

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Computer Application

Major Elective — MULTIMEDIA

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. RIFF stands for \_\_\_\_\_  
(a) Resource Information File Format  
(b) Resource Interchange File Format  
(c) Resource Interaction File Format  
(d) Resource Internet File Format
  
7. A \_\_\_\_\_ displays a list of commands and usually appears in the toolbar at the top of the screen.  
(a) menu (b) view  
(c) kit (d) list
  
8. AIFF stands for \_\_\_\_\_  
(a) Audio Interface File Format  
(b) Auto Internal File Format  
(c) Audio Interval File Format  
(d) Audio Interchange File Format
  
9. DXP is an extension of a \_\_\_\_\_ file.  
(a) Drawing Exchange File  
(b) Drawing Express File  
(c) Drawing Exit File  
(d) Drawing Entry File
  
10. \_\_\_\_\_ law is a federal law that does not vary state to state.  
(a) Privacy (b) Copyrights  
(c) Governed (d) None of the above

2. \_\_\_\_\_ audit is responsible for the graphic element of the program.  
(a) Computer graphic (b) Computer movie  
(c) Computer audio (d) None of the above
  
3. In slide \_\_\_\_\_ view, you see the entire presentation displayed in miniature.  
(a) arranger (b) shaper  
(c) creator (d) sorter
  
4. \_\_\_\_\_ contains the specific colors available for reproducing the image.  
(a) Color resolution (b) Color palette  
(c) Color window (d) None of the above
  
5. The \_\_\_\_\_ master control the format and placement off the title and text you type of slides.  
(a) copyright (b) slide  
(c) design (d) layout
  
6. \_\_\_\_\_ are the best way to present facts and figures.  
(a) Data (b) Diagram  
(c) Charts (d) File

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Explain about communication information using multimedia.  

Or

(b) Write a note on : target audience.
  
12. (a) Explain about interface design and psychology of learning.  

Or

(b) Illustrate the use media to direct attention.
  
13. (a) Analyze about the character formats.  

Or

(b) Elucidate about working with digital still photos.
  
14. (a) Explain about hardware consideration for digital video.  

Or

(b) How to process sound using forge for windows? Discuss.

15. (a) Explain about selection of an authoring program.

Or

- (b) Describe about the transition channel.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Illustrate about the structure of the application in program content.

Or

- (b) Discuss about the important in multimedia development.

17. (a) Explain about planning the production of your applications.

Or

- (b) Describe the following :

- (i) Understanding and managing copyrights
- (ii) Avoiding problem in planning a multimedia application.

18. (a) Analyze about the text formats.

Or

- (b) Describe about using flowchart and designing organization charts.

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19. (a) Discuss the following :

(i) MIDI

(ii) Optimizing video for playback from a CD-ROM.

Or

- (b) Elucidate about choosing mono or stereo sound recording.

20. (a) Explain about functions of multimedia capable authoring software.

Or

- (b) Discuss about the following :

(i) The cast window

(ii) The sprite window

(iii) Score frames.

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14. (a) Describe the uses of anchored declaration in PL/SQL.

Or

(b) Give an account on the conditional or selection statement available for decision making in PL/SQL.

15. (a) Write about the explicit cursor with suitable examples.

Or

(b) Explain in detail about Varrays in PL/SQL.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Write short note on client-server database.

Or

(b) Give a brief note on displaying table information.

17. (a) Explain adding new rows/records with suitable examples.

Or

(b) Describe briefly about grouping data.

18. (a) What is a join? Explain the various types of join.

Or

(b) Define sequences. Explain how a query can be modify and drop a sequence with example.

19. (a) Explain about the various data types in PL/SQL.

Or

(b) Give an account on control structures with example.

20. (a) State the different types of exception. Explain any two.

Or

(b) Describe about PL/SQL tables in detail.

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B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Computer Application – Allied

DIGITAL DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Octal number system has \_\_\_\_\_ symbols.  
(a) 15 (b) 16  
(c) 8 (d) 10
2. The binary system,  $1+1=$   
(a) 2 (b) 0  
(c) 1 (d) 5

8. Each Flip-flop stores \_\_\_\_\_  
(a) 1 bit (b) 8 bits  
(c) 16 bits (d) 2 bits
9. In Boolean algebra,  $A+A=$  \_\_\_\_\_  
(a) A (b) 1  
(c) 0 (d) 3
10. Which of the following registers is used to keep track of address of the memory location where the next instruction is located?  
(a) Memory Address Register  
(b) Memory Data Register  
(c) Instruction Register  
(d) Program Register

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) State the associative property of Boolean algebra.  
  
Or  
(b) Convert binary number 11011110 into its decimal equivalent.

3. Subtract  $(1010)_2$  from  $(1101)_2$  using 1<sup>st</sup> complement.  
(a)  $(1100)_2$  (b)  $(0011)_2$   
(c)  $(1001)_2$  (d)  $(0101)_2$
4. Full adder is constructed by using \_\_\_\_\_  
(a) Two Half Adder and one OR gate  
(b) Two OR gate and one HA  
(c) One HA and two OR gate  
(d) One OR gate and one HA
5. Half adder is logic CKT that adds \_\_\_\_\_ Digit at a time.  
(a) Two (b) One  
(c) Three (d) Zero
6. Multiplexers is also known as \_\_\_\_\_  
(a) Mux (b) Demux  
(c) Adder (d) Substrator
7. Karnaugh map (K-map) technique provides a systematic method for simplifying \_\_\_\_\_  
(a) Multiplexers (b) Demultiplexers  
(c) Boolean expressions (d) Logic gates

12. (a) Distinguish between the canonical and standard forms.  
  
Or  
(b) What are the limitations of Karnaugh map? Explain.
13. (a) Explain the combinational circuits with diagram.  
  
Or  
(b) Point out the functions of magnitude comparator.
14. (a) Write the truth table of a 4:1 multiplexer.  
  
Or  
(b) Analysis the need of storage element latches.
15. (a) Summarize the functions of ripple counters.  
  
Or  
(b) Differentiate between the RAM and ROM.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Determine the binary numbers for the following hexadecimal numbers:

(i) 10A4

(ii) CF8E

(iii) 9742

Or

- (b) Outline the purpose of binary storage and registers.

17. (a) What are digital logic gates? Explain.

Or

- (b) Examine the product of sums simplification with example.

18. (a) Illustrate the implementation of binary adder-subtractor.

Or

- (b) Draw and explain the concept of binary multiplier.

19. (a) Compare the functions of decoders and encoders.

Or

- (b) Analyse the functions of clocked sequential circuits.

20. (a) Discuss the error detection and correction with diagram.

Or

- (b) Elaborate the different types of shift registers.

B.C.A. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Second Semester

Computer Application - Allied

MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- If  $a = \{1, 2, 3\}$ , then the number of subsets in the power set of A is
 

(a) 6	(b) 8
(c) 9	(d) 27
- Let  $A = \{2, 3, 5, 7, 11\}$ . The cardinality of A is \_\_\_\_\_
 

(a) 4	(b) 11
(c) 2	(d) 5

- Maximum no. of edges in a simple undirected graph with  $n$  vertices is \_\_\_\_\_
 

(a) $\frac{n}{2}$	(b) $\frac{n(n-1)}{2}$
(c) $\frac{n(n+1)}{2}$	(d) $\frac{n-1}{2}$
- Nodes with atleast one child is known as \_\_\_\_\_
 

(a) Leaf node	(b) Internal nodes
(c) Child node	(d) Siblings
- Every vertex of G connected with every other vertex of G is known as \_\_\_\_\_
 

(a) Null graph	(b) Complete graph
(c) Multi graph	(d) Pseudo graph

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

- (a) List all the members of the power set of each of the following sets.
 

(i) $A = \{1, 2, 3\}$
(ii) $B = \{\{a\}, \{b\}\}$

Or

- A function is to be \_\_\_\_\_ if every element  $b \in B$ , there is an element  $a \in A$  with  $f(a) = b$ .
 

(a) One to one	(b) One to many
(c) Onto	(d) Bijection
- If  $f : A \rightarrow B$  is a bijective function then  $f \circ f^{-1} =$  \_\_\_\_\_
 

(a) $I_A$	(b) A
(c) $I_B$	(d) B
- A \_\_\_\_\_ is a declarative sentence that is either true or false.
 

(a) Value	(b) Domain
(c) Co - domain	(d) Proposition
- Which of the following is not a proposition?
 

(a) Where are you going?
(b) $2+3=5$
(c) Today is Saturday
(d) Mona drives the car
- An edge which starts from a vertex and moves back to it is called \_\_\_\_\_.
 

(a) Isolated	(b) Pendent
(c) Loop	(d) Parallel

- Investigate the Relation  $R = \{(1,1)(2,2)(1,3)(3,1)\}$  is equivalence relation for  $A = \{1, 2, 3\}$ .
- Test the function  $f(x) = x+1$  for one to one and onto.
 

Or
- If  $f = \{(a,b)(b,a)(c,c)\}$ . Find  $f^3$ .
- Show that  $p \leftrightarrow q$  and  $(p \rightarrow q) \wedge (q \rightarrow p)$  are logically equivalent?
 

Or
- Construct the truth table for  $(p \wedge q) \vee (p \wedge r)$ .
- Define indegree and out degree.
 

Or
- Draw a complete graph with five vertices.
- Define paths and cycles.
 

Or
- Draw the subgraph  $G - a$  for G:



PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Prove that the total number of all possible subsets of a given set containing  $n$  elements is  $2^n$ .

Or

- (b) Let  $z$  denote the set of integers and the relation  $R$  in  $z$  defined by  $aRb$  iff  $a - b$  is even integer. Then show that  $R$  is an equivalence relation.
17. (a) Let  $f: A \rightarrow B$  and  $g: B \rightarrow C$  be two functions. Prove that if both  $f$  and  $g$  are injective then  $g \circ f$  is injective.

Or

- (b) Let  $f$  and  $g$  be the functions from the set of integers defined by  $f(x) = 2x + 3$  and  $g(x) = 3x + 2$ . Determine the  $f \circ g$  and  $g \circ f$ .
18. (a) Let  $p$ : Babu is rich

$q$ : Babu is happy. write a simple verbal

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20. (a) Write detail note on the Binary tree.

Or

- (b) Discuss about any two operation on graphs.
- 

Sentence for the following statement.

(i)  $p \leftrightarrow \sim q$

(ii)  $\sim p \rightarrow q$

(iii)  $p \vee \sim q$

(iv)  $q \rightarrow p$

Or

- (b) Using truth table, prove that  $PV(q \wedge r) = (p \vee q) \wedge (p \vee r)$ .

19. (a) Show that the maximum no. of edges in a simple undirected graph with  $n$  vertices is  $\frac{n(n-1)}{2}$ .

Or

- (b) Explain the following graphs with example.
- (i) Un directed graph
- (ii) Multi graph
- (iii) Bipartite graph
- (iv) Null graph

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PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the two basic structures used to implement an ADT list.  
Or  
(b) Describe big-O analysis.
17. (a) Describe the concepts of a linked list.  
Or  
(b) Describe the processing of a linked list.
18. (a) Explain the implementation of a stack linked list.  
Or  
(b) Explain the design of a queue linked list.
19. (a) Discuss the concept of a general tree.  
Or  
(b) Describe heap algorithm.
20. (a) Briefly explain the general sort concepts.  
Or  
(b) Describe the graph storage structure.

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B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Applications — Allied

DATA STRUCTURES

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is the most common tool for defining algorithms?  
(a) Abstract data type (b) Pseudocode  
(c) Source code (d) Object code
2. Which statement iterates a block of code?  
(a) Control (b) Decision  
(c) Loop (d) Break

3. Which field within a structure identifies the data?  
 (a) row (b) cell  
 (c) record (d) key
4. \_\_\_\_\_ is needed to traverse a list.  
 (a) Moving linker (b) Walking pointer  
 (c) Pointer (d) Linker
5. Which of the following is last in first out data structure?  
 (a) line (b) queue  
 (c) list (d) stack
6. Which is queue delete operation?  
 (a) push (b) insert  
 (c) enqueue (d) dequeue
7. The number of branches associated with a node is the \_\_\_\_\_ of the node.  
 (a) rank (b) degree  
 (c) grade (d) indegree
8. To search for a value in a binary search tree, first compare the target value with \_\_\_\_\_ node.  
 (a) root (b) leaf  
 (c) far right (d) far left
9. The \_\_\_\_\_ of a vertex is the number of vertices adjacent to it.  
 (a) path (b) loop  
 (c) cycle (d) degree

10. A \_\_\_\_\_ is a graph whose lines are weighted.  
 (a) Network (b) Direct graph  
 (c) Undirected graph (d) Spanning tree

PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing either (a) or (b).  
 Each answer should not exceed 250 words.

11. (a) Write a note on abstract data type.  
 Or  
 (b) Write a note on atomic and composite data.
12. (a) Discuss about pointer to void.  
 Or  
 (b) Write the procedure for creating a node in a linked list.
13. (a) List the applications of a stack.  
 Or  
 (b) Write a note on the operations of a queue.
14. (a) Compare binary tree and binary search tree.  
 Or  
 (b) Explain the structure of a heap.
15. (a) Write a note on external sort.  
 Or  
 (b) Write a note on networks.

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Code No. : 20419 E Sub. Code : CMCA 11

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Computer Application — Core

PROGRAMMING IN C

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. All keywords in C are in \_\_\_\_\_  
(a) LowerCase letters (b) UpperCase letters  
(c) CamelCase letters (d) None of the above
2. What is the precedence of arithmetic operators  
(from highest to lowest)?  
(a) %, \*, /, +, - (b) %, +, /, \*, -  
(c) +, -, %, \*, / (d) %, +, -, \*, /

3. Which among the following is the odd one out?  
(a) printf (b) fprintf  
(c) putchar (d) scanf
4. The keyword 'break' cannot be simply used within \_\_\_\_\_  
(a) do-while (b) if-else  
(c) for (d) while
5. Comment on an array of the void data type  
(a) It can store any data-type  
(b) It only stores element of similar data type to first element  
(c) It acquires the data type with the highest precision in it  
(d) You cannot have an array of void data type
6. Which of the following function compares 2 strings with case-insensitively?  
(a) strcmp(s, t) (b) strcmpcase(s, t)  
(c) strcasecmp(s, t) (d) strchr(s, t)

7. Which of the following is a correct format for declaration of function?
- (a) return-type function-name(argument type);  
 (b) return-type function-name(argument type) {}  
 (c) return-type (argument type) function-name;  
 (d) all of the above
8. The value obtained in the function is given back to main by using \_\_\_\_\_ keyword.
- (a) return                      (b) static  
 (c) new                            (d) volatile
9. Which is the correct way to declare a pointer?
- (a) int\_ptr;                      (b) int\*ptr;  
 (c) \*int ptr;                    (d) none of the above
10. What is the output of the following code?
- ```
int main()
{
char *ptr = "GeeksQuiz";
printf("%cn", *&*ptr);
return 0;
}
```
- (a) Compiler error              (b) Garbage value  
 (c) Runtime error                (d) G

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
 Each answer should not exceed 250 words.

11. (a) What is a variable in C language? How will you declare and initialize a variable?
- Or
- (b) Write about arithmetic operators in C.
12. (a) Explain scanf ( ) statement with an example.
- Or
- (b) Explain while statement with suitable example.
13. (a) Explain array declaration, initialization with an example.
- Or
- (b) How to declare and initialize string variables in C?
14. (a) Explain function declaration, function call and function definition with an example.
- Or
- (b) Write about the need for user-defined functions.

15. (a) What is a pointer? Write the features of a pointer.

Or

(b) Write about accessing a variable through its pointer.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the structure of a C program.

Or

(b) Explain unary and ternary operators with an example.

17. (a) Discuss about switch statement with an example.

Or

(b) Explain for loop with suitable C program.

18. (a) Explain multidimensional array in detail.

Or

(b) Explain string handling functions.

19. (a) Discuss in detail about call by value and call by reference.

Or

(b) Write a program to calculate the standard deviation using function.

20. (a) With suitable example explain different arithmetic operations on pointers.

Or

(b) Explain how pointers are used as function arguments.

