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**Reg. No. :** .....

**Code No. : 10127 E      Sub. Code : SMIT 21/  
SMCT 21/AMIT 21/  
AMCT 21**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Second Semester

Information Technology/Computer Science and I.T.–  
Core

**FUNDAMENTALS OF COMPUTING AND  
C PROGRAMMING**

(For those who joined in July 2017-2020)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A computer system does not include
  - (a) Hardware
  - (b) Software
  - (c) Peripheral devices
  - (d) Router

2. The desktop has several \_\_\_\_\_
- (a) Application                      (b) Menu
  - (c) Programs                        (d) Icons
3. Which of the following are not tokens in C?
- (a) Keywords
  - (b) Variables
  - (c) Constants
  - (d) Pointers
4. Integer Division results in
- (a) Rounding the fractional part
  - (b) Truncating the fractional part
  - (c) Floating value
  - (d) An Error is generated
5. What should be the expression return value for a do-while to terminate?
- (a) 1                                      (b) 0
  - (c) -1                                    (d) NULL
6. Which among the following is conditional control structure?
- (a) do-while                            (b) if-else
  - (c) goto                                 (d) for

7. Which of the following is a keyword is used for a storage class?
- (a) printf
  - (b) external
  - (c) auto
  - (d) scanf
8. Maximum number of elements in the array declaration `int a[5][8]` is
- (a) 28
  - (b) 32
  - (c) 35
  - (d) 40
9. When the main function is called, it is called with the arguments
- (a) argc
  - (b) argv
  - (c) none of these
  - (d) both (a) and (b)
10. In C, a Union is
- (a) memory location
  - (b) memory store
  - (c) memory screen
  - (d) none of these

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) What are the Components of a Personal computer? Explain.

Or

- (b) Write a short note on system unit.

12. (a) Write a brief note on C Character Set.

Or

- (b) Explain how to read and write a character in C.

13. (a) Explain Simple If Statement with an example.

Or

- (b) Write the syntax of conditional operator with an example.

14. (a) What is an array? What are advantages of arrays over ordinary variables? How arrays are declared and initialized?

Or

- (b) Write a C Program to find a largest number in an array.

15. (a) Define structure with an example.

Or

- (b) How structures are used with in structure?  
Explain.

PART C — ( $5 \times 8 = 40$  marks)

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

16. (a) Discuss the features of Windows XP.

Or

- (b) How to create a shortcut for a program?  
Explain.

17. (a) Explain briefly the various types of operators  
in C Language.

Or

- (b) Explain the input and output statement in C.

18. (a) Describe while and do-while statement with  
suitable examples.

Or

- (b) Explain the syntax of nested if-else statement.

19. (a) Discuss the Methods of Initializing 1-D and 2-D Array in C.

Or

- (b) Explain different type of reading and writing strings in C.

20. (a) What is the scope and life time of variable in function in C?

Or

- (b) Differentiate the structure and union in C.
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**Reg. No. :** .....

**Code No. : 10131 E      Sub. Code : SMIT 41/  
SMCT 41/AMIT 41/AMCT 41**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Fourth Semester

Information Technology/Computer Science and I.T.

**JAVA PROGRAMMING**

(For those who joined in July 2017–2020)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following primitive data type deals with small integer numbers?
  - (a) Boolean
  - (b) String
  - (c) int
  - (d) float

2. The \_\_\_\_\_statement is used to terminate a statement sequence.

- (a) break                      (b) switch
- (c) continue                (d) wait

3. Which of the following helps in garbage collection?

- (a) Final                      (b) Finally
- (c) Finalize                (d) Finalizer

4. What is the output of the below Java program?

```
int a=1;
while(a<4)
{
```

```
System.outprint(a +" ";
```

```
a++;
```

```
}
```

- (a) 1 2 3 4                      (b) 1 2 3
- (c) 6                              (d) Compiler error

5. A package is a collection of \_\_\_\_\_

- (a) keywords
- (b) classes and interfaces
- (c) editing tools
- (d) views



6. A special type of method that is used to initialize an object is called \_\_\_\_\_
- (a) constructor                      (b) destructor  
(c) modification                      (d) editor
7. \_\_\_\_\_ is an abnormal condition that arises in a code sequence at runtime.
- (a) Exception                      (b) Input  
(c) Output                      (d) All the above
8. What is the name of the method used to schedule a thread for execution?
- (a) init()                      (b) start ()  
(c) run ()                      (d) resume ()
9. Which of the following methods are defined on the Graphics class?
- (a) add (Component)  
(b) draw Line (int, int, int, int)  
(c) set Visible (boolean)  
(d) setLayout (Object)
10. What is the difference between a TextArea and a TextField?
- (a) TextArea can handle multiple lines of text  
(b) A textarea can be used for output  
(c) TextArea is not a class  
(d) TextAreas are used for displaying graphics

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 meant by variable? Give an example.

Or

- (b) Discuss about switch statement with example.

12. (a) Explain about declaration of object with example.

Or

- (b) Discuss about finalize ( ) method with example.

13. (a) Illustrate the abstract class with example.

Or

- (b) Elucidate about the import packages

14. (a) Explain about exception types with example.

Or

- (b) Discuss Applet display method with example.

15. (a) Illustrate about event classes with an example.

Or

- (b) What is meant by TextArea? Give an example

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss about various types of operator with example.

Or

- (b) Illustrate about looping statement available in Java.

17. (a) Explain about method overloading with example program.

Or

- (b) Elucidate about nested and inner classes.

18. (a) Analyze single inheritance with example program.

Or

- (b) Describe about implement and applying interface with example program.

19. (a) Discuss briefly about creating multiple threads with example

Or

- (b) Elucidate about output stream with suitable example.

