SQL b) NewSQL c) NoSQL d) MySQL
9. For YARN, the _____ Manager UI provides host and port information.
   a) Data Node b) NameNode c) Resource d) Replication
10. In _____ mode HiveServer2 only accepts valid Thrift calls.
    a) Remote b) HTTP c) Embedded d) Intractive

III. Answer the following in One or Two Sentences **(5 x 2= 10 Marks)**

11. State the important of Big Data.
12. How do you define Data Science?
13. What is MongoDB?
14. Why Hadoop?
15. List out any three relational operator.

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CHENNAI – 600 018

V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

Big Data Analytics - QVC5(6)/ RVC10(6)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Classify the details of digital data.
17. Write a brief notes on importance of big data analytics.
18. Elaborate the advantages of Hadoop.
19. Discuss the important of hadoop distributed file system.
20. Analyse the various data processing operators in Pig.
21. Explain the challenges of big data.
22. Justify the importance of data scientist.
23. Assess the features of Hadoop.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate the Applications of Big Data in detail.
25. Discuss various types of machine learning algorithms.
26. Explain the advantages and disadvantages of NoSQL.
27. Analyze the features of Hadoop Ecosystems and its distributions.
28. Describe the types of hive data types in detail.

---------- ***All the Best*** ----------

November 2022 2020/UGR

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CHENNAI – 600 018

V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science

Database Management Systems - QVC6(6)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. DML stands for _____.
2. The highest level in the hierarchy of data organization is called _____.
3. _____ is a special type of integrity constraint that relates two relations & maintains consistency across the relations.
4. The deadlock state can be changed back to stable state by using _____ statement.
5. ODBC stands for _____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. A Database Management System (or) DBMS is _____.
   a) Collection of inter-related data
   b) Collection of programs to access data
   c) Collection of Data describing one particular enterprise
   d) Colletion of objects
7. In an Entity relationship diagram Rectangle represents _____.
   a) Entity sets b) Attributes c) Database d) Tables
8. Which of the following is true about SQL joins?
   a) The join condition is not separated from other search conditions in a query
   b) The ON clause makes code difficult to understand
   c) The join condition for natural join is basically an equijoin of all columns with same name
   d) The join support only inner join
9. Multi-valued dependencies should _____ be eliminated.
   a) Always b) Commonly c) Seldom d) Never
10. Which of the following statements is true concerning JDBC?
    a) It is language independent
    b) It is similar in concept to ODBC
    c) It is useful for all object-oriented languages
    d) It consists of three main layers

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science

Database Management Systems - QVC6(6)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define Database Management system.
12. Define Query.
13. What is Data Dictionary?
14. List two Indexing types.
15. What is Client/Server Database?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Discuss about advantages of Database Management system in detail.
17. Illustrate the various commands in SQL.
18. Explain about Boyce Codd Normal Form with necessary examples in detail.
19. Describe the usage of Reports in DBMS.
20. Differentiate between Backup and Recovery.
21. Classify the various Components of DBMS.
22. Discuss about Data Triggers in detail.
23. Compare Where and Group by Queries.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate Class Diagram with examples in detail.
25. Classify Joins and its types in detail.
26. Explain about Normalization with examples in detail.
27. Differentiate between Data Integrity and Transactions.
28. Discuss about Distributed Database in detail.

---------- ***All the Best*** ----------

November 2022 2020/UGR

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CHENNAI – 600 018

V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

.Net Technologies – QVC7(6)/ RVC11(6)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. A _____is an identifier that denotes a storage location used to store a data value.
2. HTML stands for _____.
3. _____is an example for Rich controls.
4. ADO stands for _____.
5. _____ enables us to store and retrieve values for a user as the user navigates ASP.NET pages in a Web application.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Maximum value of integer data type in C# is _____.
   a) 2147483647 b) 2174843467 c) 251987441 d) 65535
7. _____ is an example of web controls in ASP.NET.
   a) Path control b) Table control c) Check control d) Label control
8. _____ are small files which are stored on a user's computer.
   a) Cookies b) Interface c) Packages d) Inheritance
9. _____ is an example of Validation control in ASP.NET.
   a) Tab View Control b) Tree view control
   c) Required field validator d) Image control
10. IIS stands for _____.
    a) Internet Information Services b) Internet Instruction Services
    c) Internet Information Server d) Internet Information State

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

.Net Technologies – QVC7(6)/ RVC11(6)

III. Answer the following in One or Two Sentences **(5 x 2= 10 Marks)**

11. List out types of Literals in C#.
12. Define the term Interface.
13. What is the use of AdRotator control?
14. What is Grid view?
15. State the use of Application state.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Discuss various data types in C#.
17. Explain Multiple Inheritance in C# with suitable example.
18. Discuss the functions of HTML server control.
19. Illustrate on Tree view control.
20. Explain Page directives in ASP.NET.
21. Analyze the concept of Delegates.
22. Illustrate the architecture of .NET framework.
23. Explain any two basic webserver controls.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Enumerate various Operators in C#.
25. Analyze the concepts of Interface and Events in C#.
26. Explain the following:
    i) Image control.
    ii) Repeater Control.
    iii) Calendar control.
27. Describe any four types of classes in ADO.NET.
28. Discuss about creating web services in ASP.NET.

---------- ***All the Best*** ----------

November 2022 2020/UGR

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

.Net Technologies – QVC7(6)/ RVC11(6)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

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SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

.Net Technologies – QVC7(6)/ RVC11(6)

III. Answer the following in One or Two Sentences **(5 x 2= 10 Marks)**

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Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

Software Engineering – QVCE2A(6)/ RVC9(6)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. A _____ is a collection of activities, actions and tasks that are performed when some work product is created.
2. A _____ is a representation of composite information that must be understood by software.
3. FTR stands for _____.
4. _____ focuses verification effort on the smallest unit of the software design.
5. CMM stands for _____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. The concurrent development model sometimes called _____.
   a) Concurrent engineering b) System engineering
   c) Process engineering d) Product engineering
7. Software is divided into separately named and addressable components called _____.
   a) Tracks b) Modules c) Sections d) Units
8. Extend to which access to software or date by un authorized persons can be controller, the quality factor called _____.
   a) Integrity b) Usability c) Reliability d) Flexibility
9. Deployment testing sometimes called _____.
   a) Configuration testing b) Security testing
   c) Stress testing d) Integration testing
10. It is action that distributes estimated effort across the planned project direction by allocating the effort to specific software engineering tasks.
    a) Project scheduling b) Project estimation
    c) Project estimation d) Project management

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

Software Engineering – QVCE2A(6)/ RVC9(6)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is an Agile process?
12. Identify two different dimensions of design model.
13. Define Software Quality.
14. Differentiate Verification and Validation.
15. Who are Stakeholders of Software Process?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the water fall model with neat sketch.
17. Illustrate on requirement analysis.
18. Explain about software reliability.
19. Summarize the concept of Unit testing.
20. Enumerate the principles of COCOMO II model.
21. Describe briefly various data modelling concepts.
22. State various minimum set of guidelines for Formal Technical Reviews.
23. Explain any two types of System testing.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Describe any two Agile process model.
25. Discuss various design concepts.
26. Analyze various elements of Software Quality Assurance.
27. Elaborate the concept of Black – Box testing.
28. Explain various metrics for software quality.

---------- ***All the Best*** ----------

November 2022 2020/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous),*
CHENNAI – 600 018

V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

Software Engineering – QVCE2A(6)/ RVC9(6)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. A _____ is a collection of activities, actions and tasks that are performed when some work product is created.
2. A _____ is a representation of composite information that must be understood by software.
3. FTR stands for _____.
4. _____ focuses verification effort on the smallest unit of the software design.
5. CMM stands for _____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. The concurrent development model sometimes called _____.
   a) Concurrent engineering b) System engineering
   c) Process engineering d) Product engineering
7. Software is divided into separately named and addressable components called _____.
   a) Tracks b) Modules c) Sections d) Units
8. Extend to which access to software or date by un authorized persons can be controller, the quality factor called _____.
   a) Integrity b) Usability c) Reliability d) Flexibility
9. Deployment testing sometimes called _____.
   a) Configuration testing b) Security testing
   c) Stress testing d) Integration testing
10. It is action that distributes estimated effort across the planned project direction by allocating the effort to specific software engineering tasks.
    a) Project scheduling b) Project estimation
    c) Project estimation d) Project management

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V SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2020

III B.Sc.Computer Science/ III B.C.A.

Software Engineering – QVCE2A(6)/ RVC9(6)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is an Agile process?
12. Identify two different dimensions of design model.
13. Define Software Quality.
14. Differentiate Verification and Validation.
15. Who are Stakeholders of Software Process?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the water fall model with neat sketch.
17. Illustrate on requirement analysis.
18. Explain about software reliability.
19. Summarize the concept of Unit testing.
20. Enumerate the principles of COCOMO II model.
21. Describe briefly various data modelling concepts.
22. State various minimum set of guidelines for Formal Technical Reviews.
23. Explain any two types of System testing.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Describe any two Agile process model.
25. Discuss various design concepts.
26. Analyze various elements of Software Quality Assurance.
27. Elaborate the concept of Black – Box testing.
28. Explain various metrics for software quality.

---------- ***All the Best*** ----------

April 2023 2020/2019/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Computer Networks – QVIC8(6)**

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions **20 Marks**

I. Fill in the blanks **(5 x 1 = 5 Marks)**

1. A collection of interconnected networks is called an _____.

2. The function of the data link layer is to provide services to the _____

3. The idea behind link state routing is simple and can be stated as _____ parts.

4. TPDU stands for _____.

5. _____ is used for verifying authenticity and integrity of a message.

II. Choose the correct answer **(5 x 1 = 5 Marks)**

6. The number of associations per second of a wave is called its
   a) Frequency b) Wave length
   c) Transmission d) weight

7. CRC stands for
   a) Code Redundancy Check b) Cyclic Redundancy Check
   c) Control Redundancy Check d) Common Redundancy Check

8. A type of flooding that only sends packets to routers in the same direction is called
   a) Control flooding b) Process flooding
   c) Selective flooding d) Access flooding

9. The Internet protocol suit supports a connection less transport protocol.
   a) TCP b) UDP
   c) POP d) SMTP

10. All algorithms must be public; only the keys are secret relates to
   a) Kerckhoff's Principle b) Rivest Principle
   c) Shami Principle d) Adleman's Principle

April 2023 2020/2019/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Computer Networks – QVIC8(6)**

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Write the meaning of LISTEN & CONNECT service primitives.
12. What is character stuffing?
13. State Tunneling.
14. Indicate the ultimate goal of transport layer.
15. Define Cryptography.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Give a brief account on Wireless Area Network.
17. Explain the concept of one – bit – sliding window protocol.
18. Outline distance vector routing algorithm.
19. How connections are released in TCP? Explain.
20. Write notes on Domain Name System.
21. Summarize the use of computer networks in business applications.
22. What is Addressing? Explain.
23. Enumerate various basic functions supported by an E – Mail system.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Describe the functions of various layers in ISO OSI model with neat sketch.
25. Discuss about Error detection and Error correction.
26. Explain the following:
    i) Link state routing
    ii) Fragmentation
27. State & describe various fields in TCP segment header. Draw the layout.
28. Explain RSA algorithm with an example.

---------- **All the Best** ----------

April 2023 2020/2019/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Python Programming - QVIC9(6)**
III B.C.A. **Python Programming - RVIC13(6)**

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions **20 Marks**

I. Fill in the blanks (5 x 1 = 5 Marks)

1. Python file is saved with an extension _____
2. _____ is the truncation division operator.
3. txt = "For only {price:.2f} dollars!"
   print(txt.format(price = 49)) Output of above code snippet is _____
4. _____ command obtains the number of entries in dictionary.
5. To print current date and time _____ package has to be imported.

II. Choose the correct answer (5 x 1 = 5 Marks)

6. What is the maximum possible length of an identifier?
   a) 16 b) 32 c) 64 d) None of the Above
7. Which of the following types of loops are not supported in Python?
   a) for b) while c) do-while d) None of the Above
8. A function that has no name when defined is known as _____ function
   a) Undefined b) Recursive c) Lambda d) User – defined function
9. Suppose t = (1, 2, 4, 3), which of the following is incorrect?
   a) print(t[3]) b) t[3] = 45 c) print(max(t)) d) print(len(t))
10. Which is not a Python Package.
    a) Numpy b) Pandas c) Scipy d) None of the Above

III. Answer the following in One or Two Sentences (5 x 2 = 10 Marks)

11. State the uses of Import functions
12. List the types of Python Operators.
13. Define Recursion.
14. Give the output of the following:

```
list1 = [2, 3, 1, 'a', 'B']
list1.sort()
print list1
list1 = [2, 3, 1, 'a', 'B']
sorted(list1)
print(list1)
list3 = sorted(list1, reverse=True)
print list1, list3.
```

15. What is Command line argument?

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VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Python Programming - QVIC9(6)**
III B.C.A. **Python Programming - RVIC13(6)**

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Analyze the Features, Advantages and Disadvantages of Python.
17. Distinguish Chained and Nested Conditionals with suitable examples.
18. Define Function. Write a Python code to demonstrate call by reference.
19. Explain how List is created. Discuss about any five built in methods of List.
20. Describe with an example how an exception is raised, detected and handled in Python?
21. Write a password guessing program to keep track of how many times the user has entered the password wrong. If it is more than 3 times, print You have been denied access. and terminate the program.
    If the password is correct, print *You have successfully logged in.* and terminate the program.
22. Illustrate the uses of a Tuple? Give the Tuple functions with its usage to create, access and delete tuples.
23. What is module? Summarize how a module be created and imported in python?