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(6 pages)

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B.C.A (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Second Semester

Computer Application — Core

OBJECT ORIENTED PROGRAMMING WITH C++

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Insulation of data from direct access of the program is known as \_\_\_\_\_.  
(a) Message passing  
(b) Data hiding  
(c) Data abstraction  
(d) Polymorphism

2. Void is a \_\_\_\_\_.  
(a) User defined data type  
(b) Built-in data type  
(c) Derived data type  
(d) Floating type
3. \_\_\_\_\_ binds data and its associated function together  
(a) Class (b) Object  
(c) Function (d) All
4. Members that can be accessed from anywhere outside the class is \_\_\_\_\_.  
(a) Private (b) Protected  
(c) Public (d) Inherited
5. The constructors that can take \_\_\_\_\_ are called as parameterized constructors  
(a) Arguments (b) Void  
(c) Class (d) Function
6. The type conversion is automatic for \_\_\_\_\_ data types  
(a) Built-in (b) Integer  
(c) User defined (d) All

7. In \_\_\_\_\_ inheritance multiple classes are derived from a single base class

- (a) Multiple (b) Multi-level  
(c) Hybrid (d) Hierarchical

8. \_\_\_\_\_ class contains atleast one pure virtual function in it

- (a) Abstract  
(b) Derived class  
(c) Sub class  
(d) Super class

9. The >> operator is overloaded in the \_\_\_\_\_ class as an extraction operator.

- (a) istream  
(b) Ostream  
(c) Both (a) and (b)  
(d) None

10. The get() function handle \_\_\_\_\_ i/o operations

- (a) Single character  
(b) Block  
(c) Float  
(d) All

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write about the basic concepts of object oriented programming.

Or

(b) What are the type cast operators? Give example.

12. (a) What are Inline functions in C++? Give example.

Or

(b) How will you pass objects as function arguments in C++? Give example.

13. (a) What are parameterized constructors? Give example.

Or

(b) Write a program in C++ for overloading Unary operators.

14. (a) Explain the concept of multiple inheritance in C++.

Or

(b) Explain the concept of abstract classes in C++.

15. (a) Write notes on C++ streams.

Or

(b) How will you detect end of file while working with files in C++?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write a C++ program to show the class structure and explain it.

Or

(b) Describe the scope resolution operator and member de-referencing operators in C++

17. (a) Describe the following concepts used in C++  
(i) Default arguments (ii) CONST arguments.

Or

(b) Explain the concept of function overloading.

18. (a) What are constructors? In C++ how will you declare and define a constructor? Explain.

Or

(b) Describe operator overloading in C++ with example.

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19. (a) Describe how will you make a private member inheritable.

Or

(b) Explain the concept of multi level inheritance in C++

20. (a) Write notes on the following functions in C++ (i) put ( ) and get ( ) (ii) Get lined ( ) and write ( )

Or

(b) Describe the error handling functions used in C++

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B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application — Core

JAVA PROGRAMMING

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ is the process by which one object acquires the properties of another object.
- (a) Polymorphism (b) Inheritance  
(c) Encapsulation (d) Abstraction

2. Arrays in java are \_\_\_\_\_
- (a) Object references  
(b) Objects  
(c) Primitive data type  
(d) None of the above
3. Which of the following is a method having same name as that of its class?
- (a) constructor (b) delete  
(c) class (d) finalize
4. Which method can be defined only once in a program?
- (a) finalize method (b) main method  
(c) paint method (d) init method
5. A java class inherits constants and methods of an interface using \_\_\_\_\_ keyword.
- (a) interface (b) implements  
(c) extends (d) none of the above

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6. All exception types are subclasses of the built-in class \_\_\_\_\_
- (a) Exception  
(b) Throwable  
(c) ArrayIndexOutOfBoundsException  
(d) None of the above
7. Port number \_\_\_\_\_ for e-mail.
- (a) 25 (b) 21  
(c) 43 (d) 79
8. Name the method which is always called before destroy()
- (a) stop() (b) destroy()  
(c) init() (d) start()
9. The \_\_\_\_\_ class is a subclass of component.
- (a) Window (b) Frame  
(c) Container (d) Panel
10. Name a component that contains a label and that generates an event when it is pressed
- (a) Label (b) Push button  
(c) List (d) Choice

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Explain all bitwise operators in Java.
- Or
- (b) Write a java program to sort an array of integers in ascending order.
12. (a) Explain briefly command line arguments in Java.
- Or
- (b) Explain method overloading. Give an example.
13. (a) Write a java program using try and catch block to handle exception.
- Or
- (b) Explain interthread communication.
14. (a) Explain URL class in Java.
- Or
- (b) How to handle various mouse events? Discuss with example.

15. (a) Explain the AWT class hierarchy of panel and frame.

Or

- (b) Discuss about choice and button controls in AWT with example.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain briefly about data types used in java.

Or

- (b) Briefly explain arrays with example.

17. (a) Explain nested and inner classes in detail.

Or

- (b) Discuss constructor overloading in detail.

18. (a) Explain packages in detail.

Or

- (b) Discuss exception handling with example.

19. (a) Explain URL connection in detail.

Or

- (b) Describe event listener interface.

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20. (a) Explain about text field and text area of AWT controls in detail.

Or

- (b) Write a java program using menu bars and menu in AWT.

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Reg. No. : .....

Code No. : 20422 E      Sub. Code : CMCA 32

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application — Core

FINANCIAL ACCOUNTING

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. According to which concept the owner who provides capital is treated as a creditor of the business
  - (a) Entity concept
  - (b) Going concern concept
  - (c) Cost concept
  - (d) Money measurement concept

2. The accounting equation is concerned with
  - (a) assets only
  - (b) liability only
  - (c) assets and liabilities
  - (d) assets and expenses
3. Each transaction is first entered in the
  - (a) Ledger
  - (b) Journal
  - (c) Trial balance
  - (d) Balance sheet
4. Goods purchased is recorded in the books at
  - (a) market price
  - (b) purchase price
  - (c) selling price
  - (d) list price
5. A trial balance shows
  - (a) outflow of funds
  - (b) arithmetical accuracy of posting
  - (c) inflow of funds
  - (d) financial position
6. Any difference in trial balance is normally transferred to
  - (a) capital account
  - (b) nominal account
  - (c) suspense account
  - (d) revenue account

7. If closing stock appears in trial balance, it is transferred to
  - (a) Trading a/c
  - (b) Profit or loss a/c
  - (c) Trading a/c and balance sheet
  - (d) Balance sheet
8. Goodwill is
  - (a) a current asset
  - (b) an intangible asset
  - (c) a tangible asset
  - (d) a fictitious asset
9. Receipts and payments account is prepared by
  - (a) trading concerns
  - (b) manufacturing concerns
  - (c) non-trading concerns
  - (d) all business entities
10. Legacies are generally
  - (a) capitalized and taken to balance sheet
  - (b) treated as income
  - (c) treated as expenditure
  - (d) treated as business income

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Categorize the various branches of accounting.

Or

(b) Distinguish between book keeping and accounting.

12. (a) How will you balance the ledger accounts?

Or

(b) Journalise the following transactions :

Purchased goods for cash Rs. 10,000

Sold goods for cash Rs. 12,000

Paid salary of Rs. 8,000

Paid wages to erect a machine Rs. 800

Received Rs. 2,000 from Ramar as interest.

13. (a) Explain the objectives of trial balance.

Or

(b) Prepare trial balance from the following :

|         | Rs.   | Rs.                    |
|---------|-------|------------------------|
| Capital | 9,000 | Rent outstanding 1,000 |

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|                     |        |               |        |
|---------------------|--------|---------------|--------|
| Plant and machinery | 12,000 | Opening stock | 2,000  |
| Purchases           | 8,000  | Sales returns | 4,000  |
| Sales               | 12,000 | Investments   | 14,000 |
| Sundry creditors    | 8,000  | Debtors       | 12,000 |
| Bank loan           | 22,000 |               |        |

14. (a) Examine the advantages of profit and loss account.

Or

(b) From the following given below prepare trading account.

|                  | Rs.      |
|------------------|----------|
| Opening          | 1,00,000 |
| Purchases        | 1,50,000 |
| Purchase returns | 25,000   |
| Direct expenses  | 10,000   |
| Carriage inwards | 5,000    |
| Sales            | 4,00,000 |
| Closing stock    | 50,000   |

15. (a) Draw a specimen form of income and expenditure account.

Or

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(b) How do you incorporate the following in the Tanjore trust club balance sheet for the year 31.3.2021.

|                                     |            |
|-------------------------------------|------------|
| Medal distribution fund             | Rs. 98,400 |
| Interest on the fund investment     | Rs. 28,900 |
| Medals distributed                  | Rs. 28,700 |
| Medal distribution fund investments | Rs. 98,000 |

PART C — (5 × 8 = 40 marks).

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Describe the various steps involved in accounting.

Or

(b) What are the accounting conventions? Explain.

17. (a) Discuss the various forms of subsidiary books.

Or

(b) Record the following transactions in the personal account of Shri Murugan :

| 2000   | Details                                             | Rs.   |
|--------|-----------------------------------------------------|-------|
| Apr. 1 | Sold goods to Murugan                               | 6,000 |
| 5      | Cash received from Murugan and allowed him discount | 6,000 |

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|       |                                                     |        |
|-------|-----------------------------------------------------|--------|
| 18    | Murugan purchased goods                             | 8,000  |
| 30    | Received cash from Murugan on account               | 4,500  |
| Mar 1 | Balance from last month b/d                         | 3,500  |
| 12    | Sold goods to Murugan                               | 12,000 |
| 22    | Received cash from Murugan and allowed him discount | 5,00   |
| 31    | Received cash in full settlement of Murugan a/c     | 10,250 |

18. (a) Identify the general guidelines for locating errors.

Or

(b) The following balances were extracted from the ledger account of Ramakrishna engineering works on 31<sup>st</sup> March 2021. You are required to prepare a trial balance as on that date in proper form.

|                  | Rs.    | Rs.                       |
|------------------|--------|---------------------------|
| Drawing          | 6,000  | Sales 1,28,000            |
| Capital          | 24,000 | Salaries 9,500            |
| Sundry creditors | 43,000 | Sales returns 1,000       |
| Bills payable    | 4,000  | Purchase returns 1,100    |
| Sundry debtors   | 50,000 | Travelling expenses 4,600 |
| Bills receivable | 5,200  | Commission paid 100       |

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|                       | Rs.    |                  | Rs.    |
|-----------------------|--------|------------------|--------|
| Loan from Karthick    | 10,000 | Trading expenses | 2,500  |
| Furniture and fixture | 4,500  | Discount earned  | 4,000  |
| Opening stock         | 47,000 | Rent             | 2,000  |
| Cash in hand          | 900    | Bank overdraft   | 6,000  |
| Cash at bank          | 12,500 | Purchases        | 70,800 |
| Tax                   | 3,500  |                  |        |

19. (a) From the following prepare trading and profit and loss a/c for the period ending 31.3.2021.

|               | Rs.      |                   | Rs.   |
|---------------|----------|-------------------|-------|
| Purchases     | 20,000   | Carriage out      | 1,500 |
| Sales         | 1,00,000 | Discount received | 2,000 |
| Opening stock | 10,000   | Interest paid     | 3,000 |
| Salaries      | 6,000    | Rent paid         | 6,000 |
| Wages         | 2,000    | Postage and       | 700   |
| Fuel          | 2,000    | Telegrams         | 200   |
| Carriage in   | 1,000    | Printing and      |       |
| Bad debts     | 2,700    | stationary        | 2,700 |

Or

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(b) From the following particulars, prepare trading and profit and loss a/c and balance sheet :

|                     | Rs.      |               | Rs.    |
|---------------------|----------|---------------|--------|
| Capital             | 50,000   | Returns in    | 1,000  |
| Plant and machinery | 80,000   | Returns out   | 750    |
| Sales               | 1,77,000 | Discount      | 400    |
| Purchases           | 60,000   | Salaries      | 7,500  |
| Debtors             | 45,000   | Wages         | 10,750 |
| Creditors           | 25,000   | Rent          | 12,000 |
| Cash balance        | 6,900    | Opening stock | 29,200 |

Additional information :

- (i) Closing stock Rs. 35,000
  - (ii) Depreciation on plant and machinery at 6%
  - (iii) Interest on capital to be allowed at 5%
  - (iv) Outstanding rent was Rs. 1,000.
20. (a) Distinguish between receipts and payments account and income and expenditure account.

Or

- (b) From the following particulars, prepare income and expenditure account of the central sports society for the twelve month from April 2020 (date of inception) to March 31, 2021.

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| Particular                           | Received or<br>paid Rs. | Outstanding<br>on March 31,<br>2021 Rs. |
|--------------------------------------|-------------------------|-----------------------------------------|
| Subscription from members            | 4,600                   | -                                       |
| Subscription from affiliated society | 1,400                   | 200                                     |
| Life subscription                    | 2,000                   | -                                       |
| Gift received                        | 3,000                   | -                                       |
| Interest received                    | 160                     | -                                       |
| Committee expenditure :              |                         |                                         |
| Executive                            | 1,500                   | 200                                     |
| Planning                             | 1,440                   | 640                                     |
| Tournament                           | 420                     | 120                                     |
| Printing, postage and stationery     | 1,140                   | 160                                     |
| Office furniture                     | 2,000                   | -                                       |
| Investment purchased                 | 3,000                   | -                                       |

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(6 pages)

Reg. No. : .....

Code No. : 20426 E Sub. Code : CSCA 31

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Applications

Skill Based Subject — PROGRAMMING IN PHP AND  
MYSQL

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. PHP stands for \_\_\_\_\_
  - (a) Preprocessed hypertext page
  - (b) Hypertext preprocessor
  - (c) Processed hyper page
  - (d) Programming hypertext process
2. Which of the following is not a PHP data type?
  - (a) string
  - (b) resource
  - (c) void
  - (d) null
3. Which function in PHP is used to execute an external program?
  - (a) extern()
  - (b) execute()
  - (c) accomplish()
  - (d) exec()
4. A function which starts with        (double underscore) is        function.
  - (a) Magic
  - (b) Inbuilt
  - (c) Default
  - (d) User defined
5. The filesize( ) function returns the file size in       
  - (a) bits
  - (b) bytes
  - (c) kilobytes
  - (d) gigabytes
6. Which of the following function outputs the contents of a string variable to the specified resource?
  - (a) fwrite()
  - (b) fwrite()
  - (c) filewrites()
  - (d) fwrites()

7. Which MySQL statement is used to update data in a database?

- (a) amend (b) update  
(c) modify (d) alter

8. Which is used to combine two or more result sets into a single set, including duplicates?

- (a) UNION (b) JOIN  
(c) UNION ALL (d) JOIN ALL

9. \_\_\_\_\_ is used to combine the result from multiple SELECT statements into a single result set.

- (a) UNION (b) CROSS  
(c) CONCAT (d) JOIN

10. Which is used to manage result sets using both associative and indexed arrays?

- (a) get\_array() and get\_row()  
(b) get\_array() and get\_column()  
(c) fetch\_array() and fetch\_row()  
(d) fetch\_array() and fetch\_column()

PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Write a note on variables in PHP.

Or

(b) Write a function to calculate factorial of a number in PHP.

12. (a) Write any four array functions with description.

Or

(b) Write a note on session cookies.

13. (a) Express how to read whole file contents.

Or

(b) Write a note on locking files.

14. (a) Write a note on MySQL tools.

Or

(b) Illustrate sorting and filtering retrieved data.

15. (a) Write a query to find rows between two dates or timestamps.

Or

- (b) Write a note on validating user input.

PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Illustrate loop iteration with break and continue.

Or

- (b) Describe merging forms with conditional statements.

17. (a) Give examples for modifying and processing array.

Or

- (b) Describe the execution of external programs.

18. (a) Explain looping over a file's content.

Or

- (b) Explain copying and deleting files.

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19. (a) Discuss updation, insertion and deletion of rows in tables.

Or

- (b) Describe full text searching.

20. (a) Briefly explain debugging and diagnostic concepts.