20. (a) Explain about check boxes and check box group with example.

Or

- (b) Discuss about layout manager with example program.
-

(7 pages)

**Reg. No. :** .....

**Code No. : 10132 E**

**Sub. Code : SMIT 42/  
SMCT 42/AMIT 42/  
AMCT 42**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024

Fourth Semester

Information Technology/  
Computer Science and I.T. — Core

**OPERATIONS SYSTEM**

(For those who joined in July 2017-2020)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. An Operating System (OS) IS defined as: \_\_\_\_\_.
  - (a) Software that manages computer hardware resources
  - (b) A collection of application software
  - (c) The physical components of a computer system
  - (d) The user interface of a computer system

2. The main characteristic feature of Desktop Systems is: \_\_\_\_\_
- (a) High mobility
  - (b) Limited Processing power
  - (c) High processing power and limited mobility
  - (d) Limited storage capacity
3. The necessity of using device drivers in an operating system is \_\_\_\_\_
- (a) To manage file systems efficiently
  - (b) To provide security features
  - (c) To allow the operating system to communicate with hardware devices
  - (d) To enhance graphical user interfaces
4. A process is \_\_\_\_\_.
- (a) A program in execution
  - (b) A hardware component
  - (c) A device driver
  - (d) A file system structure

5. The primary challenge faced in the Producer/consumer problem in IPC is —————.
- (a) Synchronization of processes
  - (b) Memory allocation
  - (c) Process termination
  - (d) CPU scheduling
6. A Deadlock is
- (a) A system crash
  - (b) A situation where a process is terminated
  - (c) A state in which processes are unable to proceed and each is waiting for a resource held by another
  - (d) A successful execution of a process
7. In which concept Variable partition memory management differs from fixed partition management?
- (a) Processes are allocated equal-sized partitions
  - (b) Memory partitions can be resized dynamically
  - (c) Processes are allocated non-contiguous memory blocks
  - (d) Memory is allocated using segmentation

8. Segmentation in memory management is \_\_\_\_\_.
- (a) Allocation of memory in fixed-sized segments
  - (b) Division of memory into equal-sized pages
  - (c) Allocation of memory in variable-sized segments
  - (d) Resizing of memory partitions
9. Process management in Linux involves \_\_\_\_\_.
- (a) Creating and scheduling processes
  - (b) Handling user authentication
  - (c) Managing hardware devices
  - (d) Allocating disk space
10. The default scheduler in Linux is called \_\_\_\_\_.
- (a) Round-robin Scheduler
  - (b) Priority-based Scheduler
  - (c) Completely Fair Scheduler (CFS)
  - (d) First-Come-First-Served Scheduler (FCFS)



PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Discuss handheld systems and their significance in modern computing.

Or

- (b) Write the role of system calls in an operating system.

12. (a) What is a file system, and what role does it play in an operating system?

Or

- (b) Describe the concept of a process and its characteristics.

13. (a) What is the Producer/Consumer problem in Inter Process Communication, and why is it important?

Or

- (b) Explain deadlock prevention methods in detail.

14. (a) Explain the concept of single contiguous memory management.

Or

- (b) How does fixed partition memory management work? Explain.

15. (a) Discuss the process management in Linux, with its key components?

Or

- (b) Write some similarities and differences between UNIX and Linux in detail.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Write the functions of an operating system and discuss its internal structure.

Or

- (b) Explain how users perceive the operating system and its significance in their computing experience.

17. (a) What is a Process Control Block (PCB) and what information does it contain?

Or

- (b) Define multithreading and discuss its advantages in process management.

18. (a) What are the classical Inter Process Communication (IPC) problems and why are they significant in operating systems?

Or

- (b) How are deadlocks represented graphically, and what are the essential components?

19. (a) Describe variable partition memory management and non-contiguous allocation.

Or

- (b) What is paging, and how does it work in memory management?

20. (a) Explain how does memory management differ between UNIX and Linux?

Or

- (b) What are the key aspects of file management in UNIX and Linux? Explain.

**Reg. No. :** .....

**Code No. : 10137 E      Sub. Code : SMIT 61/  
SMCT 61**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

## Sixth Semester

Information Technology/Computer Science  
and I.T. – Core

DATA COMMUNICATION AND NETWORKING

(For those who joined in July 2017-2019)

Time : Three hours                      Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ Topology requires a multipoint connection.  
(a) Star (b) Mesh  
(c) Ring (d) Bus
2. WAN stands for \_\_\_\_\_.  
(a) World Area Network (b) Wide Area Network  
(c) Web Area Network (d) Web Access Network

3. A communication device that combines transmission from several I/O devices into one line is a \_\_\_\_\_.  
(a) Concentrator (b) Modifier  
(c) Multiplexer (d) Full duplex line
4. Which multiplexing technique transmits digital signals?  
(a) FDM (b) TDM  
(c) WDM (d) None of the above
5. Find parity bit for 1001011  
(a) 0 (b) 1  
(c) 2 (d) None
6. If value of checksum is 0, then message is  
(a) Accepted (b) Rejected  
(c) Sent back (d) Resend
7. A switch in a datagram network uses a  
(a) Destination address (b) Sender address  
(c) Routing table (d) Header
8. ISDN stands for \_\_\_\_\_.  
(a) Integrated Services Digital Network  
(b) Integrated Services Discrete Network  
(c) Integrated Services Digital Node  
(d) Integrated Services Discrete Node

9. There are \_\_\_\_\_ total features of Frame Relay.  
(a) Five (b) Seven  
(c) Nine (d) Ten
10. The computation of the shortest path in OSPF is usually done by \_\_\_\_\_.  
(a) Bellman-ford algorithm  
(b) Routing information protocol  
(c) Dijkstra's algorithm  
(d) Distance vector routing

PART B — ( $5 \times 5 = 25$  marks)

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

11. (a) Discuss about Categories of network.  
Or  
(b) Write notes on digital data transmission.
12. (a) Write notes on unguided media.  
Or  
(b) Discuss about Division Multiplexing.
13. (a) What is meant by Redundancy?  
Or  
(b) Discuss on Error correction.
14. (a) Write notes on circuit Switching Network.  
Or  
(b) Write down the ISDN Layers.