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Discuss about the various Datatypes used in Python along with the rules for defining a variable name.
25. Outline the ways of implementing a counter-controlled loop with suitable examples along with various looping techniques.
26. Is String a mutable data type? Apply the string operations of length, indexing and slicing with examples.
27. Define Python Dictionaries. Give the syntax to iterate a dictionary via keys, values and in pair.
    With example show the usage of various dictionary methods.
28. Write short notes on the functions involved in creating, opening, reading and writing data to files.
    Write a Python code to copy the contents of a file to another file.

---------- **All the Best** ----------

April 2023 2020/2019/UGR/UGA

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CHENNAI – 600 018
VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Operating Systems - QVICE3A(6)**
III B.C.A. **Operating Systems - RVICE3A(6)**

TIME: Three Hours **Maximum Marks : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions **20 Marks**

I. Fill in the blanks **(5 x 1 = 5 Marks)**

1. Which directory implementation is used in most Operating System?
2. Information about a process is maintained in a _____.
3. _____ is a visual (mathematical) way to determine the deadlock occurrence.
4. The mechanism that brings a page into memory only when it is needed is called _____.
5. _____ files are used to provide command to the command interpreter.

II. Choose the correct answer **(5 x 1 = 5 Marks)**

6. Multiprogramming increases _____

   a) Processing speed b) CPU utilization

   c) Memory utilization d) Process utilization

7. Which scheduling policy is most suitable for time-shared operating systems?

   a) Shortest Job First b) Round Robin

   c) First Come First Server d) Elevator

8. Situations where two or more processes are reading or writing some shared data and the final results depends on the order of usage of the shared data, are called _____.

   a) Race conditions b) Critical section c) Mutual exclusion d) Dead locks

9. _____ is a high speed cache used to hold recently referenced page table entries.

   a) Translation Lookaside buffer b) Inverse page table

   c) Segmented page table d) LLR Page table

10. _____ path begins at the root and follows a path down to the specified file giving the directory names on the path

    a) Relative b) Absolute c) Qualified d) Current

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
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VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Operating Systems - QVICE3A(6)**
III B.C.A. **Operating Systems - RVICE3A(6)**

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define System calls.
12. What is a semaphore?
13. List the methods for handling deadlock.
14. Define thrashing.
15. What is seek time and latency time?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Write short notes on Operating System services.
17. Discuss the TEST –AND-SET mechanism for synchronization of processes.
18. Explain the strategies to select the free hole from a set of available holes in detail.
19. Write a note on process creation.
20. Differentiate sequential access and direct access methods which are used to access files?
21. Consider the following snapshot.

	Allocation	Max	Available
	A B C D	*A B C D*	*A B C D*
P_0	0 0 1 2	0 0 1 2	1 5 2 0
P_1	1 0 0 0	1 7 5 0	
P_2	1 3 5 4	2 3 5 6	
P_3	0 6 3 2	0 6 5 2	
P_4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:

a. What is the content of the matrix Need?
b. Is the system in a safe state?
c. If a request from process P1 arrives for (0,4,2,0), can the request be granted immediately?

22. Explain in detail about internal and external fragmentation.
23. Find the total head movement for the following requests in FCFS and SSTF scheduling:

98,183,37,122,14,124,65,67 (starting head position 53)

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VI SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2020 & 2019

III B.Sc. Computer Science **Operating Systems - QVICE3A(6)**
III B.C.A. **Operating Systems - RVICE3A(6)**

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Discuss the various operations on processes.
25. Explain CPU scheduling algorithms.
26. Two phase locking can lead to starvation. Explain how this can happen. Explain why deadlock is not possible?
27. Explain optimal page replacement algorithm and LRU replacement with a suitable example.
28. Explain the linked and indexed methods for allocating disk space to files.

---------- **All the Best** ----------

November 2022 2022/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I B.C.A

Digital Electronics and Microprocessor – RIC2(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Radix of octal is _____.
2. NAND & NOR as a _____ gates.
3. Combinational logic is a type of _____ logic.
4. _____ is a device which stores a single bit.
5. A _____ is a controlling unit of microcomputer.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. 00011001 is the decimal equivalent of

   a) 25 b) 9 c) 52 d) 32

7. A _____ is used to add two single digit binary number.

   a) half Adder b) full Adder c) multiplexer d) demultiplexer

8. Which are fundamental logic gates?

   a) AND,OR& NOT b) NAND & NOR c) NAND d) XOR

9. In which Flip Flop the present input will be the next output

   a) JK b) RS c) D d) T

10. In the case of, Zero-address instruction method the operands are stored in _____.

    a) registers b) accumulators

    c) push down stack d) cache

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is register?
12. State on Boolean Function.
13. Where the RS Flip Flop is used?
14. Define Decoder.
15. What is memory cycle time?

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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I B.C.A

Digital Electronics and Microprocessor – RIC2(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Solve: Convert $(526)_{10}$ to Binary, Octal & Hexadecimal.
17. List out properties of Boolean algebra.
18. Solve the problem using K-map: F(P,Q,R,S)=∑(0,2,5,7,8,10,13,15).
19. Explain BCD Counter.
20. Illustrate RS flip flop with neat circuit diagram.
21. List out any seven Arithmetic Instruction in 8085.
22. Write short note: Addressing modes in 8085.
23. Write a procedure for Quine-McCluskey Tabulation method.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain about types of Shift Register.
25. Analyze the universality of NAND & NOR Gates.
26. Differentiate between Multiplexer (MUX) and Demultiplexer (DEMUX).
27. Illustrate Ripple counter with neat diagram.
28. Describe the architecture of 8005.

---------- ***All the Best*** ----------

November 2022 2021/UGR

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A.

Operations Research – RIIIC5(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks (5 x 1= 5 Marks)

1. Since the number of non-negative allocations at independent positions is $(m+n-1)$, we apply the _____ method.
2. The assignment problem can be stated in the form of m x n matrix (Cij) called a _____
3. _____ on a machine is the time the machine remains idle during the total elapsed time.
4. _____ rule is used to number the nodes in the project network.
5. The gains resulting from a two person zero-sum game can be represented in the matrix form, usually called _____.

II. Choose the correct answer (5 x 1= 5 Marks)

6. For any transportation problem, the coefficients of all X_{ij} in the constraints are _____

   a) Unity b) Zero c) Two d) None of these

7. In transportation problem _____ source to any number of destinations.

   a) One b) One or More c) More d) None of these

8. The Processing n jobs on the three machines .This problem can be converted into a two machine problem if following condition is satisfied _____.

   a) $\underset{i}{Min}\, A_{i1} \geq Max\, A_{i2}$ b) $\underset{i}{Min}\, A_{i2} \geq Max\, A_{i1}$ c) $\underset{i}{Min}\, A_{i1} \geq Max\, A_{i1}$ d) None of these

9. Activities which have _____ are called terminal activities of the project.

   a) No successor b) Successor c) No predecessor d) None of these

10. Zero-sum games with _____ players are called rectangular games.

    a) One b) Two c) Three d) None of these

III. Answer the following in One or Two Sentences (5 x 2 = 10 Marks)

11. Define degenerate basic feasible solution.
12. Write any one difference between the transportation and the assignment problem.
13. Briefly explain No passing rule in a sequencing problem.
14. Write the formula for Earliest Start of an activity i – j in a project network.
15. Define mixed strategy.

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A.

Operations Research – RIIIC5(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. ***All questions carry equal marks.***

16. Find the initial basic feasible solution for the following transportation problem by Least Cost Method.

	To				Supply
From	1	2	1	4	30
	3	3	2	1	50
	4	2	5	9	20
Demand:	20	40	30	10	

17. Solve the following travelling salesman problem

	To				
From		A	B	C	D
	A	-	46	16	40
	B	41	-	50	40
	C	82	32	-	60
	D	40	40	36	-

18. Find the sequence that minimizes the total elapsed time required to complete the following tasks on machines M_1 and M_2 in the order M_1,M_2. Also, find the minimum total elapsed time.

Task	A	B	C	D	E	F	G	H	I
M_1	2	5	4	9	6	8	7	5	4
M_2	6	8	7	4	3	9	3	8	11

19. Construct the network for the project whose activities are given below and compute the total, free and independent float of each activity and hence determine the critical path and the project duration.

Activity	0-1	1-2	1-3	2-4	2-5	3-4	3-6	4-7	5-7	6-7
Duration (in weeks)	3	8	12	6	3	3	8	5	3	8

20. In a game of matching coins with two players, suppose A wins one unit value when there are two heads, wins nothing when there are two tails, and looses ½ unit value when there are one head and one tail. Determine the payoff matrix, the best strategy for each player, and the value of the game.

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II B.C.A.

Operations Research – RIIIC5(7)

21.Find the initial basic feasible solution for the following transportation problem by VAM.

	Distribution Centres					
Origin		D_1	D_2	D_3	D_4	Availability
	S_1	11	13	17	14	250
	S_2	16	18	14	10	300
	S_3	21	24	13	10	400
	Requirements	200	225	275	250	

22.Solve the assignment problem for maximization given the profit matrix (profit in rupees).

	Machines				
Job		P	Q	R	S
	A	51	53	54	50
	B	47	50	48	50
	C	49	50	60	61
	D	63	64	60	60

23.Construct the network for the project whose activities and the three time estimates of these activities (in weeks) are given below. Compute (a) Expected duration of each activity
(b) Expected variance of each activity (c) Expected variance of the project length.

Activity	t_0	t_m	t_p
1-2	3	4	5
2-3	1	2	3
2-4	2	3	4
3-5	3	4	5
4-5	1	3	5
4-6	3	5	7
5-7	4	5	6
6-7	6	7	8
7-8	2	4	6
7-9	1	2	3
8-10	4	6	8
9-10	3	5	7

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A.

Operations Research – RIIIC5(7)

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.**

24. Solve the transportation problem

	Destination				
	A	B	C	D	Supply
Source 1	11	20	7	8	50
Source 2	21	16	20	12	40
Source 3	8	12	18	9	70
Demand:	30	25	35	40	

25. A company has four machines to do three jobs. Each job can be assigned to one and only one machine. The cost of each job on each machine is given in the following table.

	Machines				
Jobs		1	2	3	4
	A	18	24	28	32
	B	8	13	17	19
	C	10	15	19	22

What are job assignments which will minimize the cost?

26. Find the sequence that minimizes the total elapsed time required to complete the following tasks on the machines in the order 1-2-3. Find also the minimum total elapsed time (hours) and the idle times on the machines.

Task	A	B	C	D	E	F	G
Time on M_1	3	8	7	4	9	8	7
Time on M_2	4	3	2	5	1	4	3
Time on M_3	6	7	5	11	5	6	12

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A.

Operations Research – RIIIC5(7)

27.Three time estimates (in months) of all activities of a project are as given below:

Time in Months			
Activity	a	m	b
1-2	0.8	1.0	1.2
2-3	3.7	5.6	9.9
2-4	6.2	6.6	15.4
3-4	2.1	2.7	6.1
4-5	0.8	3.4	3.6
5-6	0.9	1.0	1.1

(a) Find the expected duration and standard deviation of each activity.
(b) Construct the project network.
(c) Determine the critical path, expected project length and expected variance of the project length.
(d) What is the probability that the project will be completed (i) two months later than expected (ii) not more than 3 months earlier than expected (iii) what due date has about 90% chance of being met?

28.Solve the following game using dominance property

	Player B			
Player A		I	II	III
	I	1	7	2
	II	6	2	7
	III	6	1	6

---------- ***All the Best*** ----------

November 2022 2021/UGR

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A.

Introduction to Big Data – RIIICE1A(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ is a collection of data that is huge in volume.
2. _____ learning deals with the unlabeled data
3. _____ is a NoSQL database that runs on top of Hadoop
4. In order to interact with HDFS, a command line interface named _____ is provided.
5. _____ is a framework for collecting and storing script-level statistics for Pig Latin

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Choose the primary characteristics of big data among the following

   a) Volume b) Variety c) Value d) Velocity

7. _____ is the term used to refer to analytics that are able to be accessed as they come into a system.

   a) Data Analytics b) Real Time Analytics

   c) Business Analytics d) Real Time Sentiment Analytics

8. MongoDB has been adopted as _____ software by a number of major websites and services.

   a) frontend b) backend c) proprietary d) all of the mentioned

9. Choose the core component of Hadoop

   a) HDFS b) MapReduce c) both a&b d) N o n e

10. _____ is general-purpose model and runtime framework for distributed data analytics

    a) MapReduce b) Sparkc c) Hive d) Hbase

November 2022 2021/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A.