Or

- (b) Describe formatting query output with character and numeric.
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Code No. : 30271 E Sub. Code : JACA 21/  
SACA 21/AACA 21/  
CACA 21

B.C.A. (CBCS) DEGREE EXAMINATION,  
APRIL 2022

Second Semester

Computer Application – Allied

MATHEMATICAL FOUNDATION FOR COMPUTER  
SCIENCE

(For those who joined in July 2016 onwards)

Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

Two sets  $A$  and  $B$  are mutually exclusive if

- (a)  $A \cup B = \text{null}$
- (b)  $A - B = \text{null}$
- (c)  $A \cap B = \text{null}$
- (d)  $B - A = \text{null}$

A vertex having no edge incident on it is called \_\_\_\_\_

- (a) isolated vertex
- (b) pendant vertex
- (c) end vertex
- (d) null.

The degree of every vertex in a complete graph of  $n$  vertices is \_\_\_\_\_

- (a)  $n$
- (b)  $n - 1$
- (c) 2
- (d) 3

In a graph  $G$ , every \_\_\_\_\_ contains a path.

- (a) vertex
- (b) walk
- (c) node
- (d) loop.

A tree is a connected \_\_\_\_\_ graph.

- (a) cyclic
- (b) acyclic
- (c) euler
- (d) complete.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) Prove that  $A \cup B = B$  iff  $A \subseteq B$ .

Or

- (b) Prove that  $A \cap B = \phi$  iff  $A - B = A$ .

- 2. The power set of a set containing 'n' elements has \_\_\_\_\_ elements.

- (a)  $n^2$
- (b)  $2^n$
- (c)  $n$
- (d)  $2n$

- 3. The other name for one-one function is

- (a) surjective
- (b) bijective
- (c) injective
- (d) mapping.

- 4. A function defined on a set which maps every element to itself is called \_\_\_\_\_ function.

- (a) inverse
- (b) composite
- (c) identity
- (d) bijective.

- 5. The truth value of  $p \vee q$  is false only if \_\_\_\_\_

- (a)  $p$  is false
- (b)  $q$  is false
- (c) both  $p$  and  $q$  are false
- (d) both  $p$  and  $q$  are true.

- 6.  $P \vee (\neg(P \wedge Q)) \Leftrightarrow$

- (a)  $P \wedge Q$
- (b)  $P \vee Q$
- (c) both (a) and (b)
- (d) none.

- 12. (a) Show that  $f: R \rightarrow R$  defined  $f(x) = 3x$  is a bijection. Find  $f^{-1}$ .

Or

- (b) Show that, if  $F: X \rightarrow Y$  and  $g: Y \rightarrow Z$  are bijections, then  $(g \circ f)^{-1} = f^{-1} \circ g^{-1}$ .

- 13. (a) Construct the truth table for  $Q \wedge (P \rightarrow Q) \rightarrow P$ .

Or

- (b) Prove that  $Q \rightarrow P \Leftrightarrow \neg P \rightarrow \neg Q$ . Using truth table.

- 14. (a) Define (i) graph (ii) subgroups.

Or

- (b) Let  $G$  be a  $K$ -regular bigraph with bipartition  $V_1$  and  $V_2$  and  $b > 0$ . Show that  $|V_1| = |V_2|$ .

- 15. (a) Prove that in a graph  $G$ , any  $u-v$  walk contains a  $u-v$  path.

Or

- (b) Prove that the number of vertices  $n$  in a binary tree is always odd.

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) For any finite set  $A$  and  $B$  prove that

$$|A \cup B| = |A| + |B| - |A \cap B|.$$

Or

- (b) In a group of 60 girls, 25 play badminton, 20 play table tennis, and 30 play volley ball. 12 play badminton and table tennis, 9 play table tennis and volley ball. 13 play volley ball and badminton. 5 play all the three games. Find how many of them play

- (i) Name of the games  
(ii) Only Volleyball  
(iii) Only badminton.

17. (a) Show that  $f: R \rightarrow R$  defined by  $f(x) = 7x - 1$  is a bijection and find its inverse. Compute  $f^{-1} \circ f$  and  $f \circ f^{-1}$ .

Or

- (b) Prove that if  $f: X \rightarrow Y$  is bijection, then  $f^{-1} \circ Y \rightarrow X$  is also bijection and  $f^{-1} \circ f = i_x$  and  $f \circ f^{-1} = i_y$ .

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18. (a) Show that

$$P \rightarrow (Q \vee R) \Leftrightarrow P \rightarrow (\neg Q \vee R) \Leftrightarrow (P \wedge Q) \rightarrow R.$$

Using truth table.

Or

- (b) Find the principal disjunctive normal form for the formula

$$(P \rightarrow Q \vee R) \wedge (\neg Q) \wedge (\neg R) \wedge Q \text{ using truth table.}$$

19. (a) The maximum number of lines among all  $P$  point graphs with no triangle is  $(P^2/4)$ . Prove it.

Or

- (b) Define the following and give example for each :

- (i) Simple graph  
(ii) Complete graph  
(iii) Pseudo graph  
(iv) Weighted graph.

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20. (a) For every tree  $T = (V, E)$  prove the following properties :

- (i) There is a unique path between every pair of vertices.  
(ii) Tree with  $n$  vertices has  $n - 1$  edges.

Or

- (b) For a binary tree, prove the following :

- (i) The no. of vertices  $n$  in a binary tree is always odd.  
(ii) The no. of pendant vertices in a binary tree is  $\frac{(n+1)}{2}$ .

Reg. No. : .....

Code No. : 30525 E Sub. Code : SACA 41/  
AACAA 41

B.A. (CBCS) DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Computer Application — Allied

ACCOUNTING SOFTWARE TALLY

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

\_\_\_\_\_ number of predefined groups are available in tally.

- (a) 26 (b) 27  
(c) 28 (d) 29

\_\_\_\_\_ is also called store house.

- (a) Stock item (b) Godown  
(c) Stockist (d) All

A dealer of excisable goods is one who is registered under central \_\_\_\_\_ rules.

- (a) Goods (b) Excise  
(c) Purchase (d) Dealer

Excise \_\_\_\_\_ register is a commodity wise report displaying the details of purchases and sales of excisable goods in a given period.

- (a) sales (b) stock  
(c) issue (d) purchase

\_\_\_\_\_ refers to a document issued to an employee, which itemizes each component of his/her earnings and deductions and the net amount paid for a given pay period.

- (a) Payreport (b) Acquittance  
(c) Payslip (d) Gross slip

ESI refers to employee \_\_\_\_\_ insurance.

- (a) Stable (b) State  
(c) Salary (d) Slip

3. \_\_\_\_\_ provides complete details of all the purchases made in a particular tax period.

- (a) Tally purchase register  
(b) Purchase register  
(c) VAT purchase register  
(d) Purchase register for tax

4. Enabling VAT details is under \_\_\_\_\_

- (a) Taxation  
(b) Statuary and taxation  
(c) Purchase  
(d) Company creation

5. TCS stands for tax collected at \_\_\_\_\_

- (a) Stores (b) Shipment  
(c) Source (d) Sales

6. Form number \_\_\_\_\_ Annual return of collection of tax under section 206C of Income Tax Act, 1961.

- (a) 27C (b) 27D  
(c) 27E (d) 27H

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Discuss about Group Creation in tally.

Or

(b) Explain Master Configuration.

12. (a) Discuss about VAT classification.

Or

(b) Explain VAT rates.

13. (a) List the features of TDS.

Or

(b) Explain service tax reports.

14. (a) What is Excise duty? Explain.

Or

(b) How will you enable excise in tally?

15. (a) Explain enabling payroll in tally.

Or

(b) Discuss about salient features of payroll in tally.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write the various steps in the creation of Ledger.

Or

(b) Explain creating a new company in tally.

17. (a) Explain VAT composition report.

Or

(b) Discuss about the features of VAT in tally.

18. (a) Discuss about TDS deduction for advance payment.

Or

(b) Discuss about the TDS computation.

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19. (a) Explain in detail about the excise stock register.

Or

(b) Discuss about purchase of excisable goods.

20. (a) Explain the employee setup.

Or

(b) Discuss about paysheet report.

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(6 pages)

Reg. No. : .....

Code No. : 20248 E Sub. Code : SACA 41/  
AAACA 41

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fourth Semester

Computer Application – Allied

ACCOUNTING SOFTWARE – TALLY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. We can change the Company Information from
  - (a) Company Info → Back up
  - (b) Company Info → Alter
  - (c) Company Info → Split Company Data
  - (d) Company Info → Update

2. To change Current Date from Gateway of Tally press the key
  - (a) F1
  - (b) F5
  - (c) F2
  - (d) F9
3. How many inbuilt accounts group are in tally by default?
  - (a) 29
  - (b) 31
  - (c) 25
  - (d) 34
4. How many space types of Measurement Units we can create in Tally?
  - (a) 2
  - (b) 3
  - (c) 5
  - (d) Unlimited
5. For reconciliation of Bank press
  - (a) F12
  - (b) F10
  - (c) F5
  - (d) F6
6. TDS deduction entry can be made through
  - (a) Payment voucher
  - (b) Journal voucher
  - (c) Receipt voucher
  - (d) All of these



7. To view the TDS report, go to
- (a) Display → Statements of Accounts → TDS outstanding → TDS computation
  - (b) Accounts Book → TDS outstanding → TDS computation
  - (c) Display → TDS outstanding → TDS computation
  - (d) None of the above
8. How can we see VAT Reports?
- (a) Gateway of Tally → Display
  - (b) Gateway of Tally → VAT Reports
  - (c) Gateway of Tally → Display → Statutory Info
  - (d) Gateway of Tally → Display → Statutory Reports
9. What is the full form of TCS?
- (a) Tax Collected by Staff
  - (b) Tax Consumption at Source
  - (c) Tax Collected at Source
  - (d) Tax Collected from Sales

10. We can see list of Memorandum Vouchers from
- (a) Cash/Bank Books
  - (b) Exception Reports
  - (c) Accounts Book
  - (d) Trail Balance

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short note on features of POS.
- Or
- (b) Explain Profit and Loss Account in detail.
12. (a) Write short note on VAT Rate.
- Or
- (b) Write short note on VAT.
13. (a) Elucidate Service Tax in Tally.
- Or
- (b) How to create sales ledgers for TCS.

14. (a) Write short note on Dealer Excise report.

Or

(b) Write short note on E>Returns.

15. (a) Elucidate Payroll info in Tally.

Or

(b) Write short note on Payroll with PF and ESI.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain components of Tally opening screen.

Or

(b) Discuss Stock Groups in detail.

17. (a) Explain the following Vouchers:

(i) Receipt voucher

(ii) Payment voucher

(iii) Contra voucher

Or

(b) Describe the VAT composition report.

18. (a) Explain the various steps in generating Service Tax reports in Tally.

Or

(b) Explain TDS computation report.

19. (a) Explain about Excise stock register.

Or

(b) Explain about Dealer excise opening stock.

20. (a) Explain Single Employee Groups in Tally.

Or

(b) Explain unit of attendance in Tally.

A. (CBCS) DEGREE EXAMINATION, APRIL 2022

Sixth Semester

Computer Applications

Major Elective — MOBILE COMMUNICATION

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

The \_\_\_\_\_ is responsible for handling traffic and signalling between a mobile phone and network.

- (a) Operation support system
- (b) Mobile station
- (c) Base station subsystem
- (d) Network switching system

Each cell is allocated a predetermined set of voice channels in \_\_\_\_\_

- a) Dynamic channel assignment
- b) Spectrum channel assignment
- c) Fixed channel assignment
- d) All the above

Which of the following refers to the variation of the signals strength with respect to time or distance?

- a) Delay spread (b) Fading
- c) Diffraction (d) Reflection

In which attack, the attacker gets the packet before the intended receiver does

- a) Eaves dropping
- b) Traffic analysis
- c) Man-in-middle attack
- d) None

Reduced size cells are called \_\_\_\_\_

- a) Picocells (b) Infocells
- c) Minicells (d) Microcells

Bluetooth devices connect and communicate wirelessly through short range devices called \_\_\_\_\_

- a) Piconets
- b) Petrinets
- c) Scatternets
- d) Piconets and scatternets

2. Which is the protected database that stores a copy of secret key stored in each SIM card
  - (a) AUC (b) EIR
  - (c) VLR (d) MSC
3. An identifier which uniquely identifies an user in an organization is \_\_\_\_\_
  - (a) Mobile IP (b) Global user number
  - (c) SIM (d) IMEI
4. Orbits assigned to satellites with respect to earth and present in them are called \_\_\_\_\_
  - (a) Earth orbit satellites
  - (b) Moon orbit satellites
  - (c) Space satellites
  - (d) None
5. MMS stands for \_\_\_\_\_
  - (a) Multiple Message Service
  - (b) Multiple Media System
  - (c) Multimedia Messages
  - (d) Multiple Media Messages

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the components of network switching system.  
Or  
(b) Brief out the need for mobile communication.
12. (a) List out the features of AMPS.  
Or  
(b) Explain channel assignment methods in detail.
13. (a) Explain the classification of satellites.  
Or  
(b) Write short notes on third generation global mobile system.
14. (a) Compare adjacent and co-channel interference in cellular communication.  
Or  
(b) What is SINAD? How will you measure it?

15. (a) Explain the types of intelligent cells.

Or

(b) Write short notes on WAE.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) What is radio wave propagation? Explain its methods in detail.

Or

(b) Describe base station system in detail.

17. (a) Explain the generation of wireless networks.

Or

(b) Define Handoff. Explain its types in detail.

18. (a) Explain mobile data networks in detail.

Or

(b) Describe CDPD architecture with a neat diagram.

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19. (a) Explain mobile IP in detail.

Or

(b) Describe security arrangement in CDMA.

20. (a) Illustrate the purpose of bluetooth technology in detail.

Or

(b) Explain WAP in detail.

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(6 pages)

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Code No. : 20261 E Sub. Code : SECA 6 C

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Sixth Semester

Computer Application

Major Elective — MOBILE COMMUNICATION

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which database stores permanent data about subscribers?  
(a) MSC (b) HLR  
(c) MSN (d) AUC

6. A Private Branch Exchange (PBX) is a telephone system owned and operated within a \_\_\_\_\_  
(a) Country (b) Continent  
(c) Home (d) Enterprise
7. Which common protocol allows users to move from one network to another with the same IP address?  
(a) IP (b) TCP  
(c) TCP/IP (d) Mobile IP
8. Co-channel interference depends on cell \_\_\_\_\_  
(a) Radius (b) Distance  
(c) Both (d) None
9. Which technology replace cables within a short range communication?  
(a) Share IT (b) MANET  
(c) Bluetooth (d) Wifi
10. AMPS means  
(a) Advanced Mobile Phone System  
(b) Adhoc Mobile Phone System  
(c) Adhoc Mobile Public System  
(d) Advanced Mobile Processing System

2. The most commonly used radio wave propagation is \_\_\_\_\_  
(a) Line of sight (b) Groundwave  
(c) Sky wave (d) All
3. DECT stands for  
(a) Digital European Cordless Telephone  
(b) Digital Enhanced Communication Technology  
(c) Digital European Cellular Technology  
(d) Duplex Enhanced Communication Technology
4. \_\_\_\_\_ is a light-weight portable wireless telephone that function as a cordless phone in home and as mobile phone elsewhere.  
(a) Palmtop  
(b) Laptop  
(c) Personal handyphone  
(d) All
5. GPS uses \_\_\_\_\_ satellites.  
(a) Geosynchronous Earth Orbit Satellites  
(b) Medium Earth Orbit satellites  
(c) Low Earth Orbit Satellites  
(d) High Earth Orbit Satellites

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What is frequency reuse? Mention its use.  

Or

(b) Explain cellular structure with a diagram.
12. (a) Explain IEEE 802.11 in detail.  

Or

(b) Describe channel borrowing approaches in detail.
13. (a) Write short notes on cordless telephones.  

Or

(b) List out the advantages and disadvantages of satellite communication.
14. (a) Explain fading in detail.  

Or

(b) How will you measure signal to noise distortion ratio?

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[P.T.O.]

15. (a) Explain routing in ad-hoc networks.

Or

(b) Explain the protocols used in wireless network.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the use of HLR and VLR in a mobile system.

Or

(b) Write down the properties of wireless networks.

17. (a) Describe roaming management in detail.

Or

(b) What is cell splitting? Explain its types with examples.

18. (a) Explain the working of wireless private box exchange.

Or

(b) Illustrate the application of CDPD architecture with a neat diagram.

19. (a) Explain the different types of interference in cellular mobile communication.

Or

(b) Explain the working of mobile IP in detail.