15. (a) Write about Frame Relay Layers.

Or

- (b) What are Gateways?

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Briefly discuss about the Transmission mode.

Or

- (b) Explain about DTE.

17. (a) Explain the Multiplexing.

Or

- (b) Discuss about the Wave Division Multiplexing.

18. (a) Explain the Longitudinal Redundancy Check.

Or

- (b) Explain the Flow control.

19. (a) Discuss about the Message Switching Network.

Or

- (b) Briefly discuss about the Broadband ISDN.

20. (a) Explain about Frame Layer operation.

Or

- (b) Explain the distance vector routing.

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**Code No. : 10138 E      Sub. Code : SMIT 62/  
SMCT 62**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Information Technology/Computer Science and I.T –  
Core

**MULTIMEDIA TECHNOLOGY**

(For those who joined in July 2017-2019)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. UCS stands for.
  - (a) Universal color set
  - (b) Universal character set
  - (c) Universal color standard
  - (d) Unique color set



2. The sampling frequency that is half that of the input wave frequency is referred to a \_\_\_\_\_.
  - (a) Aliasing
  - (b) Quantization
  - (c) Nyquist frequency
  - (d) Sampling
3. \_\_\_\_\_ format support cmyk, RGB and gray scale color model
  - (a) BMP
  - (b) Jpeg
  - (c) Gif
  - (d) PNG
4. \_\_\_\_\_ images uses only two colors.
  - (a) Bitonal
  - (b) Halftone
  - (c) Partial tone
  - (d) Continuous tone
5. \_\_\_\_\_ amplifiers are less than half of the input cycle for amplification.
  - (a) Class-B
  - (b) Class-D
  - (c) Class-E
  - (d) Class-C

6. \_\_\_\_\_ is the branch of science dealing with the study of sound
- (a) Acoustics
  - (b) Biometrics
  - (c) Linguistics
  - (d) Auditory
7. In which chrome sub sampling scheme there is no loss in color component.
- (a) 4:2:2
  - (b) 4:1:1
  - (c) 4:4:4
  - (d) 4:2:0
8. The \_\_\_\_\_ component describes the variation of color information in different parts of the image without regard to any brightness information
- (a) Chrominance
  - (b) Luminance
  - (c) Saturation
  - (d) Perception

9. \_\_\_\_\_ implies changing the orientation of an object by rotating it through some angles.
- (a) Moving
  - (b) Translation
  - (c) Scaling
  - (d) Rotation
10. \_\_\_\_\_ animation is also called sprite animation
- (a) Cel animation algorithm
  - (b) Path animation
  - (c) 2D animation
  - (d) 3D animation

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) List out the characteristics of a multimedia presentation.
- Or
- (b) Discuss different types of text.
12. (a) What is scanner Explain types of scanner?

Or

- (b) Write about the specification of defile image.pt

13. (a) Explain the basics of staff Notation.

Or

- (b) List out the basic components of sound card

14. (a) Write short notes on video file format and codes.

Or

- (b) Discuss video capture software.

15. (a) Explain.

- (i) Cel animation algorithm.
- (ii) Path animation algorithm.

Or

- (b) Explain.

- (i) Ray carting algorithm.
- (ii) Sub division algorithm.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) (i) Explain hardware and software requirement of multimedia.
- (ii) Explain Digital to analog conversion.

Or

- (b) (i) Explain different file format in text.
- (ii) Explain the insertion of text.

17. (a) (i) Explain RGB model.  
(ii) Explain image types.

Or

- (b) (i) How the Laser printer work?  
(ii) Discuss different file format in image.

18. (a) What is microphone explain types of microphone?

Or

- (b) Explain audio processing software.

19. (a) (i) Explain different video signal format.  
(ii) Explain chrome sub sampling.

Or

- (b) Explain video recording formats and system.

20. (a) Discuss about the principles of animation.

Or

- (b) List out and discuss the parts of Mpeg 2 standards.
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**Reg. No. : .....**

**Code No. : 10139 E      Sub. Code : SMIT 63/  
SMCT 63/AMIT 63/  
AMCT 63**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Information Technology / Computer Science and I.T —  
Core

**.NET PROGRAMMING**

(For those who joined in July 2017 – 2020)

Time : Three hours                      Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is known as group of constants?  
(a) Enumeration                      (b) Set  
(c) Group                              (d) Collections
2. Which is used to store information about an object?  
(a) Records                              (b) Data  
(c) Properties                              (d) None of the above

3. The HTML tag used to represent <HTML Anchor> is \_\_\_\_\_.  
(a) <href> (b) <anchor>  
(c) <ar> (d) <a>
4. Which control is used to trigger an event when it is pressed?  
(a) Label box (b) Picture  
(c) Button (d) Trigger
5. What is used to store user specific information?  
(a) Cookies (b) State  
(c) Links (d) Data
6. What process is used to display diagnostic information?  
(a) Paging (b) Correction  
(c) Tracing (d) All the above
7. Any component that can read \_\_\_\_\_ format can also process data.  
(a) .exe (b) XML  
(c) XHTML (d) CSS
8. Which is acting as a bridge between front end controls and backend database?  
(a) driver (b) connection  
(c) ADO.NET (d) query
9. Which one ensures the data is properly interpreted or not?  
(a) XML (b) XSL  
(c) XHTML (d) XSD