Introduction to Big Data – RIIICE1A(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is Big Data?
12. Define Machine Learning.
13. State on MongoDB.
14. Define Hadoop.
15. What is Map Reduce?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain Characteristics of Data.
17. Write a note on importance of Big data analytics.
18. Illustrate the types of NoSQL.
19. Distinguish between RDBMS and Hadoop.
20. What are the Data processing operators in Pig? Explain.
21. Explain Evolution of Big data.
22. Write a note on Decision Tree.
23. List out the features of Hadoop.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Discuss in details Application of Big Data.
25. Explain in detail Regression Model.
26. Briefly Explain Advantages, Disadvantages and Application of NoSQL.
27. Explain the Hadoop distributed file system architecture with a neat sketch.
28. Describe the Architecture of HIVE with neat sketch.

---------- ***All the Best*** ----------

November 2022 2022/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
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I SEMESTER **(Regular)**–Applicable to candidates admitted in the year 2022

I B.Sc. Computer Science

Mathematics for Computer Science - I EIAE3(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks (5X1=5 Marks)

1. If α and β are the roots of the equation $ax^2+bx+c=0$ then the value of $\alpha+\beta=$_____.
2. The column matrix *X* which satisfies the equation _____ for each corresponding eigen value λ is called Eigen vector.
3. The n^{th} derivative of $\sin ax$ is _____.
4. There are _____ number of terms in the expansion of $(1-x)^{-1}$.
5. $\int \frac{dx}{x^2} =$ _____.

II. Choose the correct answer (5X1=5 Marks)

6. If $\sqrt{5}$ is a root of a quadratic equation , then the equation is

   a) $x^2+5=0$ b) $x^2-5=0$ c) $x^2+\sqrt{5}=0$ d) $x^2-\sqrt{5}=0$

7. For a square matrix, sum of its eigen values is equal to

   a) sum of the main diagonal entries b) product of the diagonal entries

   c) Determinant of the matrix d) zero

8. The radius of curvature for the curve $y=x^2$ at (1,1) is

   a) $\frac{5\sqrt{5}}{2}$ b) $\frac{3\sqrt{3}}{2}$ c) 8 d) None of these

9. $\frac{e+e^{-1}}{2} =$

   a) $1+\frac{1}{1!}+\frac{1}{2!}+\frac{1}{3!}+\ldots$ b) $1-\frac{1}{1!}+\frac{1}{2!}-\frac{1}{3!}+\ldots$ c) $1+\frac{1}{2!}+\frac{1}{4!}+\frac{1}{6!}+\ldots$ d) $1+\frac{1}{3!}+\frac{1}{5!}+\frac{1}{7!}+\ldots$

10. $\int \frac{dx}{1-x^2} =$

    a) $\sin^{-1} x$ b) $\tan^{-1} x$ c) $\frac{1}{2}\log\left(\frac{1+x}{1-x}\right)$ d) None of these

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I SEMESTER **(Regular)**–Applicable to candidates admitted in the year 2022

I B.Sc. Computer Science

Mathematics for Computer Science - I EIAE3(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Find the quadratic equation whose one root is $2+i$.

12. State Cayley-Hamilton theorem.

13. Find $\frac{dy}{dx}$ if $xy=a$.

14. Prove that $1+\frac{\log_e n}{1!}+\frac{(\log_e n)^2}{2!}+\frac{(\log_e n)^3}{3!}+...\infty = n$.

15. Find $\int \sin^2 x\,dx =$

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.**

16. Solve the equation $x^3-3x^2-3x+1=0$ given that $2-\sqrt{3}$ is a root.

17. Determine the eigen value and eigen vectors of $\begin{pmatrix}1 & 2\\ 2 & 1\end{pmatrix}$

18. Calculate the radius of curvature of the curve $y^2=x^3+8$ at the point $(-2,0)$.

19. Sum the series to infinity: $\frac{1}{1!}+\frac{1+5}{2!}+\frac{1+5+5^2}{3!}+...$

20. Evaluate $\int \frac{\sin^2 x}{(1+\cos x)^2}dx$

21. Solve $x^4-4x^3+5x^2-4x+1=0$.

22. Determine the characteristic roots of $\begin{pmatrix}6 & -2 & 2\\ -2 & 3 & -1\\ 2 & -1 & 3\end{pmatrix}$

23. Given $y=x^2e^{3x}$. Evaluate the nth derivative using Leibnitz formula.

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I SEMESTER **(Regular)**–Applicable to candidates admitted in the year 2022

I B.Sc. Computer Science

Mathematics for Computer Science - I EIAE3(7)

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.**

24. Solve $2x^3 - 9x^2 + 12x - 4 = 0$ given that it has a pair of equal roots.

25. Verify Cayley-Hamilton theorem and hence find inverse of the matrix $\begin{pmatrix} 1 & 2 & 3 \\ 0 & -1 & 2 \\ 1 & 0 & 2 \end{pmatrix}$

26. If $y = \left(\sin^{-1} x\right)^2$ prove that $\left(1-x^2\right)y_{n+2} - (2n+1)xy_{n+1} - n^2 y_n = 0$ using Leibnitz formula.

27. Sum the series to infinity: $\frac{1\cdot 4}{5\cdot 10} - \frac{1\cdot 4\cdot 7}{5\cdot 10\cdot 15} + \frac{1\cdot 4\cdot 7\cdot 10}{5\cdot 10\cdot 15\cdot 20} - \ldots\infty$

28. a) Evaluate $\int \frac{dx}{e^x + e^{-x}}$ b) Evaluate $\int x^3 \cos 3x \, dx$

**************ALL THE BEST*************

November 2022 2022/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)**–Applicable to candidates admitted in the year 2022

I B.C.A

Mathematical Foundations - I - EIAE4(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks (5X1=5 Marks)

1. A set with no elements is called _____ set.

2. $6P_3$ = _____

3. For a matrix A, If $\overline{A} = A^T$ then A is called _____ matrix.

4. Let $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ then the sum of the eigen values is equal to _____

5. If the values of x are not equidistant, we can apply _____ interpolation.

II. Choose the correct answer (5X1=5 Marks)

6. Which of the following is incorrect

a) $A \cap B = B \cap A$ b) $A \cup B = B \cup A$ c) $A - B = B - A$ d) $(A \cup B)^C = B^C \cap A^C$

7. For what value of r, $5P_r = 5P_{r+1}$

a) 1 b) 2 c) 3 d) 0

8. A square matrix $A = \lfloor a_{ij} \rfloor$ is called a _____ if $(i,j)^{th}$ element of A is equal to the $(j,i)^{th}$ element of A.

a) orthogonal b) unitary c) symmetric d) skew-symmetric

9. '*0*' (zero) is a characteristic root of a matrix if and only if the matrix is _____

a) unit matrix b) singular matrix c) orthogonal matrix d) unitary matrix

10. In interpolation, If n values of $f(x)$ are known generally we assume $f(x)$ as a polynomial of degree

a) 0 b) 1 c) n d) $n-1$

III. Answer the following in One or Two Sentences (5 x 2 = 10 Marks)

11. Define subset and given an example.
12. There are 5 picture nails on a wall and 7 pictures to choose from. In how many different ways can the pictures be hung on all the nails?
13. Define symmetric marix.
14. Find the eigen values of $A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \end{bmatrix}$
15. Define the difference operator Δ.

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I SEMESTER **(Regular)**–Applicable to candidates admitted in the year 2022

I B.C.A

Mathematical Foundations - I - EIAE4(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.**

16. If $A=\{1,4\}$, $B=\{4,5\}$, $C=\{5,7\}$ then find (i) $(A\times B)\cup(A\times C)$ (ii) $(A\times B)\cap(A\times C)$.

17. How many even number of 4 digits can be formed out of the digits 1,2,3,...,9 if the repetition of digits is
    i) not allowed ii) allowed?

18. Show that $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1/2 & -\sqrt{3}/2 \\ 0 & \sqrt{3}/2 & 1/2 \end{pmatrix}$ is orthogonal.

19. Determine the characteristic equation of $A=\begin{pmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{pmatrix}$ and hence find A^{-1}

20. Form a difference table and interpolate the value of $f(x)$ when x=4 given

x	3	5	7	9
$f(x)$	180	150	120	90

21. In a graduate course of 200 students of a college, records indicate 80 students have taken physics, 90 have taken biology, 35 have taken chemistry, 32 have taken both biology and physics, 23 have taken both chemistry and physics, 10 have taken both biology and chemistry, and 8 have taken all the three subjects. How many have not taken any of the three subjects?

22. Two square matrices of order 3 given: $A=\begin{pmatrix} -1 & 1 & 1 \\ 1 & -1 & 1 \\ 1 & 1 & -1 \end{pmatrix}$ and $B=\begin{pmatrix} 0 & 1/2 & 1/2 \\ 1/2 & 0 & 1/2 \\ 1/2 & 1/2 & 0 \end{pmatrix}$. Verify that one is the inverse of the other.

23. Estimate $f(5)$ from the following data:

x	3	4	5	6
$f(x)$	4	13	-	43

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I SEMESTER **(Regular)**–Applicable to candidates admitted in the year 2022

I B.C.A

Mathematical Foundations - I - EIAE4(7)

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.**

24. a) Given $A=\{1,2,3,4\}$ and $B=\{p,q,r,s\}$. Which of the following relations are functions from *A* to *B*:

i) $R_1=\{\langle 1,r\rangle,\langle 2,q\rangle,\langle 3,s\rangle,\langle 4,s\rangle\}$ ii) $R_1=\{\langle 1,r\rangle,\langle 2,s\rangle,\langle 3,q\rangle,\langle 4,p\rangle\}$

iii) $R_3=\{\langle 1,r\rangle,\langle 2,q\rangle,\langle 4,r\rangle\}$ iv) $R_4=\{\langle 1,p\rangle,\langle 2,p\rangle,\langle 3,p\rangle,\langle 4,p\rangle\}$.

b) Given $f(x)=1+x,\ \ g(x)=\frac{1}{x^2}$, verify whether $f\circ g=g\circ f$

25. a) Determine the number of arrangement of 5 boys and 5 girls in a row so that no two girls sit together.

b) In how many different ways can the letters of the word 'POSSESSIVE' be arranged? i) In how many of these will the S's come together? ii) In how many of these will the relative position of vowels and consonants remain unchanged?

26. Obtain the inverse of the matrix $\begin{pmatrix}2&4&-1\\3&1&2\\1&3&-3\end{pmatrix}$ and hence solve the system of equations

$2x+4y-z=9;\ 3x+y+2z=7;\ x+3y-3z=4$

27. Determine the characteristic roots and the corresponding characteristic vectors of $\begin{pmatrix}1&-1&-1\\1&-1&0\\1&0&-1\end{pmatrix}$

28. Use Lagrange's interpolation formula to determine the value of u_4 of a function u_x given that $u_1=10$, $u_2=15$, $u_5=42$.

**************ALL THE BEST**************

April 2023 2022/2021/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2022 & 2021

I & II B.Sc. Computer Science

Mathematics for Computer Science –II – EIIAE8(7)

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks (5X1=5 Marks)

1. The formula for Lagrange's interpolation is _____
2. If the roots of an auxillary equation is imaginary, then the complementary function is _____
3. Two methods to form a partial differential equation are _____ and _____
4. If ∇ X $\vec{F}$= 0 then $\vec{F}$ is _____
5. Find $L^{-1}\left[\frac{s}{s^2+4}\right]$ = _____.

II. Choose the correct answer (5X1=5 Marks)

6. Newton's formula can be applied for _____ interval

   a) Equal b) Unequal c) Even d) None of these

7. What is the particular integral for the differential equation $(D^2 + 5D + 6)y = e^{-3x}$

   a) $-xe^{-3x}$ b) xe^{-3x} c) e^{-3x} d) None of these

8. Lagrange's linear equation is of the form _____

   a) $Pp + Qq = R$ b) $Pp + QR = S$ c) $Pp + Qq = 0$ d) $Pp + Qq = RS$

9. By eliminating the arbitrary constants in $z = ax + by + ab$, the resulting PDE is_____

   a) $z = px + qy + pq$ b) $z = px + qy$ c) $z = pq$ d) None of these

10. Find $L^{-1}[F(s-a)] =$ _____

    a) $e^{-at}L^{-1}(F(s))$ b) $e^{at}L^{-1}(F(s))$ c) $L(F(S))$ d) None of these

III. Answer the following in One or Two Sentences (5X2=10 Marks)

11. Write Newton's Forward difference formula.
12. Solve $(D^2 + 4D + 4)y = 0$.
13. Form the partial differential equation by eliminating the arbitrary functions from $z = f\left(\frac{y}{x}\right)$
14. Prove that $div\vec{r} = 3$.
15. Find $L[cos^2 t]$.