20. (a) Describe MANET in detail.

Or

(b) Write short notes on WDP and WTP.

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AMCA 41

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fourth Semester

Computer Applications — Core

VISUAL BASIC

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A complete repaint of a form or control can be enforced by \_\_\_\_\_ method.  
(a) upload (b) refresh  
(c) set focus (d) mouse move
6. The \_\_\_\_\_ method creates a connection between the application and the ODBC database and assigns it to a database type object.  
(a) Remote data objects  
(b) Open database  
(c) Open result set  
(d) None of the above
7. A \_\_\_\_\_ object represents a connection to a remote database used as a data source for the associated commands.  
(a) Remote (b) Data  
(c) Connection (d) RecordSet
8. \_\_\_\_\_ event is fired when the mouse is moved over an OLE container during an OLE drag operation.  
(a) OLECompleteDrag()  
(b) OLEStarDrag()  
(c) OLEDragOver()  
(d) OLEsetData()
9. The \_\_\_\_\_ control is used to create a hierarchy that displays at least two or more levels of a database.  
(a) TreeView (b) ListView  
(c) ImageList (d) StatusBar

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2. In visual basic, a variable name cannot be more than \_\_\_\_\_ characters.  
(a) 255 (b) 256  
(c) 300 (d) 350
3. MDI stands for \_\_\_\_\_  
(a) Multiple Design Interface  
(b) Manipulated Document Interface  
(c) Menu Design Interface  
(d) Multiple Document Interface
4. \_\_\_\_\_ dialog box allows the user to continue with the other applications.  
(a) Modal (b) Modeless  
(c) Both (a) and (b) (d) Common
5. \_\_\_\_\_ event occurs when the user presses any mouse button.  
(a) MouseMove (b) MouseUp  
(c) MouseDown (d) All the above

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10. \_\_\_\_\_ access files are accessed line by line.  
(a) Static (b) Dynamic  
(c) Sequential (d) Random

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Explain toolbox with diagram.  
Or  
(b) Elucidate various procedures in detail.
12. (a) Describe about menu editor with suitable example.  
Or  
(b) Compare InputBox( ) and MsgBox( ) with example.
13. (a) Define recordset and explain any four types of recordset.  
Or  
(b) Explain the hierarchical structure of remote data object.

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[P.T.O.]

14. (a) Write short note on SQL query designer.

Or

(b) Illustrate the OLEDragMode property and OLEDropMode property.

15. (a) Write about file system controls.

Or

(b) Explain ADO object model in detail.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Discuss about form properties and methods.

Or

(b) Describe the text box and command button controls with example.

17. (a) Describe about dialog box with suitable example.

Or

(b) Explain FlexGrid control with example.

18. (a) Discuss about evolution of computing architectures.

Or

(b) Explain about Remote Data Objects

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19. (a) Describe data environment designer in detail.

Or

(b) Explain OLE Drag and Drop with example.

20. (a) Discuss the following Activex control :

(i) Sysinfo control

(ii) Slider control

(iii) Progress bar control

(iv) MSChart control.

Or

(b) Describe the following :

(i) Random access files

(ii) Binary access files.

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AMCA 42

A. (CBCS) DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Computer Application — Core

E-COMMERCE

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

\_\_\_\_\_ enables closed loop learning process by allowing the company to measure the quality of the processes constantly.

- (a) SCM
- (b) CPM
- (c) TMM
- (d) CRM

\_\_\_\_\_ refers to server based application that can be referenced and executed via a URL.

- a) Web deployable
- b) Web addressable
- c) JAVA remote method
- d) HR applications

Which is the only portable interface used in the early days of relational databases?

- a) ODBC
- (b) OLE DB
- b) Embedded SQL
- (d) JDBC

The \_\_\_\_\_ is used as an extension of ethernet to wireless communication.

- a) 802.11
- (b) 802.11a
- b) 802.11b
- (d) 802.11g

\_\_\_\_\_ specialize in mobile phones with PDA capabilities using the palm OS.

- a) Kyocera
- (b) Compaq
- b) Palm
- (d) Symbol

- 2. Broadband access can be provided through an enhanced telephone service called
  - (a) Least Line
  - (b) ISD
  - (c) TELNET
  - (d) DSL
- 3. \_\_\_\_\_ is the integration of business process from end user through to original supplier.
  - (a) SCM
  - (b) CRM
  - (c) CPM
  - (d) MRO
- 4. \_\_\_\_\_ allows E business to provide customers with World's highest level of trust.
  - (a) Confidentiality
  - (b) Data integrity
  - (c) SSL certificate
  - (d) Authentication
- 5. The jsp page mixes standard \_\_\_\_\_ with specialized jsp elements.
  - (a) HTML
  - (b) .net
  - (c) JAVA
  - (d) Servlet
- 6. \_\_\_\_\_ offers inter operability testing program that covers device testing and content verification.
  - (a) WECA
  - (b) IEEE
  - (c) WAP
  - (d) W3C

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- 11. (a) Explain the benefits of SIP.
 

Or

 (b) What is online trust? Explain.
- 12. (a) Explain how to build a user friendly site in commerce business.
 

Or

 (b) How to avoid the challenges involved in ecommerce trust?
- 13. (a) Write a short note on wireless WANs.
 

Or

 (b) Explain the different concerns for the mobile enterprise.
- 14. (a) Write the various challenges for E-business.
 

Or

 (b) Write a short note on :
  - (i) XML
  - (ii) CORBA.

15. (a) Write a short note on web application development software.

Or

(b) Write the ten worst security mistakes for IT professional.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write down the principles of an enterprises to adopt effective E-commerce technology.

Or

(b) With the help of a neat diagram explain punch-out flow using WCBE and commerce integration.

17. (a) Explain the elements of E-business model.

Or

(b) How to enable your website to process online payments in seconds?

18. (a) Explain how shopping car technology can be used in E-commerce departmental store.

Or

(b) Write the necessary steps to be followed for building the prototype stage.

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19. (a) Write down the steps needed for building an effective E-business strategy.

Or

(b) Explain about online merchandising strategies.

20. (a) Explain the ground rules for E-business privacy.

Or

(b) Explain various types of attacks recognized in the cyber crime.

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B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fourth Semester

Computer Application — Core

E-COMMERCE

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Which one is the newest and best business communication channel?
  - (a) LAN
  - (b) www
  - (c) Internet
  - (d) VPN

- Electronic commerce systems require significant investments in
  - (a) Hardware
  - (b) Software
  - (c) Staffing and training
  - (d) All the above
- The security threat that intercepts the private content of a transaction en routed over the internet is
  - (a) Spoofing
  - (b) Eavesdropping
  - (c) Data alteration
  - (d) Phishing
- OLAP is
  - (a) Online Analytical Processing
  - (b) Online Analytics and Processes
  - (c) Online Loading and Analytical Processing
  - (d) None of the above
- Security of credit card information over the internet is implemented using \_\_\_\_\_
  - (a) Encryption
  - (b) ASP files
  - (c) Firewall
  - (d) Secure socket layer

- The \_\_\_\_\_ stage involves building a basic layout of the site so as t see what the final site will look like.
  - (a) Design
  - (b) Prototype
  - (c) Implementation
  - (d) Planning
- Expand CORBA
  - (a) Common Object Request Broker Architecture
  - (b) Common Object Request Based Architecture
  - (c) Consumer Oriented Request Broker Architecture
  - (d) Component Oriented Request Broker Architecture
- The primary function of a web-server is to send appropriate HTML code to the \_\_\_\_\_.
  - (a) Client
  - (b) Web application
  - (c) Web browser
  - (d) Website
- Which one is not database software?
  - (a) HTML
  - (b) SQL server
  - (c) Oracle
  - (d) IBM DB2

- IDS is
  - (a) Internet Denial System
  - (b) Intrusion Detection System
  - (c) Internet Detection System
  - (d) Intrusion Defend System

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) Mention the issues faced by companies while implementing E-commerce.
 

Or

 (b) Write short note on intellectual property protection.
- (a) Write about the business process domains on e-business model.
 

Or

 (b) Write down the elements of e-commerce to be considered in building web business.

13. (a) Write short note on configuring the network against external intrusions.

Or

- (b) Explain briefly about on-demand mode and infrastructure mode of wireless communication.

14. (a) Write down the three main stakeholders of enterprise development needs.

Or

- (b) Mention the problem-solving techniques of flexible merchandising.

15. (a) What are the requirements of an e-BI application development solution?

Or

- (b) Write short note on cybercrime.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the benefits of E-commerce market.

Or

- (b) Explain in detail the punchout flow in B2B connectively.

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17. (a) Explain in detail about E-commerce internet service provider (ECISP).

Or

- (b) What are the security threats of e-Commerce? How will you secure the websites from them?

18. (a) Explain in detail about the design stage in building the e-commerce site.

Or

- (b) Explain the facilitators of a wireless environment.

19. (a) Explain the online merchandising strategies in detail.

Or

- (b) How will you implement the E-commerce database?

20. (a) Explain the e-Business requirements for rapid application development.

Or

- (b) What are the three lists of mistakes people make that enable attackers?

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AMCA 43

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fourth Semester

Computer Application – Core

RESOURCE MANAGEMENT TECHNIQUES

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Which statement characterizes standard form of a linear programming problem?
  - (a) Constraints are given by inequalities of any type
  - (b) Constraints are given by a set of linear equations
  - (c) Constraints are given only by inequalities of  $\geq$  type
  - (d) Constraints are given only by inequalities of  $\leq$  type

2. In the feasible region of a LPP is empty , then the solution is \_\_\_\_\_.
- (a) Infeasible                      (b) Unbounded  
(c) Alternative                      (d) None of these
3. The main objective of an assignment problem is to
- (a) Minimize the total cost  
(b) Maximize the sales and returns  
(c) Both (a) and (b).  
(d) Normal
4. When the number of rows is equal to the number of columns then the problem is said to be \_\_\_\_\_ assignment problem.
- (a) Balanced                      (b) Unbalanced  
(c) Both (a) and (b)                      (d) Feasible
5. In sequencing problem, the order of completion of jobs is called
- (a) Completion sequence  
(b) Job sequence  
(c) Processing order  
(d) Job order

6. A \_\_\_\_\_ is a connected network that may involved only one subset of all nodes of the network.
- (a) Branches                      (b) Tree  
(c) Loop                      (d) All of these
7. CPM stands for
- (a) Critical Path Method  
(b) Critical Programme Module  
(c) Critical Perform Method  
(d) Cost Path Method
8. An \_\_\_\_\_ is a task, or item of work to be done, that consume time, effort, money or other resources.
- (a) Event                      (b) Activity  
(c) Evaluation                      (d) Condition
9. The participants in a game are called
- (a) Clients                      (b) Members  
(c) Customers                      (d) Players

10. Inventory models with all the known parameters with certainty are known as \_\_\_\_\_ model
- Unknown cost structure
  - Deterministic inventory
  - Known cost structure
  - Dynamic Demand

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) A ship has three cargo holds, forward, aft and center. The capacity limits are:  
 Forward 2000 tons, 100,000 cubic meters  
 Center 3000 tons, 135,000 cubic meters  
 After 1500 tons, 30,000 cubic meters.  
 The following cargoes are offered, the ship owners may accept all or any part of each commodity:

| Commodity | Amount in tons. | Volume/ton<br>in cubic meters | Profit per<br>ton in Rs. |
|-----------|-----------------|-------------------------------|--------------------------|
| A         | 6000            | 60                            | 60                       |
| B         | 4000            | 50                            | 80                       |
| C         | 2000            | 25                            | 50                       |

In order to preserve the trim of the ship the weight in each hold must be proportional to

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the capacity in tons. How should the cargo be distributed so as to maximize profit? Formulate this as linear programming problem.

Or

- (b) Describe about the steps for Simplex method of linear programming
12. (a) Clarify about the procedures of Hungarian method.

Or

- (b) The owner of a small machine shop has four mechanics available to assign jobs for the day. Five jobs are offered with expected profit for each mechanic on each job which are as follows:

|          |   | Job |    |     |     |    |
|----------|---|-----|----|-----|-----|----|
|          |   | A   | B  | C   | D   | E  |
| Mechanic | 1 | 62  | 78 | 50  | 111 | 82 |
|          | 2 | 71  | 84 | 61  | 73  | 59 |
|          | 3 | 87  | 92 | 111 | 71  | 81 |
|          | 4 | 48  | 64 | 87  | 77  | 80 |

Find by using the assignment method, the assignment of mechanics to the job that will result in a maximum profit. Which job should be declined?

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13. (a) Explain the minimum spanning tree algorithm.

Or

(b) Clarify about the various types of Job Sequencing problem.

14. (a) Explain the terms: critical path, critical activities.

Or

(b) A small project is composed of 7 activities whose time estimates are listed below. Activities are being identified by their beginning (i) and ending (j) node numbers.

Activities Time in weeks

| i | j | $t_o$ | $t_i$ | $t_p$ |
|---|---|-------|-------|-------|
| 1 | 2 | 1     | 1     | 7     |
| 1 | 3 | 1     | 4     | 7     |
| 1 | 4 | 2     | 2     | 8     |
| 2 | 5 | 1     | 1     | 1     |
| 3 | 5 | 2     | 5     | 14    |
| 4 | 6 | 2     | 5     | 8     |
| 5 | 6 | 3     | 6     | 15    |

(i) Draw the network

(ii) Calculate the expected variances for each

(iii) Find the expected project completed time

(iv) Calculate the probability that the project will be completed at least 3 weeks than expected

(v) If the project due date is 18 weeks, what is the probability of not meeting the due date?

15. (a) Solve the game with the following pay-off matrix.

|                     |   | Player B strategies |    |     |    |   |
|---------------------|---|---------------------|----|-----|----|---|
|                     |   | I                   | II | III | IV | V |
| Palyer A strategies | 1 | 7                   | 5  | 2   | 3  | 9 |
|                     | 2 | 10                  | 8  | 7   | 4  | 5 |
|                     | 3 | 9                   | 12 | 0   | 2  | 1 |
|                     | 4 | 11                  | -2 | -1  | 3  | 4 |

Or

(b) Consider a situation where the mean arrival rate (1) is one customer every 4 minutes and the mean service time (m) is  $2\frac{1}{2}$  minutes. Calculate the average number of customers



in the system, the average queue length and the time taken by a customer in the system and the average time a customer waits before being served.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. Solve by Big M method.

(a) Maximize  $Z = x_1 + 2x_2 + 3x_3 - x_4$

Subject to the constraints

$$x_1 + 2x_2 + 3x_3 = 15$$

$$2x_1 + x_2 + 5x_3 = 20$$

$$x_1 + 2x_2 + x_3 + x_4 = 10$$

Or

(b) Maximize  $z = 4x_1 + 3x_2$

Subject to

$$2x_1 + 3x_2 \leq 6$$

$$-3x_1 + 2x_2 \leq 3$$

$$2x_2 \leq 5$$

$$2x_1 + x_2 \leq 4$$

17. (a) Four different jobs can be done on four different machines and take down time costs are prohibitively high for change overs. The following matrix gives the cost in rupees of producing job  $i$  on machine  $j$ :

| Jobs           | Machine        |                |                |                |
|----------------|----------------|----------------|----------------|----------------|
|                | M <sub>1</sub> | M <sub>2</sub> | M <sub>3</sub> | M <sub>4</sub> |
| J <sub>1</sub> | 5              | 7              | 11             | 6              |
| J <sub>2</sub> | 8              | 6              | 9              | 6              |
| J <sub>3</sub> | 4              | 7              | 10             | 7              |
| J <sub>4</sub> | 10             | 4              | 8              | 3              |

How should the jobs be assigned to the various machines so that the total cost is minimized?

Or

(b) Write the comparison between AP and TP.

18. (a) Explain the basic features and advantages of network models.

Or

- (b) Develop a network diagram for the project specified below:

| Activity | Immediate predecessor activity |
|----------|--------------------------------|
| A        | -                              |
| B        | A                              |
| C,D      | B                              |
| E        | C                              |
| F        | D                              |
| G        | E,F                            |

19. (a) The following details are available regarding a project:

| Activity | Immediate predecessor activity | Duration (weeks) |
|----------|--------------------------------|------------------|
| A        | -                              | 3                |
| B        | A                              | 5                |
| C        | A                              | 7                |
| D        | B                              | 10               |
| E        | C                              | 5                |
| F        | D,E                            | 4                |

Determine the critical path, the critical activities and the project completion time.