10. What is known as a way to interface internet objects?
- (a) IOT                                      (b) Web services  
(c) CSS                                      (d) Gateway

PART B — ( $5 \times 5 = 25$  marks)

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

11. (a) Explain different datatypes with examples.  
Or  
(b) Write about value types and reference types.
12. (a) What is a page class? Write its member classes.  
Or  
(b) Explain Fonts class with examples.
13. (a) Explain Session tracking in session state with an example.  
Or  
(b) List out the common errors.
14. (a) Explain ADO .NET object model.  
Or  
(b) Discuss SQL select statement in detail.
15. (a) Write about the role of XML in .NET.  
Or  
(b) How will you validate an XML file? Discuss.



PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) How will you declare variables? Discuss.

Or

- (b) What do you mean by class, properties and methods?

17. (a) Create a simple webpage applet.

Or

- (b) Explain the validation process and its controls.

18. (a) What is meant by cookies? Explain with examples.

Or

- (b) Write about handling exceptions in detail.

19. (a) How a connection is created? Explain.

Or

- (b) Compare Data List and Data Grid.

20. (a) Write about XML Text Writer and XML Text Reader.

Or

- (b) Discuss ASP .NET security model.

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**Reg. No. :** .....

**Code No. : 10141 E      Sub. Code : SAIT 21/  
SACT 21/AAIT 21/  
AACT 21**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology/Computer and Information  
Technology — Allied

DIGITAL DESIGN

(For those who joined in July 2017–2020)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. The complement of the complement for the number  $N$  is.

- (a)  $r^n - N$                       (b)  $N$   
(c)  $N - r^n$                       (d)  $(2^n - 1) - N$

2. What is the decimal equivalent for the binary number  $(110101)_2$ ?
- (a) 50                                      (b) 51  
(c) 52                                      (d) 53
3. For  $n$  binary variables, one can obtain \_\_\_\_\_ distinct minterms.
- (a)  $2^{2n}$                                       (b)  $2^n$   
(c)  $2^{n-1}$                                       (d)  $2^n - 1$
4. What is the expansion of TTL?
- (a) Transistor-Transistor Logic  
(b) Transistor-Translator Logic  
(c) Transistor-Temporary Logic  
(d) Transistor-Test Logic
5. \_\_\_\_\_ operation is the dual of the NAND operation.
- (a) AND                                      (b) OR  
(c) NOR                                      (d) NOT
6.  $X \oplus X' = ?$
- (a) 1                                      (b) 0  
(c)  $X'$                                       (d)  $X$

7. An encoder has  $2^n$  input lines and \_\_\_\_\_ output lines.
- (a)  $2^n$                       (b)  $n$   
(c)  $2n$                       (d)  $n^2$
8. The storage elements are devices capable of storing \_\_\_\_\_ information.
- (a) Digital                      (b) Binary  
(c) Bitwise                      (d) Logical
9. The serial output is taken from the output of the \_\_\_\_\_ flip-flop.
- (a) Leftmost                      (b) Left  
(c) Right                      (d) Rightmost
10. A memory unit is a collection of \_\_\_\_\_ capable of storing a large quantity of binary information.
- (a) Chips                      (b) Gates  
(c) Cells                      (d) Bits

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) (i) Convert decimal 35.4375 to binary
- (ii) Obtain the 1's complement and 2's complement of 01111110.

Or

- (b) Simplify the following
- (i)  $xy + xy'$
- (ii)  $xyz + x'y + xyz'$
12. (a) Express the Boolean function  $F = xy + x'z$  in sum of minterms and product of maxterms.

Or

- (b) Simplify the Boolean function using Karnaugh Map  $F(w, x, y, z) = \Sigma(2, 3, 12, 13, 14, 15)$

13. (a) With neat block diagram explain the working principle of a 4-bit binary adder.

Or

- (b) Design a half adder circuit with inputs x and y and outputs S and C.
14. (a) Design a combinational logic circuit for a 4 input priority encoder.

Or

- (b) Write notes on Mealy and Moore models.
15. (a) Design a serial adder with shift register and explain it.

Or

- (b) What are the types of ROMs?

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) (i) Given two binary numbers  $X=1010100$  and  $Y=1000011$  perform the subtraction  $X-Y$  and  $Y-X$  using 2's complement method.
- (ii) Convert  $(41.6875)_{10}$  to binary.

Or

- (b) (i) State and prove De Morgan's and absorption theorem.
- (ii) Find the complement of the functions  
 $F_1 = x'yz' + x'y'z$   
 and  $F_2 = x(y'z' + yz)$ .
17. (a) (i) Express the Boolean function  
 $F = A + B'C$  in sum of minterms and product of maxterms.
- (ii) Write notes on multiple input and cascaded NOR and NAND gates.

Or

- (b) Implement the following Boolean function F together with the don't care condition d using NAND gates.

$$F(A, B, C, D) = \Sigma(0, 1, 2, 9, 11)$$

$$d(A, B, C, D) = \Sigma(8, 10, 14, 15)$$

18. (a) Derive the circuit for parity generator and checker using odd parity bit.

Or

- (b) Design a combinational circuit that compares two 4-bit numbers to check if they are equal. The circuit output is equal to one if two numbers are equal and zero otherwise.

19. (a) (i) Design a  $4 \times 16$  decoder using two  $3 \times 8$  decoder.
- (ii) Implement the Boolean function  $F(A, B, C, D) = \Sigma(1, 3, 4, 11, 12, 13, 14, 15)$  using  $8 \times 1$  multiplexer.