April 2023 2022/2021/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)** – Applicable to candidates admitted in the year 2022 & 2021

I & II B.Sc. Computer Science

Mathematics for Computer Science –II – EIIAE8(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions.

All questions carry equal marks.

16. The population of a country in 5 different years are given below. Estimate the population for the year 1965.

Year, x	1960	1970	1980	1990	2000
Population(in thousands) y	52	66	80	95	107

17. Solve $(D^2 + 6D + 9)y = e^{2x} + cosx$

18. Find the partial differential equation by eliminating the arbitrary function from $z = xy + f(x^2 + y^2 + z^2)$

19. If $\nabla\varphi = 8xy\bar{i} + 4x^2\bar{j} + 3z^2\bar{k}$. Find ϕ.

20. Find $L[te^{-2t}\, cos\, 3t]$

21. Solve $\frac{d^2y}{dx^2} + 4y = cos\, 2\, x$.

22. Find $L^{-1}\left[\frac{s+2}{s(s-1)(s-4)}\right]$

23. Prove that $(i)\ \nabla logr = \frac{\vec{r}}{r^2}$ $(ii)\ \nabla r^n = nr^{n-2}\,\vec{r}$

Section – C

(3 x 15 = 45 Marks)

Answer any three questions.

All questions carry equal marks.

24. Evaluate $f(0.25)$ and $f(0.35)$ from the following table:

x	0.10	0.20	0.30	0.40	0.50
$f(x)$	1.4	1.56	1.76	2	2.28

25. Solve $(D^2 - 3D + 2)y = e^{-2x} + sinx$

26. Find the general solution of $x(z^2 - y^2)p + y(x^2 - z^2)q = z(y^2 - x^2)$.

27. Using Laplace transform, Solve $y''+4y'+4y = \sin x$, $y'(0) = 0$ and $y(0) = 2$.

28. Show that $\vec{F} = (y^2 + 2xz^2)\vec{i} + (2xy - z)\vec{j} + (2x^2z - y + 2z)\vec{k}$ is irrotational and hence find the scalar potential of $\vec{F}$

---------- All the Best ----------

April 2023 2022/2021/UGR/UGA

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)** –Applicable to candidates admitted in the year 2022 & 2021

I & II B.C.A. **Mathematical Foundations-II – EIIAE9(7)**

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks (5X1=5 Marks)

1. The proposition $P \wedge Q$ is true whenever both P and Q are _____.
2. For any positive integer 'n', $nC_r \times r!$=_____.
3. The elements of Boolean algebra are _____.
4. The sum of the degrees of the points of a graph is _____ the number of lines.
5. A $v_0 - v_n$ walk is closed if _____.

II. Choose the correct answer (5X1=5 Marks)

6. Which of the following is a proposition

   a) Read this carefully b) $x + y = z$ c) 2 + 3 = 6 d) What are you doing?

7. If $nC_2 = nC_3$, then the value of n is

   a) 2 b) 3 c) 4 d) 5

8. In a Boolean algebra B, for any $a, b \in B$, $a \cdot (a + b) =$

   a) a b) b c) 0 d) 1

9. A subgraph is called spanning subgraph if

   a) $V \subset V_1$ b) $V \supset V_1$ c) $V = V_1$ d) $V \neq V_1$

10. A cycle of length three is called a

    a) triangle b) square c) rectangle d) diamond

III. Answer the following in one or two sentences (5X2=10 Marks)

11. Define biconditional statement.
12. Show that $nC_r = nC_{n-r}$.
13. Show that $a + (a + b) = a + b$.
14. Define complement of a graph.
15. Define connected graph.

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

II SEMESTER **(Regular & Arrear)** –Applicable to candidates admitted in the year 2022 & 2021

I & II B.C.A. **Mathematical Foundations-II – EIIAE9(7)**

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.**

16. Prove by truth table: $p \to (q \to r) \equiv (p \wedge \neg r) \to \neg q$

17. Out of 4 officers and 10 clerks in an office, A committee consisting of 2 officers and 3 clerks is to be formed. In how many ways can this be done if i) any officer and any clerk can be included ii) one particular clerk must be on the committee iii) one particular officer cannot be on the committee.

18. Prove that $a \cdot b' + b \cdot a' = (a+b) \cdot (a'+b')$

19. Show that the partition $P = \{6,6,5,4,3,3,1\}$ is not graphic.

20. Show that in graph G, any $u - v$ contains a $u - v$ path.

21. Test the validity of the argument:

'If it rains Mahesh will be sick. Mahesh was not sick. Therefore it did not rain'

22. Show that if $a + b = a + c$ and $a \cdot b = a \cdot c$ then b = c and conversely.

23. Every non-trivial connected graph has at least two points which are not cut points.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.**

24. Test the validity of the argument: $p \to \neg q, \neg r \to \neg q \Rightarrow p \to \neg r$.

25. If $(n+1)C_{r+1} : nC_r : (n-1)C_{r-1} = 11:6:3$, find the value of 'n' and 'r'.

26. Find the value of the following Boolean function $f(x,y,z) = [(x+y) \cdot z]' \cdot (x+y)$ for each possible n-tuple. Also express in i) disjunctive normal form ii) conjunctive normal form.

27. Show that the maximum number of lines among all 'p' points graphs with no triangles is $\left[\frac{p^2}{4}\right]$.

28. A graph with at least two points is bipartite if and only if all its cycles are of even length.

********** **All the Best** **********

November 2022 2022/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous),*
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Python Programming – MHIC1(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ is the truncation division operator in Python.
2. _____statement is used to exit out of a loop early.
3. Dictionaries are created by specifying _____.
4. _____refers to the implementation of specific functionality to be incorporated into a program.
5. _____ provides various controls, such as buttons, labels and text boxes used in a GUI application.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Who developed Python Programming Language?
   a) Wick van Rossum b) Rasmus Lerdorf
   c) Guido van Rossum d) Niene Stom
7. What will be the output of the following Python function?
   len(["hello",2, 4, 6])
   a) Error b) 6 c) 4 d) 3
8. Which of the following is a Python tuple?
   a) {1, 2, 3} b) {} c) [1, 2, 3] d) (1, 2, 3)
9. Which of the following is not a valid mode to open a file?
   a) ab b) rw c) r+ d) w+
10. _____ represents an entity in the real world with its identity and behaviour.
    a) A method b) An object c) A class d) An operator

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. How do you define multiple strings?
12. State the purpose of pass statement.
13. Is it possible to modify the data in tuple?
14. What is Package?
15. Define Tkinter.

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Python Programming – MHIC1(8)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Is String immutable data type? Justify. Also explain the string slicing with an example.
17. Write a python program to find factorial for the given number using recursion.
18. State the differences between Lists and Tuples.
19. What is module? Give example for different ways to import module in python?
20. How do you create a Class in python? Give syntax and example.
21. What is variable? Give the rules for naming variables.
22. Experiment in python with Formal and Variable-length arguments.
23. Explain any two Built-in modules with example.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Which are the different types of operators in python language? Explain membership and Identity operators with examples.
25. What are Control structures? Demonstrate with programming examples.
26. What is Dictionary? Explain Python dictionaries in detail discussing its operations and methods.
27. List out keywords used in exception handling and write the difference between error and exception? Explain exception handling in python with example.
28. Discuss about core widgets in GUI. Demonstrate the following with the GUI programming in Python

    i) Circle ii) Triangle iii) Rectangle iv) Square

---------- ***All the Best*** ----------

November 2022 2022/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.Sc.Computer Science

Object Oriented Analysis and Design – MGIC2(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ is the property of object – oriented systems that allows object to be built from other objects.
2. OMT stands for _____.
3. _____ are scenarios that describes how actors use the system.
4. An _____ is a fundamental truth that always is observed to be valid and for which there is no counterexample or exception.
5. A _____ is an abstract representation of a system constructed to understand the system prior to building or modifying it.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. It represents the relationships between objects and classes.
   a) Aggregation b) Inheritance
   c) Encapsulation d) Association
7. It is an instructive information that captures the essential structure and insight of a successful family of proven solutions.
   a) Axiom b) Corollary
   c) Pattern d) Theorem
8. The term represents the role of a user plays with respect to the system.
   a) Container b) Actor
   c) Administrator d) User
9. The connection involves direct reference to attributes or methods of another object, type of coupling is
   a) Content coupling b) Common coupling
   c) Stamp coupling d) Data coupling
10. It is the relationship between a more general class and a more specific class.
    a) Generalization b) Composition
    c) Association d) Aggregation

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.Sc.Computer Science

Object Oriented Analysis and Design – MGIC2(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define Polymorphism.
12. List out the four phases of OMT.
13. What is use – case model?
14. Write the three basic types of attributes.
15. Differentiate static and dynamic model.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Describe about Encapsulation & Information hiding.
17. Discuss about Rumbagh object modelling technique.
18. Explain the use – case driven approach for identifying classes.
19. State various activities of object oriented design process.
20. Write notes on UML Collaboration diagram.
21. How to build high quality software? Explain.
22. Narrate the steps of OOA Process.
23. Why component based development important? Discuss.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain in detail about software development process.
25. Demonstrate various essential components used to read a Pattern.
26. Elaborate the concept of Association.
27. Describe the overview of design axioms.
28. Write notes on the following:
    i) UML Class diagram
    ii) UML Activity diagram

---------- ***All the Best*** ----------

November 2022 2022/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Digital Image Processing(Integrated) – MHIC2(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Noise reduction is obtained by blurring the image using _____.
2. _____is the application of Histogram equalization.
3. _____ filter is known as averaging filters.
4. The operation of taking a corrupt/noisy image and estimating the clean original image is called _____.
5. The data in a file is removed and not restored to its original form after decompression is called _____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Which of the following fact is true for an image?
   a) An image is the addition of illumination and reflectance component
   b) An image is the subtraction of illumination component from reflectance component
   c) An image is the subtraction of reflectance component from illumination component
   d) An image is the multiplication of illumination and reflectance component
7. Which of the following in an image can be removed by using a smoothing filter?
   a) Sharp transitions of brightness levels
   b) Sharp transitions of gray levels
   c) Smooth transitions of gray levels
   d) Smooth transitions of brightness levels
8. Which of the following illustrates three main types of image enhancing functions?
   a) Linear, logarithmic and power law
   b) Linear, logarithmic and inverse law
   c) Linear, exponential and inverse law
   d) Power law, logarithmic and inverse law
9. Thresholding is the example of _____
   a) Discontinuity b) Similarity c) Continuity d) Recognition
10. Which of the following is the abbreviation of JPEG?
    a) Joint Photographic Experts Group
    b) Joint Photographs Expansion Group
    c) Joint Photographic Expanded Group
    d) Joint Photographic Expansion Group

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Digital Image Processing(Integrated) – MHIC2(8)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is sampling?
12. Specify the objective of image enhancement technique.
13. Define 1D Fourier transform.
14. State any two differences between Enhancement and Restoration.
15. What is Lossy compression?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Briefly explain the steps involved in digital image processing.
17. What is histogram? Illustrate on histogram equalization.
18. Formulate homomorphic filtering with an illustration.
19. Classify the types of noise models. Give the relation for Guassian noise.
20. Summarize the principles of JPEG standards.
21. Outline the basic relationships between pixels.
22. Differentiate linear spatial filter and non-linear spatial filter.
23. Explain the algebra approach in image restoration.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. What are different types of color models? Explain the functions of any two in detail.
25. Elucidate the types of gray level transformation used for image enhancement.
26. Elaborate on image enhancement in the frequency domain.
27. Describe in detail about region based segmentation.
28. Explain the functions of image compression model.

---------- ***All the Best*** ----------

November 2022 2022/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.Sc.Computer Science

Advanced Database Management Systems – MGICE1A(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ is collection of interrelated data.
2. _____ command extracts data from a table
3. The _____ is a combination of records and fields.
4. The two types of indexing are _____ and _____.
5. _____ networking is often used for web services, game hosting, and for private networks used in organizations.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Rows of a relation are known as the _____

   a) Degree b) Tuples c) Entity d) Object

7. Which one of the following is a type of Data Manipulation Command?

   a) Create b) Alter c) Delete d) All the above

8. In order to undo the work of transaction after last commit which one should be used

   a) View b) Commit c) Rollback d) Flashback

9. A _____ can either be a request for data results from your database or for action on the data

   a) Query b) Table c) Database d) Dictionary

10. A deadlock exists in the system if and only if the wait-for graph contains a

    a) Cycle b) Direction c) Bi-direction d) Rotation

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define Tuple.
12. Identify the difference between DDL and DML
13. What is called Normal Form?
14. List the use of Dynamic hashing.
15. What is called client server architecture?