Or

- (b) Write the similarities and differences between CPM and PERT.

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20. (a) Solve the game with the following pay-off matrix:

|          |   | Player B |    |     |    |
|----------|---|----------|----|-----|----|
|          |   | I        | II | III | IV |
| Player A | 1 | 4        | 2  | 3   | 6  |
|          | 2 | 3        | 4  | 7   | 5  |
|          | 3 | 6        | 3  | 5   | 4  |

Or

- (b) Find the optimal order quantity for a product for which the price breaks are as follows:

| Quantity           | Price in Rs. per unit |
|--------------------|-----------------------|
| $0 \leq q < 100$   | 20                    |
| $100 \leq q < 200$ | 18                    |
| $200 \leq \infty$  | 16                    |

The monthly demand for the product is 400 units. The storage cost is 20% of the unit cost and the ordering cost is Rs. 25 per order.

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Computer Application — Core  
SOFTWARE ENGINEERING

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ software is designed to be sold on open market.
- (a) Custom software  
(b) Generic software  
(c) Embedded software  
(d) None of these

7. In \_\_\_\_\_ design, you start with very high level structure of the system.

- (a) top-down (b) bottom-up  
(c) architecture (d) class

8. \_\_\_\_\_ occurs when there are inter dependencies between one module and another.

- (a) Cohesion (b) Coupling  
(c) Utility (d) Network

9. \_\_\_\_\_ chart shows the sequence in which tasks must be completed.

- (a) PERT (b) Gantt  
(c) Earn value (d) None

10. \_\_\_\_\_ is the process of deciding the sequence a set of activities will be performed.

- (a) Scheduling (b) Tracking  
(c) Testing (d) Planning

2. \_\_\_\_\_ are also known as clients.

- (a) Customers (b) Users  
(c) Developers (d) Managers

3. \_\_\_\_\_ is a process by which a software engineer learns background information.

- (a) Domain analysis  
(b) Requirement analysis  
(c) Specification analysis  
(d) Information analysis

4. \_\_\_\_\_ is a statement about what the proposed system will do.

- (a) Task (b) Order  
(c) Requirement (d) Interface

5. \_\_\_\_\_ is used to show how two classes are related to each other.

- (a) Association (b) Generalization  
(c) Multiplicity (d) None of these

6. Aggregations are specified using a \_\_\_\_\_ symbol.

- (a) rectangle (b) circle  
(c) diamond (d) line

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Discuss the nature of software.

Or

(b) What is an object? Explain with example.

12. (a) What are functional requirements? Explain.

Or

(b) Give a brief account on generalization.

13. (a) What is reflexive association? Explain.

Or

(b) Explain sequence diagrams.

14. (a) Define coupling. What are the different types of coupling?

Or

(b) Explain Broker architectural pattern.

15. (a) Discuss project scheduling and tracking.

Or

(b) Explain the roles of development team.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain in detail the activities common to software projects.

Or

- (b) Explain the features of object oriented language.

17. (a) Discuss and explain the techniques for analyzing and gathering requirements.

Or

- (b) Explain about difficulties and risks in domain and requirements analysis.

18. (a) Explain aggregation and interfaces.

Or

- (b) Explain State diagrams.

19. (a) Explain MVC architectural pattern.

Or

- (b) Explain the process of writing a good design document.

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20. (a) Explain the defects in ordinary algorithms.

Or

- (b) Explain the defects in numerical algorithms.
- 

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(6 pages)

Reg. No. : .....

Code No. : 20240 E Sub. Code : SMCA 52/  
AMCA 52

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Computer Application — Core

WEB TECHNOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. MIME stands for
  - (a) Multipurpose Internet Mail Extra
  - (b) Multipurpose Internet mail End
  - (c) Multipurpose Internet Mail Email
  - (d) Multipurpose Internet Mail Extensions

7. XML is designed to store data and \_\_\_\_\_
  - (a) Design
  - (b) Verify
  - (c) Both (a) and (b)
  - (d) Transport
8. In schema, data type can be specified using
  - (a) Type
  - (b) Data type
  - (c) Dt:type
  - (d) Data:type
9. Which of the following gives the path for CGI script?
  - (a) remote\_host
  - (b) remote\_addr
  - (c) query\_string
  - (d) path\_info
10. CGI stands for \_\_\_\_\_
  - (a) Common Gigabyte Interface
  - (b) Common Gateway Interface
  - (c) Common Gaming Interface
  - (d) Common Gateway Internet

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Briefly explain about web server and clients.

Or

- (b) What is meant by URL? Explain.

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2. The communication protocol used by internet is
  - (a) HTTP
  - (b) WWW
  - (c) TCP/IP
  - (d) FTP
3. Which is the correct syntax to include comment in an HTML document?
  - (a) //
  - (b) /\*Comment\*/
  - (c) //Comment//
  - (d) <!--Comment-->
4. Which HTML tag is used to define a hyperlink?
  - (a) <a>
  - (b) <h>
  - (c) <hyperlink>
  - (d) both (a) and (b)
5. Which of the following is not JavaScript data types?
  - (a) undefined
  - (b) number
  - (c) boolean
  - (d) float
6. Among the following, which one is a ternary operator in Java Script?
  - (a) #
  - (b) ::
  - (c) &:
  - (d) ?:

Page 2 Code No. : 20240 E

12. (a) What is HTML? Explain some basic tags.  

Or

(b) Explain in detail about image tag and its attributes.
13. (a) Discuss about looping statements in JavaScript.  

Or

(b) Explain various operators involved in JavaScript.
14. (a) Explain the use of XML namespace.  

Or

(b) How to use DTD in an XML?
15. (a) Explain Servlet life cycle.  

Or

(b) What is server-side CGI script?

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[P.T.O.]

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Describe in detail about www.

Or

(b) Explain in detail about HTTP protocol.

17. (a) Describe in detail about various form controls.

Or

(b) Explain in detail about list tag.

18. (a) Explain in detail about functions in JavaScript.

Or

(b) Explain in detail about conditional statements in JavaScript.

19. (a) Explain briefly about XML schema.

Or

(b) Explain in detail about elements and attributes in XML.

20. (a) Describe in detail of servlet architecture.

Or

(b) Discuss about request specific environmental variables.

A.(CBCS) DEGREE EXAMINATION, APRIL 2022

Sixth Semester

Computer Application — Core

OPERATING SYSTEMS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

\_\_\_\_\_ is a program that acts as an intermediary between the user of a computer and computer hardware.

- (a) Application
- (b) Operating system
- (c) Desktop
- (d) Window

An address generated by the CPU is commonly referred to as a \_\_\_\_\_ address.

- (a) Physical
- (b) Register
- (c) Logical
- (d) Static

The run-time mapping from virtual to physical address is done by a hardware device called the \_\_\_\_\_ unit.

- (a) Register
- (b) Memory-management
- (c) Processor
- (d) Bus

\_\_\_\_\_ is a named collection of related information that is recorded on secondary storage.

- (a) File
- (b) Data
- (c) Page
- (d) Semaphore

Identify the block that contain information needed by the system to boot an OS from that partition

- a) PCB
- b) FCB
- c) Boot control block
- d) Partition block

- 2. Operating system provides an \_\_\_\_\_ within which other programs can do useful work.
  - (a) System
  - (b) Resource
  - (c) Power
  - (d) Environment
- 3. \_\_\_\_\_ is a program in execution.
  - (a) Process
  - (b) Section
  - (c) Text
  - (d) Stack
- 4. Which state of a process defined? "The process has finished execution".
  - (a) New
  - (b) Running
  - (c) Terminated
  - (d) Ready
- 5. Process synchronization can be done on
  - (a) Hardware level
  - (b) Software level
  - (c) Both (a) and (b)
  - (d) User level
- 6. Which one of the following is the deadlock avoidance algorithm?
  - (a) Banker's algorithm
  - (b) Round-robin algorithm
  - (c) Elevators algorithm
  - (d) Karn's algorithm

Page 2 Code No. : 30519 E

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- 11. (a) What are the main purpose of an operating system?  
Or  
(b) Distinguish between mainframe computers and personal computers.
- 12. (a) Describe the state of a process.  
Or  
(b) Comment on preemptive scheduling.
- 13. (a) Give a solution to the critical-section problem.  
Or  
(b) Narrate the necessary conditions for deadlock.
- 14. (a) Explain the address binding.  
Or  
(b) Compare first fit, best fit and worst fit storage strategies.

15. (a) What are the operations performed in a file?  
Explain.

Or

(b) Illustrate the features of storage area network.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write note on multiprogramming.

Or

(b) Describe the advantages of multiprocessor systems.

17. (a) Explain the shortest-job-first scheduling algorithm.

Or

(b) Illustrate the objectives of process scheduling.

18. (a) Discuss the banker's algorithm for deadlock avoidance.

Or

(b) Write note on semaphores.

Page 5 Code No. : 30519 E

19. (a) Narrate the multistep processing of a user program.

Or

(b) Describe the most common techniques used for structuring the page table.

20. (a) Write note on RAID structure.

Or

(b) Explain the file access methods.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain about mainframe systems and desktop systems.

Or

- (b) Write in detail about :

- (i) Time sharing system
- (ii) Multiprocessor system.

17. (a) Explain about real time scheduling.

Or

- (b) Write the algorithm of deadlock avoidance. Discuss it.

18. (a) Explain how to implement semaphore.

Or

- (b) What do you mean by critical section problem? Explain.

19. (a) Discuss about paging with segmentation.

Or

- (b) Write about demand paging of virtual memory.

20. (a) Explain in details about directory structures.

Or

- (b) Explain the following file operation :

- (i) creating a file
- (ii) writing a file
- (iii) reading a file
- (iv) repositioning within a file
- (v) deleting a file
- (vi) truncating a file.

(CBCS) DEGREE EXAMINATION, APRIL 2022

Sixth Semester

Computer Applications — Core

COMPUTER NETWORKS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

Identify the networks consist of many connections between individual pairs of machines

- a) Point-to-point (b) Broadcast
- c) Packet (d) Frames

A cable television network is example for

- a) LAN (b) WAN
- c) MAN (d) SAN

Name the software responsible for deciding which output line an incoming packet should be transmitted on

- a) Routing (b) Segmentation
- c) Protection (d) Swapping

A TCP packet is called a \_\_\_\_\_

- a) user datagram (b) segment
- c) datagram (d) frame

The e-mail \_\_\_\_\_ function refers to moving messages from the originator to the recipient.

- a) Transfer (b) Reporting
- c) Composition (d) Displaying

The art of breaking ciphers, called \_\_\_\_\_

- a) cryptanalysis (b) plain text
- c) cipher text (d) key

- 3. Optical fibers are made of
  - (a) Cables (b) Resistors
  - (c) Glass (d) Diodes
- 4. The OSI \_\_\_\_\_ layer is implemented mainly by hardware.
  - (a) Physical (b) Presentation
  - (c) Application (d) Session
- 5. At the \_\_\_\_\_ level, the trailer usually contains bits used for error detection.
  - (a) Network (b) Session
  - (c) Transport (d) Datalink
- 6. In which ARQ, when NAK is received, all frames sent since the last frame acknowledge are retransmitted
  - (a) Go Back n (b) Stop-an-wait
  - (c) Selective-repeat (d) Selective-reject

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- 11. (a) Explain the principles of metropolitan area network.

Or

- (b) Give a fundamental idea of home networks.

- 12. (a) Describe the characteristics of twisted pair.

Or

- (b) Write note on micro wave transmission.

- 13. (a) Mention the basic strategies for dealing with errors.

Or

- (b) Explain the simplex stop-and-wait protocols.

- 14. (a) Discuss the optimality principle.

Or

- (b) Describe approaches used to control congestion in virtual circuit subnets.

15. (a) Give brief note on basic functions supported by e-mail systems.

Or

(b) What is meant by Kerckhoff's principle?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Examine the features of WAN.

Or

(b) What are Design issues of the layers? Explain.

17. (a) Write note on geostationary satellites.

Or

(b) Explain the principles guided transmission media.

18. (a) Discuss the simplex protocol for a noisy channel.

Or

(b) Write note on pure ALOHA and slotted ALOHA.

Page 5 Code No. : 30520 E

19. (a) How hierarchical routing and broadcast routing algorithms works? Explain.

Or

(b) Explain the features of transmission control protocol.

20. (a) Write note on AES.

Or

(b) Describe the principles of digital signatures.

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B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Sixth Semester

Computer Application — Core

COMPUTER NETWORKS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ networks have a single communication channel that is shared by all the machines on the network.
- (a) Point-to-point      (b) Broadcast  
(c) Packet                (d) Frames

7. The routing algorithm is that part of the \_\_\_\_\_ layer.
- (a) physical                (b) data link  
(c) network                (d) session

8. Name the routing algorithm in which every incoming packet is sent out on every outgoing line except the one it arrived on
- (a) Shortest path      (b) Flooding  
(c) Dijkstra              (d) Optimal

9. \_\_\_\_\_ refers to the process of creating messages and answers.
- (a) Send                    (b) User agents  
(c) Composition        (d) Spam

10. \_\_\_\_\_ is a character-for character or bit-for-bit transformation.
- (a) Code                    (b) Date  
(c) Cipher                (d) Text

2. FDDI is another example of a \_\_\_\_\_ network.
- (a) Bus                      (b) Star  
(c) Mesh                    (d) Frames
3. \_\_\_\_\_ consists of a stiff copper wire as the core, surrounded by an insulating materials.
- (a) Fiber optic            (b) Twisted pair cable  
(c) Coaxial cable        (d) Radio waves
4. Which transmission media has the highest transmission speed in a network?
- (a) coaxial cable        (b) twisted pair cable  
(c) optical fiber        (d) electrical cable
5. The data link layer divides the stream of bits received from the network layer into data units called
- (a) segments              (b) frames  
(c) datagrams            (d) messages
6. The \_\_\_\_\_ layer detects and retransmits damaged or lost frames.
- (a) network                (b) session  
(c) transport              (d) datalink

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Compare broadcast links with point-to-point links.
- Or
- (b) Comment on bus and ring topology.
12. (a) Write note on magnetic media.
- Or
- (b) Describe the characteristics of radio transmission.
13. (a) Give an algorithm for computing checksum.
- Or
- (b) Explain the process of unrestricted simplex protocol.
14. (a) Compare adaptive routing algorithm with non-adaptive routing algorithm.
- Or
- (b) Mention the policies that affect congestion.

15. (a) Illustrate the fundamental cryptographic principles.

Or

- (b) Write note on SMTP.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the OSI reference model.

Or

- (b) Examine the features of LAN.

17. (a) Discuss the features of fiber optic cable.

Or

- (b) Write note on electromagnetic spectrum.

18. (a) Explain about error-detecting codes.

Or

- (b) Describe the features of carrier sense multiple access protocols.

19. (a) Discuss the distance vector routing algorithm.

Or

- (b) Illustrate the steps in making a remote procedure call.

20. (a) Write note on DES.

Or

- (b) Explain the concept digital signatures using message digests.

A. (CBCS) DEGREE EXAMINATION, APRIL 2022

Sixth Semester

Computer Applications — Core

COMPUTER GRAPHICS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

Heat supplied to the cathode by directing a current through a coil of wire is called

- (a) Electron gun
- (b) Electron beam
- (c) Filament
- (d) Anode and cathode

Random-Scan system mainly designed for

- (a) Realistic shaded screen
- (b) Fog effect
- (c) Line-drawing applications
- (d) Aliasing

A process which divides each segment of the picture into its visible and invisible portion, allowing the invisible portion to be discarded is called

- (a) Clipping
- (b) Windowing
- (c) Segmenting
- (d) Filling

Mapping the world co-ordinates into physical device co-ordinates is called \_\_\_\_\_

- (a) Translation
- (b) Homogeneous transformation
- (c) Co-ordinate conversion
- (d) Viewing transformation

The surfaces that is blocked or hidden from view in a 3D scene are known as

- (a) Hidden surface
- (b) Frame buffer
- (c) Quad tree
- (d) Stack

The method which is based on the principle of comparing objects and parts of objects to each other to find which are visible and which are hidden are called

- (a) image-space method
- (b) surface space method
- (c) segment based
- (d) object-space method

- 3. Why a circle drawn on the screen appears to be elliptical?
  - (a) It is due to the aspect ratio of monitor
  - (b) Screen has rectangular shape
  - (c) Our eyes are not at the same level on screen
  - (d) CRT is completely spherical
- 4. Expansion of line DDA algorithm is
  - (a) Digital difference analyser
  - (b) Direct differential analyser
  - (c) Digital differential analyzer
  - (d) Data differential analyser
- 5. The transformation in which an object is moved in a minimum distance path form one position to another is called \_\_\_\_\_
  - (a) Scaling
  - (b) Translation
  - (c) Rotation
  - (d) Reflection
- 6. The transformation in which the dimension of an object are changed relative to a specified fixed point is called
  - (a) Translation
  - (b) Rotation
  - (c) Reflection
  - (d) Scaling

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- 11. (a) Comment on graphics software packages.
 