Or

- (b) With a neat example explain the steps involved in the analysis of clocked sequential circuit.
20. (a) Design a 3-bit synchronous counter with JK-flip flop.

Or

- (b) Explain how error detection and error correction was performed using hamming codes with example.
-



(6 pages)

**Reg. No. :** .....

**Code No. : 10145 E      Sub. Code : SNIT 4 A/  
SNCT 4 A/ANIT 41/  
ANCT 41**

U.G. (CBCS) DEGREE EXAMINATION,  
APRIL 2024

Fourth Semester

Information Technology/Computer Science and I.T. —  
Non–Major Elective

**BASIC PROGRAMMING DESIGN**

(For those who joined in July 2017–2019)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. When variable used in program is whole number, variable is stored as?
  - (a) fixed string
  - (b) integers
  - (c) negative whole numbers
  - (d) positive whole numbers

2. To make program more easier to understand, programmers can
- (a) add comments to it
  - (b) declare variable names
  - (c) use secure data
  - (d) both (a) and (b)
3. A detailed flowchart is called \_\_\_\_\_.
- (a) Stack                      (b) Macro
  - (c) Micro                      (d) Union
4. Which of the following is not an advantage of a flowchart?
- (a) Better communication
  - (b) Efficient coding
  - (c) Systematic testing
  - (d) Improper documentation
5. A \_\_\_\_\_ is diagram that depicts the flow of a program.
- (a) Algorithm                  (b) Hash Table
  - (c) Graph                      (d) Flowchart
6. The operation represented by parallelograms.
- (a) Input/output              (b) Assignment
  - (c) Comparison              (d) Conditions

7. A program that can execute high-level language programs.
- (a) Compiler (b) Interpreter  
(c) Sensor (d) Circuitry
8. Executable might be called \_\_\_\_\_.  
(a) native code (b) executable code  
(c) complex code (d) machine code
9. What is the dimension of the C array  
int ary [10][5]?  
(a) 1 (b) 2  
(c) 5 (d) 10
10. What is the dimension of the below C Array?  
  
int ary [ ] = {1,3,5,7};  
(a) 1 (b) 2  
(c) 3 (d) 5

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) How to write an algorithm? Explain.
- Or
- (b) Describe basic steps needed to develop a program.

12. (a) Explain about constants in programming languages.

Or

- (b) List out the rules for creation of variables.

13. (a) Draw the flowchart to find area of square.

Or

- (b) Draw the flowchart to find area of Rectangle.

14. (a) Explain the initialization of one dimensional array.

Or

- (b) Draw a flowchart to find maximum of 'n' numbers.

15. (a) What is structure of the file?

Or

- (b) Illustrate the file organization methods.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Write Advantages of flowchart.

Or

- (b) What is Programming language? Explain its types.

17. (a) What is Flowchart? Mention the merits of Flowchart.

Or

- (b) Draw symbols used in flowchart.

18. (a) Draw the flowchart to find factorial of a given number.

Or

- (b) Draw the flowchart to find Multiplication table of given number.

19. (a) What is an array? How to declare the one dimensional array? Explain.

Or

- (b) How to access an array? Explain with an example.

20. (a) Describe the matrix operations in detail.

Or

(b) What is the purpose of data files? Explain its types.

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(6 pages)

**Reg. No. : .....**

**Code No. : 10152 E      Sub. Code : SEIT 6 A/  
SECT 6 A**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Sixth Semester

Information Technology/Computer Science and IT

Major Elective — WEB PROGRAMMING

(For those who joined in July 2017-2019)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. XML uses ————— to encode characters.
  - (a) Byte code                      (b) ASCII code
  - (c) Unicode                        (d) None

2. XSL stands for
  - (a) Extensible style sheet language
  - (b) Extension standard language
  - (c) Excessive style language
  - (d) None
3. Which of the following is an advantage of using JavaScript?
  - (a) Less server interaction
  - (b) Immediate feedback to the visitors
  - (c) Increased interactivity
  - (d) All
4. Which of the following function of array object returns a string representing the array and its elements?
  - (a) tosource( )                      (b) sort( )
  - (c) splice( )                        (d) toString( )
5. Which statement is true in XML?
  - (a) All the statements are true
  - (b) All XML elements must have a closing tag
  - (c) All XML elements must be lower case
  - (d) All XML documents must have a DTD



6. Well formed XML documents means
- (a) it contains a root element
  - (b) it contain an element
  - (c) it contains one or more elements
  - (d) must contain one or more elements and root element must contain all other elements
7. How can you define DTD in XHTML?
- (a) Strict DTD                      (b) Transitional DTD
  - (c) Frameset DTD                (d) All of the above
8. Which of the following function of string object causes a string to be displayed as a superscript, as if it were in a <sup> tag?
- (a) sup()                              (b) small()
  - (c) strike()                          (d) sub()
9. In simple type built into XML schema Boolean type holds
- (a) True, false                      (b) 1, 0
  - (c) Both                                (d) None
10. The XSL formatting object use to format a list is
- (a) list-block                        (b) list-item
  - (c) list-item-body                  (d) list-item-label

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) What is meant by widgets and gadgets?

Or

- (b) Explain about search engines.

12. (a) Explain the structure of XHTML document.

Or

- (b) How to design a web page? Explain with example.

13. (a) What is JavaScript? Explain about it.

Or

- (b) Explain the recursive function in JavaScript with example.

14. (a) What are XML rules? Explain about it.

Or

- (b) How to declare multidimensional arrays in JavaScript?

15. (a) Write about HTTP transactions.

Or

- (b) Write a short notes on PHP.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) What are the differences between HTML and XML? Explain.

Or

- (b) Briefly discuss about Blogging.