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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.Sc.Computer Science

Advanced Database Management Systems – MGICE1A(7)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Describe the E-R Model.
17. Discuss about Set operations
18. Design a query and explain Boycee-Codd Normal Form in it.
19. Enumerate about Query optimization.
20. Explain about Deadlock handling.
21. Elaborate the Storage of files and structures.
22. Summarize the Domain constraints in queries.
23. Explain about Nested subqueries.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Differentiate Database system Vs File systems.
25. Explain the Integrity and Security in RDBMS.
26. Explain 3NF and 4NF with example.
27. Discuss about the Query Processing.
28. Elaborate Database System architecture.

---------- ***All the Best*** ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.Sc. Computer Science **Compiler Design – MGIIC4(7)**

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. A _____ is a logically cohesive operation that takes as input one representation of the source program and produces as output another representation.
2. CFG Stands for _____.
3. Find the postfix form of Infix expression a * (b + c) is _____.
4. It is useful to portray the basic blocks and their successor relationship by a directed graph called a _____.
5. Good code generation requires an intimate knowledge of the _____.

II. Choose the correct answer **(5X1=5 Marks)**

6. In NFA, the nodes are called
   a) Transitions b) States c) Cell d) Sectors
7. It is an efficient way of implementing recursive – descent parsing by handling the stack of activation records explicitly.
   a) Predictive parser b) LR Parser
   c) LALR Parser d) Shift Reduce Parser
8. The simplest way to implement a symbol table is as a linear array of
   a) Files b) Attributes
   c) Records d) Fields
9. DAG stands for
   a) Directed Acyclic Graph b) Directed Access Graph
   c) Directed Active Graph d) Distance Acyclic Graph
10. It works by looking at the intermediate or object code within a small range of instructions.
    a) Peephole optimization b) Loop optimization
    c) Code optimization d) Data optimization

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
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II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.Sc. Computer Science **Compiler Design – MGIIC4(7)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. Define Translator.
12. Identify the four quantities of a grammar.
13. What is syntax tree?
14. Write any two examples of syntactic error.
15. List out the structured flow – of – control statements.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Construct an NFA from a regular expression with an example.
17. Explain shift – reduce – parsing with suitable example.
18. Examine various types of Three – Address statements.
19. Summarize various sources of errors.
20. Analyze various problems in code generation.
21. Discuss briefly role of lexical analyzer.
22. Outline Parse trees.
23. Narrate Boolean expression.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Describe various phases of compiler with neat sketch.
25. Explain operator precedence parsing with an example.
26. Analyze various data structures of a symbol table.
27. Analyze principle sources of optimization.
28. Elaborate Peephole optimization.

---------- All the Best ----------

April 2023 2022/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.Sc. Computer Science

Artificial Intelligence and Deep Learning – MGIICE2A(7)

I M.C.A. **Artificial Intelligence and Deep Learning - MHIICE2A(8)**

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. _____ is inventor of Artificial Intelligence.
2. A well-formed formula (wff) is a sentence containing no _____ variables.
3. A Bayesian network is a probability model defined over an _____.
4. Leaky ReLU activation function is _____.
5. _____ provides the visualization and tooling in Tensorflow.

II. Choose the correct answer **(5X1=5 Marks)**

6. Which of the following are examples of heuristic searches?

(i) Best first search (ii) A* algorithm (iii) Hill climbing

a) (i) &(ii) b) (ii) & (iii) c) (i) & (iii) d) All of the mentioned

7. Sun rises in the East and sets in the West is an example for_____.

a) Non-monotonic reasoning b) Monotonic reasoning

c) Abductive reasoning d) None of the mentioned

8. What is the form of Fuzzy logic?

a) Two-valued logic b) Crisp set logic

c) Many-valued logic d) Binary set logic

9. In sigmoid(logistic) function when WTX=0, then sigmoid value is equal to _____.

a) 0 b) 1 c) infinity d) 0.5

10. In a neural network, which of the subsequent strategies is used to deal with over fitting in TensorFlow?

a) Regularization b) Batch Normalization

c) Dropout d) All of the above

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II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.Sc. Computer Science

Artificial Intelligence and Deep Learning – MGIICE2A(7)

I M.C.A. Artificial Intelligence and Deep Learning - MHIICE2A(8)

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. List the problem characteristics.
12. Specify the different types of knowledge.
13. Define fuzzy logic.
14. What is deep learning?
15. Mention about tensorflow variables.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Discuss the significances of state space.
17. Illustrate on quantifiers.
18. Explain about Dempster-Shafer Theory.
19. Give a detailed study on sigmoid function, its applications and issues.
20. Discuss about computing loss function in tensorflow.
21. Explain about production systems and its components with suitable examples.
22. Discuss about methods for knowledge representation.
23. Explain about forward propagation in ANN.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain in detail about Hill climbing.
25. Elaborate the principles of BFS and its implementation.
26. What is minimax search procedure? Explain with its algorithm and example.
27. Elaborate the functions of the following:
    a) Leaky RLU function b) Softmax function
28. Explain about tensorflow and mathematical operations in tensorflow.

---------- All the Best ----------

November 2022 2021/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc.Computer Science

Data Mining and R Programming(Integrated) – MGIIIC8(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ and knowledge representation techniques are used to present the mined knowledge to the user.
2. _____ regression involves finding the best line of fit for two attributes.
3. _____ and confidence are two measures of rule interestingness.
4. _____ learns by iteratively processing a data set of training tuples, comparing the networks prediction for each tuple with the actual known target value.
5. _____ usage mining is to mine user's interaction history and search content on the client side to extract useful information for the ranking accuracy for the given user.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. _____ are data elements that cannot be grouped in a given class or cluster.

   a) patterns b) knowledge c) entities d) outliers

7. _____ Normalization performs a linear transformation on original data.

   a) min-max b) z-score c) decimal scaling d) chi-squared

8. A typical example of _____ itemset mining is market basket analysis.

   a) frequent b) collective c) open d) closed

9. Bayesian classifiers are _____ classifier.

   a) statistical b) mathematical c) probability d) random

10. _____ data is generally used in Real-time systems, for example, Railway Seat Reservation, Sensex, Weather forecasting, etc.

    a) spatial b) temporal c) unstructured d) structured

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc.Computer Science

Data Mining and R Programming(Integrated) – MGIIIC8(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define Data Mining.
12. State the three methods to handle noisy data.
13. Give an example for Association rule mining.
14. What is Classification?
15. Specify spatial data mining.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Outline the major issues in data mining.
17. How to handle missing values in preprocessing? Explain.
18. Explain about Multilevel Association.
19. Highlight the issues regarding classification and prediction.
20. Elucidate on data transformation by normalization.
21. Analyze the various types of graphs for the display of data summary and distribution.
22. Describe about the classification by decision tree induction.
23. Summarize the various text mining approaches.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elucidate on data mining functionalities in detail.
25. Explain about dimensionality reduction strategies in detail.
26. Analyze Apriori Algorithm with examples.
27. Describe about other classification methods used in data mining.
28. Elaborate on density based clustering in detail.

---------- ***All the Best*** ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc.Computer Science

Advanced Java(Integrated) – MGIIIC9(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. _____ is an object which contains elements of a similar data type.
2. The _____ is one of the powerful mechanism to handle the runtime errors
3. _____ is an API to develop Graphical User Interface (GUI) or windows-based applications in Java.
4. _____ is a part of Java Foundation Classes (JFC) that is used to create window-based applications.
5. A _____ object is a table of data representing a database result set, which is usually generated by executing a statement that queries the database.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. _____ was a modular, extensible web browser from Sun Microsystems implemented in Java.

   a) hot java b) java c) chrome d) opera

7. An _____ has static constants and abstract methods.

   a) swing b) interface c) applet d) java

8. The _____ package provides many event classes and Listener interfaces for event handling.

   a) java.awt.event b) java.awt.awt c) java.awt,applet d) java.awt.swing

9. Java Desktop class provide an _____ method to open a file.

   a) open() b) openf() c) openj() d) app()

10. _____ technology is used to create web application just like Servlet technology.

    a) JSP b) C c) C++ d) Pascal

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc.Computer Science

Advanced Java(Integrated) – MGIIIC9(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Give the naming convention of Java variable.
12. What is Inheritance?
13. Define thread.
14. Define writer class.
15. Define Servlets.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain about Java Datatypes.
17. How do you handle runtime errors in Java?
18. Illustrate built-in Graphical functions.
19. How do you read and wirte console I/O.
20. Write notes on Sessions, Cookies and Tomcat.
21. Elucidate Multiple Inheritance.
22. What are AWT controls? Write in brief.
23. Explain about the life cycle of the servlet.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate classes in Java. Give example.
25. Explain about the packages in java.
26. Describe in detail about the Layout Managers.
27. Explain in detail about Swing.
28. Write a program of JDBC connectivity with the Databases.

---------- ***All the Best*** ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc.Computer Science

Mobile Computing - MGIIICE3A(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. MAC stands for _____.
2. Tunneling is required in case of _____.
3. The 2G communication was introduced in the market in _____.
4. _____ is a Packet Oriented mobile data Standard in mobile communication.
5. _____ is a Unix derived operating system powering iphones.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Mobile Computing allows transmission of data from one wireless-enabled device to another
   a) Bluetooth device b) Wired device
   c) Wireless-enabled device d) None of the above
7. Which of the following uses wireless as the mode of communication for transferring or exchanging data between various mobiles over a short-range?
   a) Ad hoc computing b) Mobile computing
   c) Bluetooth technology d) Wireless
8. Which of the following is not a standard of 3G?
   a) UMTS b) CDMA2000 c) TD-SCDMA d) LTE
9. These services of GSM permit transparent and non-transparent, synchronous or asynchronous data transmission.
   a) Bearer services b) Teleservices
   c) Supplementary services d) None of the above
10. The drawbacks of all the Mobile devices and Wireless devices are:
    a) It requires a big source of power b) It has smaller keypads
    c) It rapidly consumes power d) All of the above

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc.Computer Science

Mobile Computing - MGIIICE3A(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Why is MAC important in wireless network?
12. Define mobile network.
13. What are the function of mobile transport layer?
14. Full form of GSM.
15. Name of any two commercial mobile operating systems.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the characteristics of Mobile computing.
17. Brief notes on mobile packet delivery.
18. Differentiate between the TCP over2.5/3G wireless networks.
19. Describe about the general packet radio service.
20. Discuss about the software development kit in Android.
21. Illustrate the structure of Mobile Computing Application.
22. Determine the goal of mobile IP.
23. Write short note on performance enhancing proxies.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Difference between the Mobile computing and wireless networking.
25. Define the following terms
    1. Tunneling 2. Reverse tunneling.
26. Elaborate the Snooping Mobile TCP.
27. Discuss about the universal mobile telecommunication system.
28. Describe about the Mobile Device Operating Systems.

---------- ***All the Best*** ----------

April 2023 2021/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc Computer Science **Cloud Computing - MGIVC10(7)**

II M.C.A. **Cloud Computing - MHIVC9(8)**

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. _____ phases are there in Cloud Computing Planning.
2. An application that provides for transaction overflow in a reservation system is an example of _____
3. _____ architectural standards is working with cloud computing industry.
4. _____ monitors the performance of the major cloud-based services in real time in Cloud Commons.
5. _____ is a type of cloud computing service.

II. Choose the correct answer **(5X1=5 Marks)**

6. What type of computing technology refers to services and applications that typically run on a distributed network through virtualized resources?
   a) Distributed Computing b) Cloud Computing
   c) Soft Computing d) Parallel Computing
7. Which one of the following cloud concept is related to sharing and pooling the resources?
   a) Polymorphism b) Virtualization
   c) Abstraction d) None of the mentioned
8. What is Business Architecture Development?
   a) We recognize the risks that might be caused by cloud computing application from a business perspective
   b) We identify the applications that support the business processes and the technologies required to support enterprise applications and data systems
   c) We formulate all kinds of plans that are required to transform the current business to cloud computing modes
   d) None of the above
9. This phase involves selecting a cloud provider based on the Service Level Agreement (SLA), which defines the level of service the provider receives.
   a) Maintenance and Technical Service b) Selecting Cloud Computing Provider
   c) Both A and B d) None of the above
10. Which one of the following is related to the services provided by Cloud?
    a) Sourcing b) Ownership c) Reliability d) PaaS

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II M.Sc Computer Science **Cloud Computing - MGIVC10(7)**
II M.C.A. **Cloud Computing - MHIVC9(8)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. Define Cloud computing.
12. What is Public key Infrastructure?
13. Mention the steps in testing.
14. What is Validation represent?
15. Name the various elements for computer based system.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Write short notes on origins of cloud computing.
17. Differentiate Symmetric and Asymmetric Encryption.
18. Discuss on Specialized Cloud Architectures.
19. Summarize the Billing Management System.
20. Describe about SLAs.
21. Discuss on Service Quality Metrics and Service Performance Metrics.
22. Justify the importance of Cloud-Based Security Groups.
23. Explain about Cloud Deployment Models.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain in detail about Cloud Delivery Models.
25. Elaborate the Cloud Security Mechanism.
26. Summarize the Fundamentals of Cloud Architectures.
27. Explain the Cloud Management Mechanism.
28. Elucidate the cloud provisioning contracts.