Or

 (b) Write note on graphical output devices.
- 12. (a) Explain the polynomial method for scan conversion.
 

Or

 (b) Illustrate the steps involved in Odd-Even method.
- 13. (a) Discuss the 2D translation transformation.
 

Or

 (b) Describe the transformation of points and objects.
- 14. (a) What is meant by Windows and Viewports?
 

Or

 (b) Describe the process of clipping against concave windows.

15. (a) What are the challenges in removal of hidden parts from images of solid objects?

Or

- (b) Describe the types of hidden surface detection methods.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the applications of computer graphics.

Or

- (b) Illustrate the common input devices.

17. (a) Explain the DDA line drawing algorithm.

Or

- (b) Discuss the algorithm for scan line fill and scan line seed fill algorithm.

18. (a) How to perform 2-D reflection transformation? Explain.

Or

- (b) Explain the 3-D translation transformation and 3-D shearing.

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19. (a) Discuss the Cohen-Sutherland clipping algorithm.

Or

- (b) Write an algorithm for Liang – Barsky clipping technique.

20. (a) Illustrate the Z-buffer algorithm.

Or

- (b) Explain the back face removal algorithm in detail.

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B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Sixth Semester

Computer Application — Core

COMPUTER GRAPHICS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The device used to provide hardcopy is  
(a) CRT (b) Computer console  
(c) Printer (d) Card reader
2. Any data and instruction entered in the memory of a computer is  
(a) storage (b) output  
(c) input (d) information

7. Clipping in computer graphics is primarily used for  
(a) Zooming  
(b) Copying  
(c) Removing objects and lines  
(d) All of the above
8. The Cohen-Sutherland algorithm divides the two-dimensional space in how many regions?  
(a) 4 (b) 8  
(c) 9 (d) 23
9. Which surface algorithm is based on perspective depth?  
(a) Depth comparison  
(b) Z-buffer or depth-buffer algorithm  
(c) Subdivision method  
(d) Back-face removal
10. The types of hidden surface removal algorithm are  
(a) Depth comparison, Z-buffer, back-face removal  
(b) Scan line algorithm, priority algorithm  
(c) BSP method, area subdivision method  
(d) All of these

3. Which algorithm is a faster method for calculating pixel positions?  
(a) Bresenham's line algorithm  
(b) Parallel line algorithm  
(c) Mid-point algorithm  
(d) DDA line algorithm
4. If we want to recolor an area that is not defined within a single color boundary is known as  
(a) Boundary-fill algorithm  
(b) Parallel curve algorithm  
(c) Flood-fill algorithm  
(d) None of the above
5. The process of repositioning an object along a circular path is called  
(a) Rotation (b) Scaling  
(c) Translation (d) Transformation
6. Which of the following device is used for the 3D positioning of an object?  
(a) Trackball (b) Mouse  
(c) Spaceball (d) All of the above

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) List the applications of computer graphics and discuss any one.  

Or

(b) Differentiate raster scan display and random scan display.
12. (a) Explain the DDA line drawing algorithm.  

Or

(b) Explain boundary fill algorithm with merits and demerits.
13. (a) How shearing transformations in 3D graphics are achieved?  

Or

(b) Explain in detail about 2D scaling.
14. (a) Differentiate between window port and view port.  

Or

(b) Write notes on point clipping.

15. (a) Explain briefly about back face removal algorithm.

Or

- (b) Write short notes on object space methods.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the working of refresh Cathode-ray tubes with a diagram.

Or

- (b) Draw the architecture and explain working of raster scan display system.

17. (a) Explain the steps in midpoint circle drawing algorithm with suitable diagram.

Or

- (b) Discuss in detail Bresenham's line-drawing algorithm.

18. (a) Explain about 2D composite transformation.

Or

- (b) What is shear transformation in 2D? Explain X-shear and Y-share with example.

19. (a) Write down the procedure for the Cohen-Sutherland line-clipping algorithm.

Or

- (b) Briefly explain about Sutherland Hodgeman polygon clipping algorithm.

20. (a) Explain in detail about Z-buffer algorithm.

Or

- (b) Discuss Hidden surface elimination and various coherences.
-

(6 pages)

Reg. No. : .....

Code No. : 20249 E      Sub. Code : SSCA 3 A/  
ASCA 31

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application

Skill Based Subject — PROGRAMMING WITH PHP  
AND MYSQL

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Variable name in PHP starts with
- (a) ! (Exclamation)      (b) \$ (Dollar)  
(c) & (Ampersand)      (d) # (Hash)

2. PHP scripts are enclosed within \_\_\_\_\_
- (a) <php> ... </php>      (b) <?php ... ?>  
(c) ?php ... ? php      (d) <p> ... </p>
3. Which of the following function is used to get the value of the previous element in an array?
- (a) last()      (b) before()  
(c) prev()      (d) previous()
4. What will be the output of the following PHP code?
- ```
<?php  
$fruits=array("apple", "orange", "banana");  
echo(next($fruits));  
echo(next($fruits));  
?>
```
- (a) orangebanana      (b) appleorange  
(c) orangeorange      (d) appleapple
5. Which function is used to read a file character by character?
- (a) Fopen()      (b) fred()  
(c) fgetc()      (d) file()

6. The `file_get_contents` function returns the entire content of a file as
- (a) integer                      (b) string  
(c) character                    (d) boolean
7. Which of the following is available in MySQL?
- (a) CREATE VIEW  
(b) CREATE SCHEMA  
(c) CREATE TRIGGER  
(d) CREATE DATABASE
8. To remove duplicate rows from the result set of a select use the following keyword
- (a) NO DUPLICATE      (b) UNIQUE  
(c) DISTINCT            (d) None of the above
9. The updated MySQL extension released with PHP 5 is typically referred to as
- (a) MySQL                      (b) mysql  
(c) mysqli                      (d) mysqlly
10. If there is no error, then what will the `error()` method return?
- (a) TRUE                        (b) FALSE  
(c) EmptyString                (d) 0

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) List and explain any five features of PHP.
- Or
- (b) How to control loop iterations with break and continue statements?
12. (a) How to store data in cookies?
- Or
- (b) How do you define and invoke user defined functions in PHP?
13. (a) Elaborate on file opening and file closing functions in PHP with example.
- Or
- (b) What is the use of `fscanf()` function, give example?
14. (a) Describe the prerequisites for MySQL connection.
- Or
- (b) Enumerate and explain the aggregate functions in MySQL.

15. (a) Write down the usage and explain of REPEAT() function in MYSQL.

Or

- (b) How will you validate date in MYSQL?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Write a "Hello world" script in PHP and explain the code.

Or

- (b) Elaborate on various operators supported by PHP.

17. (a) Illustrate (i) How to execute external program from your PHP script? (ii) Any four array functions in PHP.

Or

- (b) Distinguish between GET and POST methods.

18. (a) How to read and write binary files in PHP?

Or

- (b) Analyse the use of parse-ini-file in PHP.

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19. (a) How do you create tables and insert rows in tables?

Or

- (b) Compare inner join and outer join with examples.

20. (a) How to connect MYSQL database with PHP? Give example code.

Or

- (b) What are the ways to format numeric data?

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Reg. No. : .....

Code No. : 30527 E Sub. Code : SSCA 4 A/  
ASCA 41

(CBCS) DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Computer Applications

Skill Based Subject — MICROPROCESSOR

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

Which of these is the architecture of microprocessor?

- (a) CISC
- (b) RISC
- (c) Both (a) and (b)
- (d) None of these

The technique of assigning a memory address to each I/O device in the computer system is called

- a) memory – mapped I/O
- b) ported I/O
- c) dedicated I/O
- d) wired I/O

A computer program that converts an entire program into machine language at one time is called a/an

- a) Interpreter
- (b) Simulator
- (c) Compiler
- (d) Commander

The advantage of RISC processor over CISC processor is that

- (a) The hardware architecture is simpler
- (b) An instruction can be executed in one cycle
- (c) Less number of registers accommodate in chip
- (d) Parallel execution capabilities

What is the output of the following code PUSH AL?

- (a) Decrement SP by 2 and push a word to stack
- (b) Increment SP by 2 and push a word to stack
- (c) Decrement SP by 2 and push an AL to stack
- (d) Illegal

- 2. RISC stands for
  - (a) Reduced Instruction Set Computer
  - (b) Reduced Integrated Set Computer
  - (c) Resource Instruction Set Computer
  - (d) Resource Instruction System Computer
- 3. ALE demultiplexes the \_\_\_\_\_ and \_\_\_\_\_
  - (a) Data bus, low order address bus
  - (b) Data bus, high order address bus
  - (c) Data bus, address bus
  - (d) All of the above
- 4. 8085 microprocessor zero flag is set if \_\_\_\_\_ results zero.
  - (a) I/O operation
  - (b) Memory operation
  - (c) Mux operation
  - (d) ALU operation
- 5. The \_\_\_\_\_ ensures that only one IC is active at a time to avoid a bus conflict caused by two ICs writing different data to the same bus.
  - (a) Control bus
  - (b) Control instructions
  - (c) Address decoder
  - (d) CPU

- 10. What is the function of watchdog timer?
  - (a) The watchdog timer is an external timer that resets the system if the software fails to operate properly
  - (b) The watchdog timer is an internal timer that sets the system if the software fails to operate properly
  - (c) The watchdog timer is an internal timer that resets the system if the software fails to operate properly
  - (d) None of them

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- 11. (a) Explain the functions of flags in 8085 microprocessor.

Or

- (b) Write a brief note on Z-80 microprocessor.

- 12. (a) Explain the term : Instruction cycle.

Or

- (b) Explain the timing diagram for opcode fetch.

13. (a) Explain what is vectored interrupt.
- Or
- (b) Discuss the function of DMA data controller 8257.
14. (a) Explain how an A/D converter can be realized employing a D/A converter.
- Or
- (b) Write a note on display interface.
15. (a) What are co-processors? Explain with example.
- Or
- (b) Explain the importance of multi bus.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Draw the architecture of 8085 microprocessor and explain the functions of each block.
- Or
- (b) Explain in detail the various addressing modes in 8085 microprocessor.

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17. (a) With suitable diagrams, explain the timing diagram for memory read and write cycle.
- Or
- (b) Write an assembly language program to add two 8-bit numbers, the sum may be of 16 bits.
18. (a) Explain the different operating modes of 8255A PPI.
- Or
- (b) Describe the programmable interrupt controller 8259.
19. (a) Explain the interfacing of A/D converter to 8085 microprocessor.
- Or
- (b) Explain the interfacing techniques of stepper motor with 8085 microprocessor.
20. (a) Give detail account on bus interface controller.
- Or
- (b) Explain the following :
- (i) RS232 bus standard and
  - (ii) GPIO.

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(6 pages)

Reg. No. : .....

Code No. : 20250 E Sub. Code : SSCA 4 A/  
ASCA 41

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fourth Semester

Computer Application

Skill Based Subject — MICROPROCESSOR

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A group of four bits is known as \_\_\_\_\_  
(a) Bit (b) Byte  
(c) Word (d) Nibble
2. The \_\_\_\_\_ register is used to perform arithmetic and logic operations.  
(a) Program counter (b) Stack pointer  
(c) Accumulator (d) Flag

3. Dynamic memory stores the bit as a \_\_\_\_\_  
(a) signal (b) voltage  
(c) charge (d) word
4. MPU stands for \_\_\_\_\_  
(a) Macro Processing Unit  
(b) Micro Processing Unit  
(c) Macro Programming Unit  
(d) Micro Programming Unit
5. The process of breaking the given task into small units that can be built independently is called \_\_\_\_\_  
(a) modular-design approach  
(b) top-down approach  
(c) bottom-up approach  
(d) simple-design approach
6. What is the result obtained when the rotate instruction RLC is performed on the data 0000 1000?  
(a) 0100 0000 (b) 0000 0100  
(c) 0000 0001 (d) 0001 0000



7. \_\_\_\_\_ is a procedure in which various information is passed between a calling program and a subroutine.

- (a) Parameter passing (b) Program passing  
(c) Instruction passing (d) Data passing

8. When the instruction RET is executed the stack pointer is incremented by \_\_\_\_\_

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

9. Multiplication can be performed by \_\_\_\_\_

- (a) repeated addition  
(b) repeated subtraction  
(c) subtraction followed by addition  
(d) addition followed by subtraction

10. The instruction that performs the function of adjusting a BCD sum in the 8085 instruction set is \_\_\_\_\_

- (a) DCX (b) DAA  
(c) ADI (d) ANI

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) List down the various types of microcomputers and discuss about each type briefly.

Or

(b) What is an instruction? Explain the various types of instruction with suitable examples.

12. (a) What is the use of READ/WRITE memory? Explain its types.

Or

(b) Briefly explain the externally initiated signals and interrupts.

13. (a) Discuss the various branch operations of 8085 instruction set.

Or

(b) What is the difference between LXI and MVI instructions? Explain LXI instructions with appropriate examples.

14. (a) Draw a flowchart and write a program to set up a hexadecimal counter.

Or

(b) Write down a program to implement traffic signal controller with appropriate flowchart.

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[P.T.O.]

15. (a) Write a program to convert an 8-bit binary number 9FH to ASCII hex code (Assume that the number is stored in memory location XX50H).

Or

- (b) Write down the program and subroutine to subtract two 16-bit numbers with carry.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) What is a microprocessor? Describe the role of other components associated to a microprocessor in a system.

Or

- (b) Give a detailed account on  
(i) 8085 data format  
(ii) 8085 instruction word size.

17. (a) What is the function of ROM? Explain its types.

Or

- (b) Write a detailed account on the 8085 microprocessor.

18. (a) Explain the various arithmetic operations of 8085 instruction set with suitable examples.

Or

- (b) Describe the functions of arithmetic operations related to memory with examples.

19. (a) List down the common errors in a counter program and debugging with an illustration.

Or

- (b) Briefly explain the following :

- (i) Subroutine documentation and parameter passing
- (ii) Restart (RST) instructions
- (iii) Conditional call instructions
- (iv) Conditional return instructions.

20. (a) A binary number is stored in memory location BINBYT. Convert the number into BCD and store each BCD as two unpacked BCD digits in the output buffer. To perform this task, write a main program and two subroutines - one to supply the powers of ten and the other to perform the conversion.

Or

- (b) Write down the program and subroutine to multiply two 8-bit unsigned numbers.

(6 pages)

Reg. No. : .....

Code No. : 7073

Sub. Code : ZCAE 32

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application - Elective

MOBILE APPLICATION DEVELOPMENT

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Mobile phone communication is a
  - (a) Simplex
  - (b) Full duplex
  - (c) Half duplex
  - (d) Full simplex

2. The critical factors that influence mobile application development costs are
  - (a) The app's features and functionalities.
  - (b) Platforms you want to build for and customization of visual design.
  - (c) The complexity of backend infrastructure and administration.
  - (d) All the mentioned
3. On which of the following, developers can test the application, during developing the android applications?
  - (a) Third-party emulators
  - (b) Emulator included in Android SDK
  - (c) Physical android phone
  - (d) All of the above
4. Which of the following virtual machine is used by the Android operating system?
  - (a) JVM
  - (b) Dalvik virtual machine
  - (c) Simple virtual machine
  - (d) Byte code

5. Identify the topmost layer of Android architecture
- (a) Applications
  - (b) Applications frame work
  - (c) Linux kernel
  - (d) System libraries and android runtime
6. The android library that provides access to UI pre-built elements such as buttons, lists, views etc. is
- (a) android.text
  - (b) android.os
  - (c) android.view
  - (d) android.webkit
7. GCM in android stands for
- (a) Google cloud messaging
  - (b) Google count messaging
  - (c) Google center messaging
  - (d) Game center messaging
8. We can create a custom view by extending class
- (a) android.widget.view
  - (b) android.widget.LinearLayout
  - (c) android.view.View
  - (d) android.content

9. In which operating system iPhone/iPad development is done?
- (a) Widows
  - (b) Linux
  - (c) Mac OS
  - (d) Unix
10. Which of the following is application development environments for iOS?
- (a) Cocoa
  - (b) Cocoa touch
  - (c) Cocoa iOS
  - (d) Cocoa begin

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Identify the cost of mobile application development.
- Or
- (b) Construct report on mobile platforms.
12. (a) Interpret the steps in creating your first android application.
- Or
- (b) Sketch the android architecture and explain.