17. (a) Explain the following :

- (i) External style sheet
- (ii) User style sheets.

Or

- (b) How to design frames in XHTML? Explain.

18. (a) Explain the looping structures in JavaScript.

Or

- (b) Define XHTML and write about the uses of XHTML.

19. (a) Write about the various operators available in JavaScript.

Or

- (b) Explain about DTD.

20. (a) What are the three essential parts to website development?

Or

- (b) Write about web servers and web controls.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10353 E      Sub. Code : AMIT 51/  
AMCT 51**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024

Fifth Semester

Information Technology/Computer Science and I.T. –  
Core

SCRIPTING LANGUAGE

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. VBScript was introduced in \_\_\_\_\_.
  - (a) WAMP
  - (b) XAMP
  - (c) IIS
  - (d) AWS

2. VBScript is a subset of the \_\_\_\_\_.  
(a) ASP (b) VBA  
(c) JSP (d) Servlet.
3. \_\_\_\_\_ is the only data type supported in VBScript.  
(a) variant (b) int  
(c) number (d) single
4. Identify the concatenation operator.  
(a) \* (b) /  
(c) % (d) &
5. To trigger script execution in response to user activity such as a form action is called  
(a) Process (b) Thread  
(c) Event (d) Cursor
6. What is the basic difference between JavaScript and Java?  
(a) Functions are considered as fields  
(b) Functions are values, and there is no hard distinction between methods and fields  
(c) Variables are specific  
(d) There is no difference

7. \_\_\_\_\_ is HTML document that displays dynamic characteristics such as movement or shows and hides page content.
- (a) XML
  - (b) Jscript
  - (c) CSS
  - (d) DHTML
8. In Java Script to display a quick dialog to show a message, use the \_\_\_\_\_ method of Window.
- (a) input()
  - (b) alert()
  - (c) rawinput()
  - (d) printf()
9. Which operator is used to test if an object is of a specified type or not?
- (a) typeof
  - (b) sizeof
  - (c) instanceof
  - (d) compare
10. \_\_\_\_\_ is a group of named constant values.
- (a) enum
  - (b) union
  - (c) tuple
  - (d) struct

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) How to display information in VBScript?

Or

- (b) List the steps to Hide VBScript from Older browsers.

12. (a) List the rules for declaring variables in VBScript.

Or

- (b) Explain the Comparison operators in VBScript.

13. (a) Comment on Linked Script.

Or

- (b) Write note on JavaScript Pseudo-URL.

14. (a) Illustrate about Variables in JavaScript.

Or

- (b) Distinguish between break and continue statement.



15. (a) Describe the decision making statements in TypeScript.

Or

- (b) How to create Strings in TypeScript? Explain its methods.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss the Advantages and Applications of Scripting Languages.

Or

- (b) Explain the Program structure of VBScript.

17. (a) What is an Array? Explain the Array methods in VBScript.

Or

- (b) How to create the user defined procedures in VBScript? Explain with an example.

18. (a) Elucidate the Event handlers in JavaScript.

Or

- (b) Enumerate the Applications of JavaScript.

19. (a) Write note Regular expressions in JavaScript.

Or

(b) Explain the Composite data types in JavaScript.

20. (a) Illustrate the operators in Typescript

Or

(b) Write note on Classes and Objects in TypeScript.

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(6 pages)

**Reg. No. :** .....

**Code No. : 10355 E      Sub. Code : AMIT 53**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Fifth Semester

Information Technology – Core

**DATA COMMUNICATIONS AND NETWORKING**

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

**PART A — (10 × 1 = 10 marks)**

Answer ALL questions.

Choose the correct answer :

1. Data Communication within a building or campus is \_\_\_\_\_  
(a) LAN                      (b) WAN  
(c) MAN                     (d) PAN
2. Which layer provides services to the users  
(a) Physical                (b) Transport  
(c) Application            (d) Session

3. \_\_\_\_\_ cable consists of two circulated copper wires
- (a) coaxial
  - (b) fibre optic
  - (c) twisted - pair
  - (d) none
4. Multiplexing is used in \_\_\_\_\_ switching
- (a) Circuit
  - (b) Pocket
  - (c) Message
  - (d) All
5. LANs and WANs use \_\_\_\_\_ to correct errors
- (a) CRC
  - (b) VRC
  - (c) LRC
  - (d) Checksum
6. Error control is done by \_\_\_\_\_ layer
- (a) Transport
  - (b) Physical
  - (c) Data Link
  - (d) Network

7. Actual communication is a circuit switched network requires \_\_\_\_\_ phases
- (a) one                      (b) two
- (c) three                    (d) four
8. \_\_\_\_\_ services is a flow – based QoS model designed for IP
- (a) Connection – Oriented
- (b) Connection – less
- (c) Integrated
- (d) None
9. Open – Loop and closed – loop are the categories of \_\_\_\_\_
- (a) Error                    (b) Congestion
- (c) Flow                    (d) None
10. In Link state routing, a node can use \_\_\_\_\_ algorithm to build a routing table
- (a) Hungarian            (b) Prim's
- (c) Kruskal's              (d) Dijkstra's

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the different categories of Networks.

Or

- (b) Describe OSI model in detail.

12. (a) Discuss statistical time – division multiplexing.

Or

- (b) Define unguided media categorize the ways by which unguided signals can travel.

13. (a) Explain checksum method in detail.

Or

- (b) Write short notes on error correction.

14. (a) Explain the phases in circuit switched network.

Or

- (b) Define RSVP. Categorize reservation styles in RSVP.

15. (a) Explain frame relay layers in detail.

Or

- (b) Discuss how RIP implements distance vector routing.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss how Internet works with example.