---------- All the Best ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc. Computer Science **Android Programming – MGIVC11(7)**

II M.C.A. **Android Programming – MHIVC10(8)**

Time: Three Hours **Maximum Marks : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. ____ method invokes another activity but does not return a result to current activity.
2. Android supports two screen orientations such as portrait and _____
3. The _____ is a view that shows items in a center-locked, horizontal scrolling list.
4. Using the _____ class, to send SMS messages from within your applications without the need to involve the built-in messaging application.
5. A ____ is an application in Android that runs in background without user interaction.

II. Choose the correct answer **(5X1=5 Marks)**

6. Notification Manager is used to display persistent message at the top of the device called as _____

   a) Scroll b) Menu bar c) Status bar d) Tool bar

7. _____ is a widget that has appearance of screen.

   a) Layout b) Screen c) Group d) View

8. To retrieve all contacts in the contacts table ____ method of DBAdapter class is used.

   a) getAllContact b) getContact c) insert_contact d) update_contact

9. Gmail/Email Application on Android enables to configure an e-mail accounting using _____

   a) HTTP b) POP3 c) FTP d) TCP

10. Once your Android application is signed, deploy it to emulators and devices using the ____ tool.

    a) adb.exe b) adl.exe c) adx.exe d) emu.exe

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc. Computer Science **Android Programming – MGIVC11(7)**

II M.C.A. **Android Programming – MHIVC10(8)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. What does Android SDK Contains?
12. Define Activity in Android.
13. List any three useful content providers.
14. State JSON.
15. Mention the two methods used in thread to begin and end services.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Describe the Anatomy of an Android Application.
17. Discuss about Picker Views.
18. Oultine on persisting data to files.
19. Illustrate on sending SMS messages Programmatically.
20. How will you deploy Apk files? Explain.
21. Explain how will you display a long list of views using ListView class.
22. Compose about Pre-creating the database.
23. Narrate on sending E-Mail in Android.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain the steps to create the android application with suitable example.
25. Discuss about Basic Views in detail.
26. Describe on creating Menus with View. Explain with example.
27. Illustrate on Consuming Web Services using HTTP in Networking.
28. Summarize on creating your own Services in Android.

---------- All the Best ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc. Computer Science **Big Data Analytics – MGIVCE5A(7)**

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. Big data generates _____ from the storage.
2. _____ is a process of extracting useful knowledge from continuous rapid data streams.
3. _____ framework allows distributed processing of large datasets.
4. _____ is the default output format of Hadoop.
5. Pig is a _____ language for exploring large datasets.

II. Choose the correct answer **(5X1=5 Marks)**

6. Which of the below is not a type of Big Data?

a) Structured b) Hybrid c) Unstructured d) Patterns

7. Identify the type of Query over Data Streams

a) Continuous b) Multiple c) SubQuery d) None of the Above

8. Size of a very large file will be of _____ bytes.

a) Mega b) Tera c) Peta d) All of the Above

9. The default memory buffer size of Map task is _____ MB.

a) 200 b) 100 c) 150 d) 500

10. _____ is a framework for Data warehousing.

a) Hadoop b) Pig c) Hive d) HBase

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. What is Big Data?
12. Define Concept Drift.
13. List the components of Hadoop.
14. Specify the types of Failures Hadoop handles.
15. State the advantages of Pig over MapReduce.

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.Sc. Computer Science **Big Data Analytics – MGIVCE5A(7)**

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Describe the characteristics of the Big Data.
17. Outline about any three issues in Data Stream Query Processing.
18. Explain how data is analyzed using Map and Reduce.
19. Define a Counter. Discuss about the built in counters of Hadoop.
20. Categorize the relational operators in Pig Latin scripts.
21. Compare the Visual Data Analysis Techniques: Boxplot – Histogram and Heatmap.
22. Draw the sequence of events when reading a file in HDFS and explain the same.
23. What is Zookeeper? Enumerate the characteristics of it.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Compare and Contrast the Modern Data Analytic Tools.
25. Give the characteristics of Data Stream Model.
    Illustrate the abstract architecture of a typical Data Stream Management Systems.
26. Highlight the importance of Namenodes and Datanodes of HDFS.
27. With a neat diagram show how Hadoop runs a MapReduce job.
28. Compare and Contrast SQL and HiveQL.

---------- All the Best ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Advanced Data Structures – MHIC3(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. The logical or mathematical model of a particular organization of data is called _____
2. The technique of collecting the deleted space into free storage list is called _____
3. Two operations involved in stack are _____ and _____
4. A terminal node is called _____
5. The depth-first search will use _____ data structure

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. The process of combining two lists into a single list is called _____

   a) Traversal b) Sorting c) Merging d) Searching

7. When a new data is to be inserted, there is no available space is called _____.

   a) underflow b) overflow c) free pool d) none

8. A _____ is a collection of elements and it has assigned a priority.

   a) Stack b) Queue c) Priority queue d) Deque

9. An edge e has identical end points is called _____

   a) multiedges b) multigraph c) loop d) none

10. The worst case for insertion algorithm is _____

    a) $o(n^2)$ b) o(n) c) log(n) d) $\log(n^2)$

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. List the cases for investigating the complexity of an algorithm
12. How you will represent linked list in memory?
13. Define queue.
14. What do you mean by binary tree?
15. What is known as Hashing?

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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Advanced Data Structures – MHIC3(8)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Define Data Structure. Identify the operations involved in Data Structure.
17. What is called Two-way Lists? Explain the various operations involved in Two-way lists.
18. Define Recursion. Compute the solution of the problem to the towers of Hanoi with number of disks = 3.
19. Discuss how you will represent binary trees in memory.
20. Describe warshall's algorithm to find the path matrix of the graph.
21. Write an algorithm to count the number of nodes in a linked list.
22. Interpret the various representation of graphs.
23. Explain how you will perform Insertion Sort with an example.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Discuss in detail about the algorithm for insertion and deletion of an elements in a linear array with an example.
25. Summarize an algorithm to insert an element in the linked list.
26. Analyze the use of stack in evaluating the given infix expression ((A+B)/D) ((E-F)*G).
27. Narrate the steps involved in traversing a graph using BFS.
28. Discuss how Binary Search will work with an example.

---------- ***All the Best*** ----------

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CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A. **Advanced Java - MHIIC4(8)**

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. Arrays in java are _____.
2. _____ Keyword must be used to inherit a class.
3. A _____ dictates the style of arranging the components in a container.
4. _____ Methods can be used to know which key is pressed.
5. _____ is the dynamic interception of requests and responses to transform the information done.

II. Choose the correct answer **(5X1=5 Marks)**

6. Who invented Java programming?
   a) Guido van Rossum b) James Gosling
   c) Dennis Ritchie d) Bjarne Stroustrup
7. Which of these is correct way of inheriting class A by class B _____.
   a) class B + class A {} b) class B inherits class A {}
   c) class B extends A {} d) class B extends class A {}
8. The subclass of a java.awt.Component class is known as _____.
   a) System b) Component
   c) Container d) Component Manager
9. How constructor can be used for a servlet?
   a) Initialization b) Constructor function
   c) Initialization and Constructor function d) Setup() method
10. “request” is instance of which one of the following classes?
    a) Request b) HttpRequest
    c) HttpServletRequest d) ServletRequest

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CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A. **Advanced Java - MHIIC4(8)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. How are variables and constants important in developing Java programs?
12. List the difference between C++ and Java.
13. Write the steps to connect database in JDBC.
14. What is the use of print writer class?
15. What is Multithreading?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Develop a Java program to display smallest number. Include 2 methods display() and smallest () and call the method through object.
17. Define Packages. Create a package to implement the palindrome checking by using String functions.
18. Explain the importance of Single Inheritance and Multilevel inheritance with example.
19. What is AWT? How windows, graphics and text used in AWT?
20. Discuss about Swings with example.
21. Analyze For, while and do loop with illustration.
22. What is called Interface? Create an Employee Interface and find the bonus of an employee based on the designation of an Employee.
23. What is the use of JSP? Explain its JSP Tags.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Analyze the use of different operators used in Java programs with an example.
25. What is called an Exception? Explain the different types of Exception handled in Java.
26. Explain the use of multithread concepts with illustration.
27. Discuss about reading and writing the files with example.
28. Explain in detail about the life cycle of a servlet.

---------- All the Best ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Digital Logic and Computer Organization – MHICE1A(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Each number system various in their _____.
2. A logic circuit that can store one bit of information is called _____.
3. In CISC architecture most of the complex instructions are stored in _____.
4. The return address from the interrupt service routine is stored on the _____.
5. The binary address used for data and instructions are called as _____.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Which of these sets of gates are called Universal gates?
   a) XOR, NAND, OR b) OR, NOT, XOR
   c) NOR, NAND, XOR d) NOR, NAND
7. In a multiplexer, the selection of a particular input line is controlled by
   a) Data controller b) Selected lines
   c) Logic gates d) Combinational circuit
8. RISC stands for
   a) Remainder Instruction Set Computer b) Recycle Instruction Set Computer
   c) Reduced Instruction Set Computer d) Ready Instruction Set Computer
9. Interrupt forms an important part of
   a) Batch processing system b) Multitasking system
   c) Real-time processing system d) Multi-user system
10. The technique which moves the program blocks to or from the physical memory is called
    a) Paging b) Virtual Memory organization
    c) Overlays d) Framing

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I SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A

Digital Logic and Computer Organization – MHICE1A(8)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define Boolean Algebra.
12. What is combinational circuit?
13. List the functions of register stack.
14. How does strobe control function?
15. Identity the use of cache memory.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Solve the Boolean function

    F (A, B, C, D) =∑(0,2,4,6,8,10,12,13,14,15) using K-map.

17. Explain JK flip flop with its excitation table.
18. Illustrate with examples the data transfer and data manipulation instructions.
19. Analyze the working of memory mapped I/O.
20. Sketch in detail the importance of ROM and RAM chips.
21. Determine NAND and NOR are Universal gates.
22. Explain the working principles of 8to1 Multiplexer.
23. Discuss about Reduced Instruction Set Computer in detail.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Solve the give Boolean Function

    F(w,x,y,z) =∑(2,6,8,9,10,11,14,15) using tabulation method.

25. Elaborate on Subtractors and Binary Ripple Counter.
26. Classify and explain the various Instruction formats with examples.
27. Enumerate the functions of priority interrupts in detail.
28. Determine the working of multiport memory and crossbar switch network.

---------- ***All the Best*** ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022

I M.C.A.

Advanced Database Management Systems(Integrated)-Theory - MHIIC5T(8)

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.
2. SQL stands for _____.
3. The _____ is the fastest and most costly form of storage, which is relatively small; its use is managed by the computer system hardware.
4. A _____ is a query that retrieves rows from more than one table or view.
5. _____ states that only valid data will be written to the database.

II. Choose the correct answer **(5X1=5 Marks)**

6. One of the following is a set of one or more attributes taken collectively to uniquely identify a record.
   a) Candidate key b) Sub key
   c) Super key d) Foreign key
7. It is a special kind of a store procedure that executes in response to certain action on the table like insertion, deletion or updation of data.
   a) Procedures b) Triggers
   c) Functions d) None of the mentioned
8. Which is the cheapest memory device in terms of costs/ bit?
   a) Semiconductor memory b) Magnetic disks
   c) Compact disks d) Magnetic tapes
9. How many join types in join condition:
   a) 2 b) 3 c) 4 d) 5
10. Identify the characteristics of transactions
    a) Atomicity b) Durability c) Isolation d) All of the above

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CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A.
Advanced Database Management Systems(Integrated)-Theory - MHIIC5T(8)

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. Define DBMS.
12. Illustrate the structure of SQL SELECT.
13. State Decomposition.
14. What is hashing?
15. Tell about recoverability.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Compare database systems vs. file systems.
17. State & explain various aggregate functions in SQL.
18. Examine the concept of First normal form.
19. Compose your views on static hashing.
20. Illustrate server system architecture.
21. Explain the basic concept of E – R model.
22. Summarize the concept of Triggers.
23. Narrate properties of decomposition.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate on database users and administrators.
25. Explain the following with examples:
    i) Nested sub query
    ii) Set operations.
26. Discuss in detail about BCNF with suitable example.
27. Make a detailed note on Query processing.
28. Illustrate on Client / Server architecture.

---------- All the Best ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A. **Operating Systems – MHIIC6(8)**

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. _____ scheduling is used when processes in the ready queue can be divided into different classes where each class has its own scheduling needs.
2. A _____ is a situation where each of the computer process waits for a resource which is being assigned to some another process.
3. A _____ is malicious code that replicates by copying itself to another program, computer boot sector which changes how a computer works.
4. A _____ refers to a single sequential flow of activities being executed in a process.
5. _____ a program that runs continuously as a background process and wakes up to handle periodic service requests.