13. (a) Illustrate any two views that you can use to design the UI of your android application.

Or

(b) How do you prepare your android application for publishing?

14. (a) How to send SMS message with android application?

Or

(b) Present the working of downloading binary data with android application.

15. (a) Interpret the components of XCODE.

Or

(b) Describe the windows phone 7 project.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Analyze the importance of mobile strategies in the business.

Or

(b) Elaborate on effective use of screen real estate in mobile application.

17. (a) Present an overview of anatomy of an android application.

Or

(b) What are the activities in android programming?

18. (a) Illustrate views and view groups in android UI design.

Or

(b) How to display maps in android user interface?

19. (a) How do you access web services using GET method?

Or

(b) Illustrate the sending email with android application program.

20. (a) Describe the iOS architecture for mobile application.

Or

(b) What are the important tools for iOS app development? Explain.

(6 pages)

Reg. No. : .....

Code No. : 7055

Sub. Code : ZCAM 11

M.C.A(CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Computer Applications – Core

MATHEMATICAL FOUNDATION FOR  
COMPUTER SCIENCE

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Find the Eigen values for the following 2×2 matrix.?

$$A = \begin{bmatrix} 1 & 8 \\ 2 & 1 \end{bmatrix}$$

- (a) -3                      (b) 2  
(c) 6                        (d) 4

2. The Eigen value is \_\_\_\_\_  
(a) A vector obtained from the coordinates  
(b) A matrix determined from the algebraic equations  
(c) A scalar associated with a given linear transformation  
(d) It is the inverse of the transform
3.  $p \vee q$  is logically equivalent to \_\_\_\_\_  
(a)  $\neg q \rightarrow \neg p$                       (b)  $q \rightarrow p$   
(c)  $\neg p \rightarrow \neg q$                       (d)  $\neg p \rightarrow q$
4. A predicate is a proposition containing \_\_\_\_\_, which is what's dealt with in predicate logic?  
(a) Statics                      (b) Variables  
(c) Numbers                      (d) Logic
5. A relation can be represented using a?  
(a) In directed graph                      (b) Pie graph  
(c) Directed graph                      (d) Line graph
6. The \_\_\_\_\_ Relation between sets X and Y is the set  $X \times Y$ .  
(a) Empty                      (b) Full  
(c) Identity                      (d) Inverse

7. A variable (Random Variable) assuming an infinite number of values is called
- Continuous Random Variable
  - Discrete Random Variable
  - Absolute Variable
  - Data
8. Normal Distribution is applied for \_\_\_\_\_
- Continuous Random Distribution
  - Discrete Random Variable
  - Irregular Random Variable
  - Uncertain Random Variable
9. A spanning tree with the smallest weight in a weighted graph is known as
- Shortest spanning graph
  - Shortest spanning tree
  - Simple spanning tree
  - Weighted tree
10. Which one of the following is not a matrix representation in graph?
- Adjacency Matrix
  - Circuit Matrix
  - Incidence Matrix
  - Data Matrix

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Draw the Venn diagram for union and intersection operations.
- Or
- (b) Elucidate the eigenvectors with example.
12. (a) Write short note on predicate logic.
- Or
- (b) Describe about the rules of inference with example.
13. (a) Explain the discrete Random variable with example.
- Or
- (b) Explain the properties of partial order relations.
14. (a) Explain the continuous probability distributions with example.
- Or
- (b) Explain the binominal distribution with example.

15. (a) Explain the graph isomorphism with example.

Or

(b) Describe about the planer graph with example.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) If  $A = \{10, 20, 33, 44\}$  and  $B = \{44, 55, 66, 77, 10, 20\}$ , then find the union, intersection and set difference of A and B.

Or

(b) Illustrate the Eigen values with example.

17. (a) Construct the truth table for the given statements  $p \vee \neg(p \wedge q)$

Or

(b) Show that  $\neg(p \rightarrow q)$  is equivalent to  $p \wedge \neg q$

18. (a) How will you represent the relations? Discuss it.

Or

(b) Explain the equivalence relations with example.

19. (a) Explain the following.

(i) Mean (ii) Variance (iii) Co-Variance

Or

(b) Demonstrate the discrete probability distribution with example.

20. (a) Explain the types of graph with example.

Or

(b) Discuss the following

(i) Graphy Isomorphism (ii) Connectivity  
(iii) Euler Graph



(6 pages)

Reg. No. : .....

Code No. : 7056

Sub. Code : ZCAM 12

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022

First Semester

Computer Application – Core

COMPUTER ORGANIZATION AND ARCHITECTURE

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. What kind of operation occurs in a J - K flip flop when both inputs J and K are equal to 1?
  - (a) Preset operation
  - (b) Reset operation
  - (c) Clear operation
  - (d) Toggle operation

2. Which of these flip – flops cannot be used to construct a serial shift register?
  - (a) D – flip flop
  - (b) SR flip – flop
  - (c) T flip – flop
  - (d) JK flip – flop
3. The main advantage of multiple bus organisation over a single bus is \_\_\_\_\_
  - (a) Reduction in the number of cycles for execution
  - (b) Increase in size of the registers
  - (c) Better Connectivity
  - (d) All the above
4. \_\_\_\_\_ converts the programs written in assembly language into machine instructions.
  - (a) Machine compiler
  - (b) Interpreter
  - (c) Assembler
  - (d) Converter
5. The addressing mode, where you directly specify the operand value is \_\_\_\_\_
  - (a) Immediate
  - (b) Direct
  - (c) Definite
  - (d) Relative

6. Which of the following processor has a fixed length of instructions?
- (a) CISC (b) RISC  
(c) EPIC (d) Multi-core
7. The 1's complement of 1 in 4 bits is \_\_\_\_\_
- (a) 0001 (b) 0  
(c) 1001 (d) 1110
8. \_\_\_\_\_ transmission mode can transmit data in both the directions but transmits in only one direction at a time.
- (a) simplex (b) half duplex  
(c) full duplex (d) half-simplex
9. Which of the following is the fastest means of memory access for CPU?
- (a) Registers (b) Cache  
(c) Main memory (d) Virtual Memory
10. Which of the following is independent of the address bus?
- (a) Secondary memory  
(b) Main memory  
(c) Onboard memory  
(d) Cache memory

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Derive the truth table for the following function :  $F = x + yz$ .
- Or
- (b) Write brief notes on Counters.
12. (a) What is Register Transfer? Give Example.
- Or
- (b) Explain the various functions in an Instruction cycle.
13. (a) Mention the address sequencing capabilities required in a control memory of a Microprogrammed Control Unit.
- Or
- (b) Write about Data Transfer Instruction's names and the Mnemonics and its use.
14. (a) How will you perform the Addition and Subtraction with Signed-2's Complement Data?
- Or
- (b) Write about the strobe control method of asynchronous data transfer.

15. (a) Write about the RAM chip and its function table.

Or

- (b) Write brief notes on Time-shared common bus.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Illustrate the design procedure for a Combinational circuit with block diagram.

Or

- (b) What are shift registers? Explain the four basic types of shift registers.

17. (a) Explain in detail about Memory transfers.

Or

- (b) Illustrate the Arithmetic Logic Shift Unit with diagram.

18. (a) Specify the steps for executing a single computer instruction in a Microprogrammed Control Unit.

Or

- (b) Describe Stack Organization and Register Stack with diagram.

19. (a) Illustrate the hardware for multiplication operation with block diagram.

Or

- (b) Illustrate the connection of IO bus with IO devices with block diagram.

20. (a) Illustrate the memory hierarchy in a computer system with block diagram.

Or

- (b) Describe the important characteristics of Multiprocessors.
-

(6 pages)

Reg. No. : .....

Code No. : 7057

Sub. Code : ZCAM 13

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Computer Application – Core

DESIGN AND ANALYSIS OF ALGORITHMS  
USING C++

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

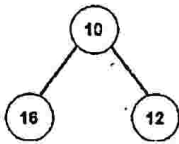
Answer ALL questions.

Choose the correct answer :

1. Which one of the following is an application of queue data structure
  - (a) When a resource is shared among multiple consumers
  - (b) When data is transferred asynchronously
  - (c) Load Balancing
  - (d) All of the above

2. Which of the following data structures can be used to implement queues?
  - (a) Stack
  - (b) Arrays
  - (c) Linked List
  - (d) All of the Above
3. Merge sort uses which of the following technique to implement sorting?
  - (a) backtracking
  - (b) greedy algorithm
  - (c) divide and conquer
  - (d) dynamic programming
4. What is the worst case time complexity of a quick sort algorithm?
  - (a)  $O(N)$
  - (b)  $O(N \log N)$
  - (c)  $O(N^2)$
  - (d)  $O(\log N)$
5. Consider a complete graph G with 4 vertices. The graph G has \_\_\_\_\_ spanning trees.
  - (a) 15
  - (b) 8
  - (c) 16
  - (d) 13

6. The following given tree is an example for?



- (a) Binary tree                      (b) Binary search tree  
(c) Fibonacci tree                    (d) AVL tree

7. What is the traversal strategy used in the binary tree?

- (a) Depth-first traversal  
(b) Breadth-first traversal  
(c) Random traversal  
(d) Priority traversal

8. A connected planar graph having 6 vertices, 7 edges contains \_\_\_\_\_ regions.

- (a) 15                                      (b) 3  
(c) 1                                        (d) 11

9. In Hamiltonian Cycle for  $n$  vertices, we \_\_\_\_\_

- (a) Can visit to same vertex two times  
(b) Can't visit same vertex more than one time  
(c) Can omit one vertex  
(d) None of these

10. The worst-case efficiency of solving a problem in polynomial time is?

- (a)  $O(p(n))$                               (b)  $O(p(n \log n))$   
(c)  $O(p(n^2))$                             (d)  $O(p(m \log n))$

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What is a circular queue? Explain.

Or

(b) Define a heap. What are the types of heap?

12. (a) Write the algorithm for finding maximum and minimum using quick sort.

Or

(b) Discuss any five applications of divide and conquer problem.

13. (a) What is greedy method? Give one example for greedy method.

Or

(b) Write the algorithm for all pairs shortest path.

14. (a) What are the traversal method for a graph data structure?

Or

(b) Write the algorithm for N-queen problem.

15. (a) What is job shop scheduling-explain?

Or

(b) How will you solve knap sack problem using branch and bound algorithm?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Write in detail about the asymptotic notations of algorithms.

Or

(b) Explain the dictionary data structure with suitable algorithm.

17. (a) Write the binary search method with algorithmic procedure.

Or

(b) Explain in detail about the strassen's matrix.

18. (a) Explain the 0/1 knapsack problem with suitable algorithm.

Or

(b) Give the general concepts of dynamic programming.

19. (a) What are spanning trees and how will you generate spanning trees?

Or

(b) Explain backtracking with an example.

20. (a) Write the basic Cook's theorem in design of algorithms.

Or

(b) What is NP- hard problem? Explain.

(6 pages)

Reg. No. : .....

Code No. : 7058

Sub. Code : ZCAM 14

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Computer Application – Core

ADVANCED JAVA PROGRAMMING

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is a reserved word in the Java programming language?  
(a) method  
(b) native  
(c) subclasses  
(d) reference

2. Which of these cannot be used for a variable name in Java?  
(a) identifier and keyword  
(b) identifier  
(c) keyword  
(d) none of the mentioned
3. Which of these type parameters is used for a generic methods to return and accept a number?  
(a) K (b) N  
(c) T (d) V
4. Which of the following cannot be Type parameterized?  
(a) Overloaded Methods  
(b) Generic methods  
(c) Class methods  
(d) Overriding methods
5. Suppose you are developing a Java Swing application and want to toggle between various views of the design area. Which of the views given below are present for the users to toggle?  
(a) Design View  
(b) Requirements View  
(c) Source View  
(d) Management View

6. *What is the name of the Swing class that is used for frames?*
- (a) Window (b) Frame  
(c) JFrame (d) SwingFrame
7. What does the `ava.net.InetAddress` class represent?
- (a) Socket (b) IP Address  
(c) Protocol (d) MAC Address
8. Java supports RMI, RMI Stands for?
- (a) Random Method Invocation  
(b) Remote Memory Interface  
(c) Remote Method Invocation  
(d) Random Memory Invocation
9. Which of the following is not an Enterprise Beans type?
- (a) Doubleton (b) Singleton  
(c) Stateful (d) Stateless
10. Which of the following code is used to get an attribute in a HTTP Session object in servlets?
- (a) `session.getAttribute(String name)`  
(b) `session.alterAttribute(String name)`  
(c) `session.updateAttribute(String name)`  
(d) `session.setAttribute(String name)`

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) What is a constructor? Explain the two types of constructor in Java.
- Or
- (b) Write brief notes on Method Overriding and present the rules for Method Overriding in Java.
12. (a) Write about ByteStream Classes in Java.
- Or
- (b) Discuss in brief about Java Generics programming.
13. (a) Write notes on JButton Class, its declaration and commonly used constructors and methods.
- Or
- (b) Write brief notes on the different types of statement objects in JDBC.
14. (a) Write about the protocols supported by Java networking package.
- Or
- (b) Write short notes on Java InetAddress.



15. (a) Write about the important Properties of Java Bean.

Or

(b) What is a Cookie? How does it Work?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe in detail about abstract and final classes in Java.

Or

(b) Describe Packages in Java with example program.

17. (a) Explain about Java I/O streams and its working functionalities.

Or

(b) Discuss in detail about Generic Class and Generic type parameters.

18. (a) Specify the different types of statement objects in JDBC.

Or

(b) Describe in detail about Java JDBC and the different types of drivers.

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19. (a) Discuss in detail about Java Networking classes and interfaces.

Or

(b) Describe in detail about reading and writing a file via a Channel using JavaNIO.

20. (a) Explain about Introspection in Java Bean.

Or

(b) Discuss about the two important Entity beans persistence methods.

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M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022

First Semester

Computer Application – Core

OBJECT ORIENTED ANALYSIS AND DESIGN  
USING UML

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Software development is \_\_\_\_\_ and always undergoing major change.

- (a) static (b) protected  
(c) dynamic (d) public

6. Superclass-subclass relationships also known as

- (a) specialization hierarchy  
(b) disjoint hierarchy  
(c) jointness hierarchy  
(d) generalization hierarchy

7. \_\_\_\_\_ provides a scheme for refining the subsystem or components of software systems.

- (a) Axioms (b) Corollaries  
(c) Design Patterns (d) Class Design

8. \_\_\_\_\_ is a measure of the degree of interdependence between modules.

- (a) Cohesion (b) Coupling  
(c) Modularity (d) Process

9. \_\_\_\_\_ testing assumes that the specific logic is important and must be tested to guarantee the system's proper functioning.

- (a) Black box (b) White Box  
(c) Top-down (d) Bottom-up

2. A subclass inherits all of the properties and methods defined in its

- (a) main class (b) inner class  
(c) child class (d) super class

3. UML stands for \_\_\_\_\_

- (a) Unified Modeling Language  
(b) Union Method Language  
(c) Unified Method Language  
(d) Union Member Language

4. Which of the following diagram is time oriented?

- (a) Collaboration  
(b) Sequence  
(c) Activity  
(d) Implementation

5. \_\_\_\_\_ is a creative activity that involves understanding the problem its associated constraints.

- (a) Modeling (b) Analysis  
(c) Design (d) Implementation

10. In which types of testing Cyclomatic complexity is measured?

- (a) Black box testing  
(b) White Box testing.  
(c) Yellow box testing  
(d) Green box testing

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short note on Encapsulation and Information hiding.