Or

- (b) Categorize network topology in detail.

17. (a) Explain the role of guided media with neat diagram.

Or

- (b) Compare and contrast FDM and WDM.

18. (a) Describe CRC algorithm with example.

Or

- (b) Explain the issues related to error detection and error correction.

19. (a) Describe ISDN layers in detail.

Or

(b) Explain packet switching methods in detail.

20. (a) Write short notes on repeaters and gateways.

Or

(b) Discuss the implementation of link state routing.

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(6 pages)

**Reg. No. :** .....

**Code No. : 10357 E      Sub. Code : AMIT 61**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Information Technology – Core

**MOBILE COMPUTING**

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

**PART A — (10 × 1 = 10 marks)**

Answer ALL questions.

Choose the correct answer :

1. What is wireless communication?
  - (a) Sending data from one location to with the use of physical medium
  - (b) Sending data from one location to another without the use of physical medium
  - (c) Sending data from one location to another without the use of virtual medium
  - (d) None of the mentioned

2. \_\_\_\_\_ is a transmission method used in MIMO wireless communications to transmit encoded data signals independently.
- (a) MU-MIMO
  - (b) STTD
  - (c) SM
  - (d) Collaborative Uplink MIMO
3. Which of the following is not a TDMA standard of 2.5G network?
- (a) GPRS
  - (b) GSM
  - (c) HSCSD
  - (d) EDGE
4. Which of the following leads to the 3G evolution of GSM, IS-136 and PDC systems?
- (a) GPRS
  - (b) HSCSD
  - (c) W-CDMA
  - (d) EDGE
5. Which of the following is not an effect caused by multipath in radio channel?
- (a) Random frequency modulation
  - (b) Time dispersion
  - (c) Rapid changes in signal strength
  - (d) Power of base station

6. What is the main disadvantage of RF pulse system?
- (a) Simplicity
  - (b) Interference and noise
  - (c) Not real time
  - (d) Complexity
7. Which of the following specifies a set of media access control (MAC) and physical layer specifications for implementing WLANs?
- (a) IEEE 802.11                      (b) IEEE 802.16
  - (c) IEEE 802.15                      (d) IEEE 802.3
8. Which modulation scheme is used by Bluetooth?
- (a) GFSK                              (b) DQPSK
  - (c) BPSK                              (d) MSK
9. Transmission Control Protocol / Internet Networking Protocol have \_\_\_\_\_.
- (a) Four Layers
  - (b) Five Layers
  - (c) Six Layers
  - (d) Seven Layers

10. The DoD model (also called the TCP/IP stack) has four layers. Which layer of the DoD model is equivalent to the Network layer of the OSI model?
- (a) Application                      (b) Host to Host  
(c) Internet                          (d) Network Access

PART B — ( $5 \times 5 = 25$  marks)

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

11. (a) Discuss about signal propagation.

Or

- (b) How to design cellular systems?

12. (a) Explain TDMA.

Or

- (b) Write a note on DECT.

13. (a) Brief about digital audio broadcasting.

Or

- (b) Explain in detail about ad hoc networks.

14. (a) Discuss about the DHCP.

Or

- (b) Write a note on wireless LAN.

15. (a) Elucidate on mobile transport layer.

Or

- (b) Give the working principles of file systems.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Elaborate on the radio transmission.

Or

- (b) Explain about spread spectrum.

17. (a) Describe CDMA.

Or

- (b) Explain TETRA in detail.

18. (a) What are the major categories of wireless networks? Explain.

Or

- (b) Describe the infrared Vs radio transmission with suitable example.

19. (a) Discuss the brief about Bluetooth.

Or

- (b) Exhibit the array of mobile IP.

20. (a) Explain in detail about classical TCP improvements.

Or

- (b) Describe in detail about the wireless application protocol.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10359 E      Sub. Code : AMIT 62/  
AMCT 62**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024

Sixth Semester

Information Technology/Computer Science and  
Information Technology – Core

**GRAPHICS AND MULTIMEDIA TECHNOLOGY**

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Among the given scientists/inventor who is known as the father of Computer Graphics?
  - (a) Nikola Tesla
  - (b) Ivan Sutherland
  - (c) Ada Lovelace
  - (d) Marie Curie

2. A common device for drawing, painting or interactively selecting coordinate positions on an object is a \_\_\_\_\_.
- (a) Digitizer                      (b) Data glove  
(c) Touch Panels                (d) Workstations
3. What is the equation for a circle?
- (a)  $y = mx + c$   
(b)  $y^2 = r^2 - x^2$   
(c)  $y^2 = r^2 + x^2 * y^2 r^2 - x^2$   
(d)  $y = mx - c$
4. Scan line algorithm for filling polygon is \_\_\_\_\_ algorithm.
- (a) Recursive  
(b) Non-Recursive  
(c) Semi-Recursive  
(d) Refreshment
5. A \_\_\_\_\_ transformation alters the size of an object.
- (a) Translation                      (b) Rotation  
(c) Scaling                            (d) Reflection



6. Perspective projection can be divided into how many categories?
- (a) 3 (b) 4  
(c) 5 (d) 6
7. \_\_\_\_\_ refers to any type of application that involves more than one type of media such as text, graphics video, animation and sound.
- (a) An executable file  
(b) Desktop publishing  
(c) Multimedia  
(d) Hypertext
8. The size of a text is usually measured in \_\_\_\_\_.
- (a) Dot (b) Pixel  
(c) Inches (d) Points
9. MPEG stands for \_\_\_\_\_.
- (a) Motion Picture Experts Group  
(b) Moving Perts Experts Group  
(c) Moving Picture Experts Group  
(d) Moving Picture Energy Group
10. Which of the following is video file format?
- (a) .MP (b) .MP3  
(c) .MP4 (d) .AVI

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Write the disadvantages of Computer Graphics.