II. Choose the correct answer **(5X1=5 Marks)**

6. _____ is an essential part of a Multiprogramming operating systems.

   a) Process scheduling b) System c) Directory d) None

7. _____to boost the performance of multiple CPUs within a single computer system.

   a) Spooling b) Multiprocessors c) Deadlock d) All the above

8. _____ allows you to store usernames, passwords or password hashes and optional meta-data in a file that will be used to authenticate incoming connections.

   a) File organization b) File authentication c) File structure d) File stream

9. _____ refers to the ability of a system to continue operating without interruption when one or more of its components fail.

   a) Paging b) Operations c) Fault tolerance d) Deadlock

10. A _____ is associated with a particular hardware device or other resource of the computer system.

    a) Regular files b) Directory files c) Special files d) Batch files

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CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A. **Operating Systems – MHIIC6(8)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. What is inter-process communication?
12. Define paging.
13. Define Trojan Horses.
14. What is Sequoia system?
15. Identify how security is handled in UNIX.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain about the life cycle of the process.
17. Illustrate Deadlock detection and recovery.
18. Explain in brief about the attacks from outside the system.
19. Explain about the methodologies followed for process synchronization.
20. Discuss about security in UNIX.
21. Explain about the clock page replacement algorithm.
22. Explain about process synchronization.
23. Discuss about the life cycle of process.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain the Round-Robin and FCFS scheduling algorithm.
25. Analyze the various types of directory structure.
26. Briefly explain about the Bakers Algorithm.
27. Determine the structure of multiprocessor operating system.
28. Explain UNIX file system.

---------- All the Best ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A.

Big Data Analytics using R(Integrated) – MHIIIC7(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Data Analytics uses _____ to get insights from data.
2. _____ visual analytics uses intelligent Auto charting to create best possible visual based on selected data.
3. Sharding a database across many server instances can be achieved with _____.
4. Hadoop is a framework that works with a variety of related tools. Common cohorts include: _____.
5. R is a _____ Programming language.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. To glean insights from the data, many analysts and data scientists rely on _____.
   a) Data mining b) Data visualization
   c) Data warehouse d) All of the mentioned above
7. Which of the following is not a NoSQL database?
   a) SQL Server b) MongoDB
   c) Cassandra d) None of the mentioned
8. Which one of the following refers to querying the unstructured textual data?
   a) Information access b) Information update
   c) Information retrieval d) Information manipulation
9. Which of the following is the descriptive model _____.
   a) Classification b) Regression
   c) Association rule d) Sequence discovery
10. The function takes an arbitrary number of arguments and concatenates them one by one into character strings
    a) Copy () b) Paste ()
    c) Bird() d) Del()

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III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A.

Big Data Analytics using R(Integrated) – MHIIIC7(8)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What are the types of Big Data?
12. Define Eco System.
13. Identify any three operations of Data visualization.
14. List any two differences between Social Media and Text mining.
15. What are R Data types?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Enumerate the Structuring of Big Data.
17. How to integrate Distributed and parallel computing for Big Data.
18. Compare Reporting and Analysis.
19. Write note about Social Media and key elements of Social Media.
20. List and explain various types of Data Visualizations in R.
21. Why Hadoop is called a Big Data Technology.
22. Illustrate on R Data frames.
23. Summarize the challenges in Mobile Analytics.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Evaluate the Uses of Big Data in Social Networking.
25. Describe the Distributed and Parallel Computing for Big Data.
26. Discuss about analytical approaches and tools used to analyze data.
27. Illustrate on Text Mining and its process in detail.
28. Elaborate on different types of R File formats.

---------- ***All the Best*** ----------

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JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A.

Web based Application Development – MHIIIC8(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. The full form of CSS is _____.
2. Javascript is an _____ language.
3. PHP stands for _____.
4. How many catch blocks can be used with a single try block in C# _____?
5. _____ Object is used to fill a DataSet/Data Table with query results in ADO.net.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Which of the following property is used to align text in CSS

   a) text-align b) text-alignment c) text d) text-position

7. Which of the following keyword is used to define a variable in JavaScript

   a) var b) let c) Both a & b d) None of the above

8. Which of the following function is used to set cookie in PHP

   a) createcookie() b) setcookie() c) makecookie() d) None

9. C# programming language is used to develop

   a) Web apps b) Desktop apps c) Mobile apps d) All of the above

10. To check the status of the connection _____ property is useful.

    a) ConnectionStatus b) Status c) State d) ConnectionState

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define XML.
12. What is Java Script?
13. State on array.
14. Define Exception in C#.
15. What is AJAX?

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A.

Web based Application Development – MHIIIC8(8)

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Discuss about Cascading Style Sheets with an example.
17. Explain Document Object Model with suitable examples.
18. Illustrate on Servlet API.
19. Define an Array? Explain about the types of Arrays in PHP with an example.
20. What is Data Adapter? Explain.
21. Describe the Architecture of .Net frame work with neat diagram.
22. Explain the procedure for validating the XML Documents.
23. Discuss about validation control in Asp .net.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Elaborate on XML Schema with an example.
25. Discuss various operators and data types available in java script with examples.
26. Explain the predefined and user defined functions in PHP with an example.
27. Illustrate Exception handling in C# with suitable Example.
28. What are the types of Data binding? Explain in detail.

---------- ***All the Best*** ----------

April 2023 2022/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A. **Advanced Java - MHIIC4(8)**

Time: Three Hours **MAXIMUM MARKS: 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. Arrays in java are _____.
2. _____ Keyword must be used to inherit a class.
3. A _____ dictates the style of arranging the components in a container.
4. _____ Methods can be used to know which key is pressed.
5. _____ is the dynamic interception of requests and responses to transform the information done.

II. Choose the correct answer **(5X1=5 Marks)**

6. Who invented Java programming?
   a) Guido van Rossum b) James Gosling
   c) Dennis Ritchie d) Bjarne Stroustrup
7. Which of these is correct way of inheriting class A by class B _____.
   a) class B + class A {} b) class B inherits class A {}
   c) class B extends A {} d) class B extends class A {}
8. The subclass of a java.awt.Component class is known as _____.
   a) System b) Component
   c) Container d) Component Manager
9. How constructor can be used for a servlet?
   a) Initialization b) Constructor function
   c) Initialization and Constructor function d) Setup() method
10. “request” is instance of which one of the following classes?
    a) Request b) HttpRequest
    c) HttpServletRequest d) ServletRequest

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
II SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2022
I M.C.A. **Advanced Java - MHIIC4(8)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. How are variables and constants important in developing Java programs?
12. List the difference between C++ and Java.
13. Write the steps to connect database in JDBC.
14. What is the use of print writer class?
15. What is Multithreading?

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Develop a Java program to display smallest number. Include 2 methods display() and smallest () and call the method through object.
17. Define Packages. Create a package to implement the palindrome checking by using String functions.
18. Explain the importance of Single Inheritance and Multilevel inheritance with example.
19. What is AWT? How windows, graphics and text used in AWT?
20. Discuss about Swings with example.
21. Analyze For, while and do loop with illustration.
22. What is called Interface? Create an Employee Interface and find the bonus of an employee based on the designation of an Employee.
23. What is the use of JSP? Explain its JSP Tags.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Analyze the use of different operators used in Java programs with an example.
25. What is called an Exception? Explain the different types of Exception handled in Java.
26. Explain the use of multithread concepts with illustration.
27. Discuss about reading and writing the files with example.
28. Explain in detail about the life cycle of a servlet.

---------- All the Best ----------

November 2022 2021/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A.

Computer Networks – MHIIICE4A(8)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. Physical or logical arrangement of network is called _____.
2. _____ performs the most reliable node to node delivery of data.
3. Transport layer protocols deals with _____ communication.
4. The network layer is concerned with _____ of data.
5. In _____ cryptography, the same key is used in both directions.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Which layer contains the HTTP protocol

   a) Datalink Layer b) Session layer c) Application Layer d) Physical layer

7. The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called

   a) Parity check b) Cyclic redundancy check

   c) Piggybacking d) Fletcher's checksum

8. Which of the following routing algorithms can be used for network layer design?

   a) Link state routing b) distance vector routing

   c) Shortest path algorithm d) All the above

9. Transport layer aggregates data from different applications into a single stream before passing it to _____.

   a) network layer b) data link layer c) application layer d) physical layer

10. Application layer offers _____ service.

    a) End to end b) Process to process

    c) Both End to end and Process to process d) None of the mentioned

November 2022 2021/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A.

Computer Networks – MHIIICE4A(8)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What is protocol?
12. What is framing?
13. Define multicast routing.
14. State congestion control.
15. Define DNS.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Discuss briefly about OSI reference Model.
17. State the principles of sliding window protocol.
18. Compare Virtual-Circuit and Datagram Subnets.
19. Discuss in detail about the elements of transport protocol.
20. What is Digital signature? Explain the concept briefly.
21. Sketch the function of any two guided transmission media.
22. What is tunneling and fragmentation? Explain.
23. Explain briefly about Electronic Mail Architecture and Services.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Discuss in detail about Network hardware.
25. Explain in detail about error detection and correction.
26. Elucidate about the routing algorithm and justify any two Effective Routing algorithms in computer networks
27. Explain in detail about TCP service model.
28. Determine the benefits of Cryptography and explain any one Symmetric Key algorithm.

---------- ***All the Best*** ----------

April 2023 2021/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A. Cost and Management Accounting – PIVAE2(7)

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1 = 5 Marks)**

1. Overheads Cost is the total of all _____ costs.
2. Cost of sales plus profit is _____.
3. Cash flow includes cash inflows and cash _____.
4. _____ is the difference between current assets and current liabilities.
5. Budgeting involves estimation of Revenue and _____.

II. Choose the correct answer **(5 x 1 = 5 Marks)**

6. Sunk Cost is a cost relating to
   a) The Present b) Future
   c) Past d) Tax
7. Tender is an
   a) Estimation of Cost only b) Estimation of Selling Price
   c) Estimation of Profit only d) None of these
8. Cash from operating activities include
   a) Cash from business activities
   b) Borrowings from outside sources
   c) Sale of fixed assets
   d) Cash from business activities and changes in current assets and liabilities
9. 'Ratio analysis' involves the process of
   a) Recording b) Computation
   c) Relationship between two items d) None of these
10. A flexible budget is _____
    a) Budget for different departments b) Budget for different capacity levels
    c) Budget for receipts and payments d) None of the above

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A. Cost and Management Accounting – PIVAE2(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. Define Cost Accounting.
12. List the components of Prime Cost.
13. State the importance of Cash flow statement.
14. What is Ratio Analysis?
15. Explain the term 'Budgetary Control'.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Explain the significance of Cost Accounting.
17. From the following information prepare a cost sheet for the month of January.

Stock of raw materials on 1st January	25,000
Stock of raw materials on 31st January	26,200
Purchase of raw materials	21,900
Carriage on purchases	1,100
Sale of finished goods	72,300
Direct wages	17,200
Non-Productive wages	800
Direct expenses	1,200
Factory overheads	8,300
Administrative overheads	3,200
Selling Overheads	4,200

18. From the following balances you are required to calculate cash from operating activities.

	31-12-2021 Rs.	31-12-2022 Rs.
Debtors	50,000	47,000
Bills receivable	10,000	12,500
Creditors	20,000	25,000
Bills payable	8,000	6,000
Outstanding expenses	1,000	1,200
Prepaid expenses	800	700
Accrued income	600	750
Income received in advance	300	250
Profit made during the year	--	1,30,000

19. From the following details you are required to calculate (a) Current Ratio and (b) Liquid Ratio.

Sundry debtors	50,000	Sundry creditors	40,000
Cash in hand	40,000	Bills payable	30,000
Cash at bank	60,000	Outstanding expenses	2,500
Trade investments	20,000		
Bills receivable	30,000		
Prepaid expenses	10,000		
Closing stock	80,000		
Total Current Assets	2,90,000	Total Current liabilities	72,500

20. Prepare a production budget from the following information:

Product	Estimated stock on 1-1-2021 (units)	Estimated sales during Jan. to March 2021 (units)	Desired Closing Stock on 31-3-2021 (units)
R	2,000	10,000	3,000
S	3,000	15,000	5,000
U	4,000	13,000	3,000
P	3,000	12,000	2,000

21. Distinguish between Cost and Management Accounting.

22. Ascertain Operating Profit before working Capital changes from the following details:

	Rs.
Net profit before Tax and extraordinary items	2,00,000
Dividend received on long term investment in shares	40,000
Interest received on long term investment in debentures of other companies	30,000
Goodwill written off	20,000
Discount on issue of shares written off	10,000
Preliminary expenses written off	25,000
Depreciation charged on fixed assets	65,000
Profit on sale of equipment	10,000
Loss on sale of long term investments	8,000

23. With the following data for 60% activity, prepare a budget at 80% activity:

Production at 60%	-	600 units
Materials	-	Rs.100 per unit
Labour	-	Rs.40 per unit
Direct expenses	-	Rs.10 per unit
Factory expenses	-	Rs.40,000 (40% fixed)
Administration expenses	-	Rs.30,000 (60% fixed)

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A. Cost and Management Accounting – PIVAE2(7)

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain the Scope and Objectives of Management Accounting.