Or

- (b) Why do you use object orientation? List out the benefits of object orientation.

12. (a) Discuss about the Booch Methodology.

Or

- (b) Explain Static and Dynamic Models.

13. (a) Mention the steps for finding use cases.

Or

- (b) Explain about a part-of-relationships aggregation and patterns.

14. (a) Writes a short note on Design Patterns.

Or

(b) Explain Designing Methods and Protocols.

15. (a) Write short notes on Quality Assurance tests.

Or

(b) Explain about Usability Testing.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain about Class Hierarchy.

Or

(b) Discuss about the Object Oriented software development lifecycle.

17. (a) Write the difference between design patterns and frameworks.

Or

(b) Explain UML Extensibility.

18. (a) List out the guidelines for identifying super-sub relationship.

Or

(b) Explain the Methods for ViaNet bank objects.

19. (a) Explain in detail about coupling and cohesion.

Or

(b) Explain about micro level process.

20. (a) Explain briefly about the guidelines for developing test plans.

Or

(b) Describe about impact of Object Orientation on testing.

(6 pages)

Reg. No. : .....

Code No. : 7061

Sub. Code : ZCAM 22

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Second Semester

Computer Applications — Core

MACHINE LEARNING USING PYTHON

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ algorithms are used when the outputs are restricted to a limited set of values  
(a) KNN (b) Regression  
(c) Clustering (d) Classification
2. Types of supervised learning algorithms include  
(a) Active learning (b) Classification  
(c) Regression (d) All the above

3. Machine learning is a subset of  
(a) Artificial intelligence  
(b) Data learning  
(c) Deep learning  
(d) None
4. What is unsupervised learning?  
(a) Number of groups may be known  
(b) Features of group explicitly stated  
(c) Neither feature nor number of group is known  
(d) None
5. Decision trees are a type of \_\_\_\_\_ learning where the data is continuously split according to a certain parameter.  
(a) supervised (b) unsupervised  
(c) both (a) and (b) (d) none
6. \_\_\_\_\_ transformation preserves linear relationships between variables  
(a) Non linear (b) Linear  
(c) Both (a) and (b) (d) None

7. In cross validation, \_\_\_\_\_ data used for model development  
(a) validation (b) training  
(c) both (a) and (b) (c) none
8. The \_\_\_\_\_ technique is an exhaustive cross validation method. That randomly splits the dataset into train and test data depending on the data analysis.  
(a) K-fold (b) Time series  
(c) Hold out (d) Nested
9. Advantages of pipe line  
(a) Flexibility (b) Extensibility  
(c) Scalability (d) All the above
10. A \_\_\_\_\_ is a way to coding and automate the workflow it takes to produce a machine learning model  
(a) Binning (b) Pipeline  
(c) Both (a) and (b) (d) None

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What is scikit learn? How to install scikit learn?  
Or  
(b) What is the need for machine language?

12. (a) What are the different types of unsupervised learning?

Or

- (b) What is clustering? Give a brief note on Agglomerative clustering.

13. (a) What do you mean by categorical variables?

Or

- (b) Give a brief note on trees.

14. (a) What is cross-validation? List out any two benefits.

Or

- (b) What is stratified K-fold cross validation?

15. (a) Write short note on parameter selection with preprocessing.

Or

- (b) How to access step attributes in general pipeline interface?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) What are the essential libraries and tools available in python?

Or

- (b) Write short note on K-Nearest Neighbors and decision trees.

17. (a) Give a brief note on K-means clustering and DB scan.

Or

- (b) What do you mean by preprocessing and scaling? Explain.

18. (a) Explain in detail about binning, discretization and linear models.

Or

- (b) Discuss in detail about automatic feature selection.

19. (a) What is grid search? Give a brief note on it.

Or

- (b) Explain evaluation metrics and scoring in detail.

20. (a) How to build pipeline? Give a brief note on grid searching-which model to use?

Or

- (b) Write short note on the following :

Grid searching processing steps and model parameters.

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(6 pages)

Reg. No. : .....

Code No. : 7068

Sub. Code : ZCAM 31

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application – Core

DATA SCIENCE AND ANALYTICS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. How do we perform Bayesian classification when some features are missing?
  - (a) We integrate the posterior probabilities over the missing features
  - (b) We ignore the missing features
  - (c) We assume the missing values as the mean of all values
  - (d) Drop the features completely

6. Which tool is used to efficiently move data between relational databases and HDFS?
  - (a) Hive
  - (b) Pig
  - (c) Sqoop
  - (d) Hbase
7. Point out the correct statement.
  - (a) IBM InfoSphere DataStage is an ETL tool
  - (b) IBM InfoSphere DataStage is a part of the IBM Information Platforms Solutions suite and IBM InfoSphere
  - (c) InfoSphere uses a graphical notation to construct data integration solutions
  - (d) All of the mentioned
8. InfoSphere \_\_\_\_\_ provides you with the ability to flexibly meet your unique information integration requirements.
  - (a) Data Server
  - (b) Information Server
  - (c) Info Server
  - (d) All of the mentioned
9. With the help of \_\_\_\_\_ Hadoop can be used with data-at-rest as well as data-in motion.
  - (a) Infosphere Biginsights
  - (b) Infosphere streams
  - (c) Infosphere
  - (d) Both (a) and (b)

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2. Data science is the process of diverse set of data through?
  - (a) Organizing data
  - (b) Processing data
  - (c) Analysing data
  - (d) All of the above
3. Which of the following is required by K-means clustering?
  - (a) defined distance metric
  - (b) number of clusters
  - (c) initial guess as to cluster centroids
  - (d) all of the mentioned
4. Which of the following methods do we use to best fit the data in Logistic Regression?
  - (a) Least Square Error
  - (b) Maximum Likelihood
  - (c) Jaccard distance
  - (d) Both (a) and (b)
5. \_\_\_\_\_ is a programming model designed for processing large volumes of data in parallel by dividing the work into a set of independent tasks.
  - (a) Hive
  - (b) MapReduce
  - (c) Pig
  - (d) Lucene

Page 2

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10. Which of the following genres does Hadoop produce?
  - (a) Distributed file system
  - (b) JAX-RS
  - (c) Java Message Service
  - (d) Relational Database Management System

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Define data science. Why we need data science?

Or

(b) Estimate the steps in polynomial regression.
12. (a) Write an overview of any two unsupervised learning methods.

Or

(b) Distinguish between supervised learning and unsupervised learning.
13. (a) Define Bigdata. Specify the characteristics of Bigdata.

Or

(b) Differentiate data in warehouse and data in Hadoop.

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[P.T.O.]

14. (a) How to install Infosphere BigInsights.  
Mention the components included in BigInsights 1.2.

Or

(b) Appraise Hadoop compression technique.

15. (a) Examine the Infosphere Stream basics.

Or

(b) Structure the Infosphere streams tool kits.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Speculate the Bayes rule supervised learning.

Or

(b) Intervene the prerequisite probability concepts for Bayes rule.

17. (a) Elucidate Naïve Bayes classifier.

Or

(b) Explain logistic regression and its different types.

Page 5 Code No. : 7068

18. (a) Paraphrase

(i) Importance of Bigdata

(ii) Bigdata use cases

Or

(b) Generalize the components of Hadoop.

19. (a) Generalize the Data Discovery and Visualization

Or

(b) Formulate the concepts behind General Parallel file System.

20. (a) Elucidate on industry use cases for InfoSphere Streams.

Or

(b) Elaborate on the Streams Processing Language.

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(6 pages)

Reg. No. : .....

Code No. : 7069

Sub. Code : ZCAM 32

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022

Third Semester

Computer Application

ADVANCED DIGITAL IMAGE PROCESSING

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. MATLAB stands for?

- (a) matrix laboratory
- (b) math library
- (c) matric library
- (d) matrix library

6. DFT is applied to

- (a) - Infinite sequences
- (b) Finite discrete sequences
- (c) Continuous infinite signals
- (d) Continuous finite sequences

7. Frequency selectivity characteristics of DFT refers to

- (a) Ability to resolve different frequency components from input signal
- (b) Ability to translate into frequency domain
- (c) Ability to convert into discrete signal
- (d) None of the above

8. DTFT is the representation of

- (a) Periodic Discrete time signals
- (b) Aperiodic Discrete time signals
- (c) Aperiodic continuous signals
- (d) Periodic continuous signals

9. Which command enables a title for the y-axis?

- (a) vertlabel()
- (b) ylabel()
- (c) ylabel[]
- (d) no command

2. Which command is used to clear a command window?

- (a) clear
- (b) close all
- (c) clc
- (d) clear all

3. To display comments of M-file, we use

- (a) echo on
- (b) comment on
- (c) show %
- (d) Cannot be displayed

4. Where do we need to store a function to call it in other programs?

- (a) The bin folder
- (b) Anywhere
- (c) The MATLAB folder
- (d) Desktop

5. If  $R_1$  is the region of convergence of  $x(n)$  and  $R_2$  is the region of convergence of  $y(n)$ , then the region of convergence of  $x(n)$  convoluted  $y(n)$  is

- (a)  $R_1 + R_2$
- (b)  $R_1 - R_2$
- (c)  $R_1 \cap R_2$
- (d)  $R_1 \cup R_2$

Page 2

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10. How can several graphs for the same function be plotted on the same window?

- (a) Contour plots
- (b) Bode plots
- (c) 3-D plots
- (d) n-D plots

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Describe the image types in Matlab.

Or

(b) Discuss about the spatial filtering.

12. (a) Differentiate direct inverse filtering from wiener filtering.

Or

(b) Describe any one of the Noise model.

13. (a) Analyze the colour transformation techniques.

Or

(b) Explain the Wavelets in Image processing.

Page 3

Code No. : 7069

Page 4

Code No. : 7069

[P.T.O.]

14. (a) Describe the coding redundancy

Or

(b) Write notes on JPEG compression.

15. (a) Compare line detection form edge detection.

Or

(b) Explain the boundary description in image segmentation

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain how to save and retrieve work session data in Matlab.

Or

(b) Categorize the image processing toolbox

17. (a) Construct and visualize the 2-D DFT in Matlab

Or

(b) Design the image restoration process with diagram.

18. (a) Explain the basics of colour image processing.

Or

(b) Construct and working directly in a RGB vector space with example

19. (a) Explain the coding redundancy

Or

(b) Analyze the process of combining dilation and erosion

20. (a) Create a program using line detection using the Hough transform

Or

(b) Explain the representation of image segmentation.

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application – Core

PRINCIPLES OF COMPILER DESIGN

(For those who joined in July 2021)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ read the input characters and produce as output token.  
(a) Lexical Analyzer (b) Syntax analyzer  
(c) Code optimization (d) None of these

6. Left factoring is the process of factoring \_\_\_\_\_  
(a) Prefixed of alternates  
(b) Suffixes of alternates  
(c) Predictive parsing  
(d) None of these

7. DAG means  
(a) Directed Acyclic Graph  
(b) Directed Asynchronous Graph  
(c) Directed Asymmetric Graph  
(d) Directed Address Graph

8. Information needed by a single execution of a procedure is managed using a contiguous block of storage called as \_\_\_\_\_.  
(a) Activation record  
(b) Frame  
(c) Both (a) and (b)  
(d) None

9. The graph that shows basic blocks and their successor relationship is called \_\_\_\_\_.  
(a) DAG (b) Flow graph  
(c) Control graph (d) Hamiltonion graph

2. Compiler can diagnose  
(a) Grammatical errors only  
(b) Logical errors only  
(c) Grammatical as well as logical errors  
(d) Neither grammatical nor logical errors

3. Type three Grammar is \_\_\_\_\_.  
(a) Context free grammar  
(b) Context sensitive grammar  
(c) Regular grammar  
(d) None of the above

4. \_\_\_\_\_ Grammar are known as context sensitive grammars.  
(a) Type 0 (b) Type 1  
(c) Type 3 (d) Type 2

5. Recursive descent parser is \_\_\_\_\_.  
(a) Top down parser  
(b) Bottom up parser  
(c) Top and bottom up parser  
(d) None of these

10. A graph representation of three address statements called \_\_\_\_\_.  
(a) Basic blocks (b) Flow graph  
(c) Both (a) and (b) (d) None

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Define Translator. Write the types of translator.

Or

- (b) What is symbol table? Write the uses of it.

12. (a) Define token. Discuss it.

Or

- (b) Write the rules that define regular expression.

13. (a) Differentiate Deterministic and Non-Deterministic finite automata.

Or

- (b) What are quadruples? Give example.

14. (a) What are the applications of syntax directed translation?

Or

(b) Define three address code. How three address code are implemented.

15. (a) Write about stack allocation of space.

Or

(b) What is basic block? Write the algorithm of partitioning into basic blocks.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Discuss the structure of compiler with diagram.

Or

(b) Explain Push Down Automata with its working principle.

17. (a) Construct the DFA for the regular expression  $(a + b)^*aab$ .

Or

(b) Explain about the principal sources of optimization.

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18. (a) Write LR parsing algorithm. Discuss it.

Or

(b) Explain about the types of grammars. Give example.

19. (a) Describe about Syntax Directed Translation.

Or

(b) How to implement of three address statement?

20. (a) Discuss about the issues related to the design of code generator.

Or

(b) How to optimize the basic blocks with flow graphs?

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12/1/23 FW  
Reg. No. : .....

Code No. : 7071

Sub. Code : ZCAM34

M.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Computer Application - Core

RESEARCH METHODOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is a programme that can help with thematic analysis?
  - (a) MAXQDA
  - (b) ZylINDEX
  - (c) Develve
  - (d) Epi data

2. \_\_\_\_\_ involve a set of predetermined questions and highly standardized techniques of recording?
  - (a) Structured interview
  - (b) Unstructured interview
  - (c) Interview guide
  - (d) All of the above
3. Find out an example for probability sampling?
  - (a) Convenience or accidental sampling
  - (b) Purposive or judgmental sampling
  - (c) Quota sampling
  - (d) Stratified random sampling
4. Which Chi square distribution looks the most like a normal distribution?
  - (a) A Chi square distribution with 4 degrees of freedom
  - (b) A Chi square distribution with 5 degrees of freedom.
  - (c) A Chi square distribution with 6 degrees of freedom.
  - (d) A Chi square distribution with 16 degrees of freedom.

5. What is it called when the data is sourced from the place of origin?
- (a) Secondary
  - (b) Primary
  - (c) Secondary and primary
  - (d) All of the above
6. Information of research is called \_\_\_\_\_
- (a) Qualitative
  - (b) Quantitative
  - (c) Qualitative and Quantitative both
  - (d) None of the above
7. In technical writing the largest report termed is.
- (a) Conclusion/recommendation
  - (b) Discussion
  - (c) Heading
  - (d) Footing
8. In a technical report which of these must be avoided?
- (a) Facts
  - (b) Logical conclusion
  - (c) Objective evaluation
  - (d) Subjective evaluation

Page 3

Code No. : 7071

9. The method of collecting primary data is called-
- (a) Questionnaire and schedule method.
  - (b) Observation and interview method
  - (c) None of the above
  - (d) All of the above
10. Which is not basis for a technical report?
- (a) Facts
  - (b) Tests
  - (c) Personal prejudices
  - (d) Experiments

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Differentiate research methods from research methodology.

Or

- (b) Summarize the features of good design.

12. (a) Evaluate the characteristics of a good sample design.

Or

- (b) Classify the types of scaling.

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[P.T.O.]

13. (a) Classify the applications of Yate's correction.

Or

(b) Explain the ANOVA test in Latin square design.

14. (a) Explain the techniques for interpretation.

Or

(b) Evaluate the collection of data through schedules.

15. (a) Design the steps in development of algorithm.

Or

(b) Explain the meta heuristics for combinational problem.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the steps in research process.

Or

(b) Distinguish the different research design.

17. (a) Write the steps in sample design.

Or

(b) Evaluate the important scaling technique.

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18. (a) Summarize the limitations of Chi-square test.

Or

(b) Explain the concept of one way ANOVA.

19. (a) Evaluate the methods for secondary data collection.

Or

(b) Analyze the significance of report writing.

20. (a) Compose the steps of algorithmic research.

Or

(b) Evaluate the role of computer applications in algorithmic research.

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