25. Draw a statement of cost from the following particulars:

		Rs.
Opening Stock:	Materials	2,00,000
	Work in progress	60,000
	Finished goods	5,000
Closing Stock:	Materials	1,80,000
	Work in progress	50,000
	Finished goods	15,000
Materials Purchased		5,00,000
Direct wages		1,00,000
Direct expenses		50,000
Sales		8,00,000
Selling and distribution overheads		20,000

26. From the following Balance sheets you are required to prepare a cash flow statement:

Liabilities	2021 Rs.	2022 Rs.	Assets	2021 Rs.	2022 Rs.
Share capital	3,00,000	3,50,000	Land	70,000	86,000
Profit & loss A/c	20,000	33,000	Stock	90,000	1,00,000
Current Liabilities	90,000	65,000	Debtors	1,20,000	1,15,000
			Cash	1,30,000	1,47,000
	4,10,000	4,48,000		4,10,000	4,48,000

27. Following is the profit and loss A/c of a company for the year ending 31-12-2022

Particulars	Rs.	Particulars	Rs.
To Opening Stock	1,00,000	By Sales	5,60,000
To Purchases	3,50,000	By Closing Stock	1,00,000
To Wages	9,000		
To Gross Profit c/d	2,01,000		
	6,60,000		6,60,000
To Administrative expenses	20,000	By Gross Profit b/d	2,01,000
To Selling & distribution exp	89,000	By Interest on investments	10,000
To Non-Operating expenses	30,000	By Profit on sale of	
To Net Profit	80,000	investments	8,000
	2,19,000		2,19,000

Calculate

(a) Gross Profit Ratio (b) Net Profit Ratio (c) Operating Ratio (d) Operating Profit Ratio

28. A firm expects to have Rs.30,000 on 1st May 2022 and requires you to prepare an estimate of the cash position during the 3 months May to July 2022. The following information is supplied to you.

Month	Sales (Rs.)	Purchases (Rs.)	Wages (Rs.)	Factory Expenses (Rs.)	Office Expenses (Rs.)	Selling Expenses (Rs.)
March	40,000	24,000	6,000	3,000	4,000	3,000
April	46,000	28,000	6,500	3,500	4,000	3,500
May	50,000	32,000	6,500	4,000	4,000	3,500
June	72,000	36,000	7,000	4,400	4,000	4,000
July	84,000	40,000	7,250	4,250	4,000	4,000

Other information:
(i) 25% of the sales is for cash, remaining amount is collected in the month following that of sale.
(ii) Suppliers supply goods on two months credit.
(iii) Delay in payment of wages and all other expenses: One Month.
(iv) Income tax of Rs.10,000 is due to be paid in July.
(v) Preference share dividend of 10% on Rs.1,00,000 is to be paid in May.

.....All the Best.....

April 2023 2021/PGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A. **Software Engineering – MHIVCE5A(8)**

Time: Three Hours **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

Section-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5X1=5 Marks)**

1. Software is defined as _____
2. CASE stands for _____
3. _____ is a software development life cycle model that is chosen if the development team has less experience on similar projects.
4. _____ specification is also known as SRS document.
5. _____model has a misconception that systems are built by utilizing reusable components, scripts, and database.

II. Choose the correct answer **(5X1=5 Marks)**

6. In which step of SDLC actual programming of software code is done?
   a) Development and Documentation b) Maintenance and Evaluation
   c) Design d) Analysis
7. Which of the following document contains the user system requirements?
   a) SRD b) DDD
   c) SDD d) SRS
8. The word which describes the importance of software design is?
   a) Complexity b) Quality c) Efficiency d) Accuracy
9. Cleanroom software development process complies with the operational analysis principles by using a method called
   a) Referential transparency b) Degenerative error correction
   c) Box structure specification d) None of the mentioned
10. Which of the following document contains the user system requirements?
    a) SRD b) DDD
    c) SDD d) SRS

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*, CHENNAI – 600 018

IV SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II M.C.A. **Software Engineering – MHIVCE5A(8)**

III. Answer the following in One or Two Sentences **(5X2=10 Marks)**

11. Define software engineering.
12. List out the elements of Analysis model.
13. Mention the steps in testing.
14. What does Validation represent?
15. Name the various elements for computer based system.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. Describe the components and quality which is necessary for the documents of software specification.
17. Differentiate functional and non functional requirements and explain.
18. Discuss on Modeling Component Level design.
19. Summarize the metrics for the analysis model.
20. Explain about Project Scheduling.
21. Discuss the differences between black box and white box testing.
22. Justify the importance of testing tactics.
23. Explain the concept of Quality assurance in web Engineering.

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Explain Water fall Model. What are the problems that are sometimes encountered when the waterfall model.
25. Explain in detail about all modeling technique in software requirements.
26. Discuss in detail about strategic approach to software testing.
27. Explain automated testing tools. How test cases are generated? Discuss when to stop testing? What is performance testing? Describe.
28. Elaborate on Initiating a web app project.

**************ALL THE BEST************

November 2022 2021/UGR

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018

III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021

II B.C.A.

Basic Financial Accounting with Tally – PIIIAE1(7)

TIME: THREE HOURS **MAXIMUM MARKS : 100**

The first ten minutes should be used for reading the question paper only. The students should not begin to answer the questions in the first ten minutes.

SECTION-A

Answer all the questions. **20 Marks**

I. Fill in the blanks **(5 x 1= 5 Marks)**

1. The basic rule of book keeping "Debit the receiver and credit the giver" is applicable to _____ account.
2. _____ is a book of 'primary entry' or 'original entry'.
3. Bills receivable usually appears on _____ side of the Balance sheet.
4. If any entry is made on the debit side and the same entry is recorded on the credit side of the cash book, it is called as _____ entry.
5. _____ is a computer software designed to automate and integrate the business operations.

II. Choose the correct answer **(5 x 1= 5 Marks)**

6. Dual aspect concept results in the accounting equation
   a) Capital + Liability = Assets b) Capital = Assets
   c) Revenue = Expenses d) Capital + Profit = Assets + Expenses
7. A trial balance is a
   a) Income Statement b) Opening balance
   c) Balance Sheet d) List of ledger balances
8. Which of the following is not a current asset?
   a) Debtors b) Prepaid Expenses
   c) Office Furniture d) Stock
9. Cash book involves
   a) for payment transaction b) for receipts transaction
   c) both receipts and payments transaction d) for credit transaction
10. In Tally the term ERP stands for _____
    a) Enterprise resource planning b) Economic resource planning
    c) Efficient resource planning d) Electronic refresh planning

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous)*,
CHENNAI – 600 018
III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A.
Basic Financial Accounting with Tally – PIIIAE1(7)

III. Answer the following in One or Two Sentences **(5 x 2 = 10 Marks)**

11. What do you understand by Convention of full disclosure?
12. State the meaning of Ledger.
13. Define 'Depreciation'.
14. Write a note on Cash Book.
15. Mention any two features of Tally.

Section – B

(5 x 7 = 35 Marks)

Answer any five questions. **All questions carry equal marks.(Each answer should not exceed 300 words)**

16. What is double entry system? Explain its advantages?
17. Journalise the following transactions:

    (i) Ms.Khathija started her business with cash Rs.3,00,000

    (ii) Purchased furniture by issuing Cheque Rs.60,000

    (iii) Paid Salaries to employees Rs.10,000

    (iv) Received Cash from Ms.Sumaiya Rs.7,500.

18. Pass necessary adjusting entries in Ms.Ayesha's journal on 31st December 2021.

    (i) Rs.20,000 for wages were outstanding.

    (ii) Write off depreciation on machinery Rs.50,000.

    (iii) Commission received in advance Rs.1,000.

    (iv) To provide 10% interest on Capital of Rs.2,50,000.

19. Ms.Fareeda starts business with Rs.15,000 on the 20th of January 2021. Of this she pays Rs.10,000 into the bank account. Her transactions during the month were as follows:

2021 Jan	21	Purchased office table and chairs for cash	Rs.500
	24	Sold goods for cash	Rs.950
	25	Paid for sign board	Rs.225
	28	Paid auto charges	Rs.10
	30	Paid Wages	Rs.150

Compile a Simple Cash Book of Ms.Fareeda

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous),*
CHENNAI – 600 018
III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A.
Basic Financial Accounting with Tally – PIIIAE1(7)

20. Describe are the benefits of Tally?

21. Prepare Trial Balance from the following details.

	Rs.		Rs.
Cash A/c	20,990	Capital A/c	90,000
Bank A/c	29,500	Purchases A/c	44,000
Furniture A/c	10,000	Sales A/c	25,000
Purchase returns A/c	2,000	Sales Returns A/c	1,000
Discount Allowed A/c	50	Drawings A/c	2,500
Discount Received A/c	40	Stationery A/c	500
Rent A/c	2,500	Salaries A/c	6,000

22. Prepare a Trading Account of Ms.Sameena for the year ending 31st March 2021 from the following figures:

Purchases	Rs. 3,00,000	Sales	Rs. 5,00,000
Stock (April1, 2020)	Rs. 40,000	Wages	Rs. 30,000
Carriage inwards	Rs. 4,000	Return outwards	Rs. 3,000
Return inwards	Rs. 2,500	Freight and clearing charges	Rs.5,000
Stock on 31st March 2021	Rs. 42,000		

23. Ms.Jannath Maryam maintains a two columnar cash book which she balances every week.

2021 Jan 25 Her Cash book showed balance of Rs.6,900

26 Paid cash to Zainab Rs.1,428

Discount received Rs.72

29 Paid Salaries Rs.5,025

30 Cash Sales Rs.11,370

30 Withdrew cash for private expenses Rs.1,020

31 Received as compensation from Railway authority Rs.4,380

Received cash from Shaheen Rs.3,975

Allowed her discount Rs.75

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous),*
CHENNAI – 600 018
III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A.
Basic Financial Accounting with Tally – PIIIAE1(7)

Section – C

(3 x 15 = 45 Marks)

Answer any three questions. **All questions carry equal marks.(Each answer should not exceed 600 words)**

24. Describe in detail the various accounting concepts.

25. Ms.Shabana Parveen started her business on 1st April 2021 with Rs.50,000 as her capital. Following were the transactions for the one month:

April 2021

1 Paid into bank Rs.20,000

2 Purchased furniture from Modern furniture Ltd., on credit Rs.3,000

5 Purchased goods from Mohan Rs.8,800

6 Sold goods on credit to Sivakumar Rs.3,500

8 Paid to Modern Furniture Ltd., cash Rs.2,000

15 Paid wages in cash Rs.200

16 Issued cheque to Mohan Rs.7,000

20 Received from Sivakumar Rs.1,500

21 Paid into bank Rs.1,500

23 Cash Sales Rs.3,500

25 Cash Purchases Rs.1,800

27 Goods withdrawn for personal use Rs.500

28 Cash withdrawn for personal use Rs.750

29 Paid for stationery Rs.100

30 Paid salaries by cheque Rs.1,000

Give the Journal entries and prepare ledger accounts

26. Prepare a Trading and Profit and Loss Account for the year ending 31.03.2021 and a Balance sheet as on that date from the following balances:

Particulars	Rs.	Particulars	Rs.
Capital	52,000	Sales	1,01,000
Purchase return	1,900	Opening stock	22,000
Furniture and fittings	5,500	Sundry creditors	6,200
Investments	16,700	Salaries	1,800
Sales return	5,200	Printing & Stationery	240
Sundry debtors	31,000	Purchases	72,000
Rent	560	Carriage inwards	390
Bad debts	160	Postage & Telegrams	210
Travelling expenses	550	Cash at bank	3,270
Wages	1,300	Insurance	220

Adjustments required:

(a) Salaries outstanding Rs.150

(b) Closing Stock was Rs.18,500

(c) Prepaid Insurance Rs.30

(d) Charge 10% depreciation on furniture.

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN *(Autonomous),*
CHENNAI – 600 018
III SEMESTER **(Regular)** – Applicable to candidates admitted in the year 2021
II B.C.A.
Basic Financial Accounting with Tally – PIIIAE1(7)

27. Prepare a simple Cash Book from the following transactions of Mr.Gopal of Chennai.

2021

Jan 1 Mr.Gopal started business with Cash Rs.16,000
2 He bought goods for Cash Rs.10,000
4 Sold goods for cash Rs.200
5 Received cash from Manohar Rs.720
10 Paid into Bank Rs.6,000
12 Paid cash to Honest Raj Rs.430
15 Sold goods for cash Rs.3,000
17 Paid for stationery Rs.30
19 Paid for office furniture Rs.370
20 Received from Kalidas Rs.1,360
24 Paid for advertising Rs.180
26 Purchased postage stamps Rs.16
29 Paid rent Rs.200
31 Paid electricity charges Rs.30

28. Discuss the role played by modern computers in accounting.

---------- All the Best ----------