Or

- (b) Write Short Notes on Output Devices.

12. (a) Write short notes on Properties of Ellipses.

Or

- (b) Write short notes on polygon Clipping Algorithm.

13. (a) Write short notes on Matrix Representation and Homogenous Coordinates.

Or

- (b) Write Short notes on Vanishing points.

14. (a) Write the Uses of Multimedia.

Or

- (b) Write short notes on Text in Multimedia.

15. (a) Write short notes on Image File Formats.

Or

- (b) Write short notes on Audio File Formats.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain about the Basic elements of computer graphics.

Or

- (b) Explain about the Architecture of Random Scan Display Devices.

17. (a) Explain about Mid Point Circle Drawing Algorithm.

Or

- (b) Explain about Cohen Sutherland Line Clipping Algorithm.

18. (a) Explain about Composite Transformation.

Or

- (b) Explain about Parallel Projection in detail.

19. (a) Explain about Multimedia Applications in detail.

Or

- (b) Explain about Font Editing and Design Tools.

20. (a) Explain about Natural Light and colors in detail.

Or

- (b) Explain about shooting and editing in detail.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10360 E      Sub. Code : AAIT 41/  
AACT 41**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Fourth Semester

Information Technology/  
Computer Science and IT — Allied

**RELATIONAL DATABASE MANAGEMENT SYSTEM**

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A database system provides a \_\_\_\_\_ to specify the database scheme
  - (a) DML
  - (b) DCL
  - (c) DDL
  - (d) None

2. A \_\_\_\_\_ is an association among several entities
- (a) Correspondence
  - (b) Key
  - (c) Relationship
  - (d) Attribute
3. The operation issued to combine information from any two relations is \_\_\_\_\_
- (a) Union
  - (b) Set - difference
  - (c) Projection
  - (d) Cartesian product
4. Which is a procedural language?
- (a) Tuple Relational calculus
  - (b) Domain relational calculus
  - (c) Relational Algebra
  - (d) All
5. \_\_\_\_\_ requires setting specific values for rows / columns to change using where clause
- (a) Insert
  - (b) Update
  - (c) Commit
  - (d) Roll back

6. Which is a character – by character substitution?  
(a) TRASLATE (b) DECODE  
(c) Both (d) None
7. Data types that consists of one or more subtype is called \_\_\_\_\_  
(a) Array  
(b) Abstract Data type  
(c) Object  
(d) References
8. Profiles created by create profile command are managed by \_\_\_\_\_  
(a) User (b) DBA  
(c) Both (d) None
9. A \_\_\_\_\_ defines an action the database should take when some database related event occur  
(a) event (b) trigger  
(c) cursor (d) action
10. Groups of procedures, functions, variables and SQL statement grouped together is called \_\_\_\_\_  
(a) Classes (b) Packages  
(c) Objects (d) None

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Define data model and categorize them.

Or

- (b) Illustrate the basic structure of an E-R diagram with an example.

12. (a) Write short notes on aggregation.

Or

- (b) Explain Third Normal Form with example.

13. (a) Describe the keywords in SQL for selecting data from an oracle table.

Or

- (b) Describe views in oracle with example.

14. (a) Discuss password management in detail.

Or

- (b) Explain the structure of a simple object with example.



15. (a) Categorize the different types of triggers.

Or

- (b) Explain procedures in PL/SQL with an example.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the purpose of database systems.

Or

- (b) Describe E-R model in detail.

17. (a) Discuss BCNF with examples.

Or

- (b) Explain the fundamental operations in the relational algebra.

18. (a) Explain string functions in detail.

Or

- (b) Discuss the ways of dropping tables and columns.

19. (a) How will you add and remove password in roles?

Or

- (b) Explain the concept of objects in RDBMS.

20. (a) What are the sections in a PL/SQL program.

Or

- (b) Describe the use of functions in PL/SQL.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10361 E      Sub. Code : AEIT 51**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Fifth Semester

Information Technology

Major Elective – PYTHON PROGRAMMING

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Which type of Programming does Python support?
  - (a) object-oriented programming
  - (b) structured programming
  - (c) functional programming
  - (d) all of the mentioned

2. Which keyword is used for function in Python language?  
(a) Function                      (b) Def  
(c) Fun                              (d) Define
3. Which of the following is not used as loop in Python?  
(a) for loop                      (b) while loop  
(c) do-while loop              (d) None of the above
4. A while loop in Python is used for what type of iteration?  
(a) indefinite                      (b) discriminant  
(c) definite                        (d) indeterminate
5. To add a new element to a list we use which Python command?  
(a) list1.addEnd(5)              (b) list1.addLast(5)  
(c) list1.append(5)              (d) list1.add(5)
6. What are the two main types of functions in Python?  
(a) System function  
(b) Custom function  
(c) Built-in function and User defined function  
(d) User function

7. In python, what is method inside class?
- (a) attribute                      (b) object
  - (c) argument                      (d) function
8. A class variable or instance variable that holds data associated with a class and its object is known as?
- (a) Class variable
  - (b) Method
  - (c) Operator overloading
  - (d) Data number
9. Which of the following is a disadvantage of linear search?
- (a) Requires more space
  - (b) Greater time complexities compared to other searching algorithms
  - (c) Not easy to understand
  - (d) Not easy to implement
10. Which value is provided by kind word for bar plot?
- (a) bar                                  (b) Kde
  - (c) hexbin                              (d) his

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) List and explain the basic data types in python.

Or

- (b) Define variable. List out the rules for naming the variable.

12. (a) Differentiate between the break and continue statement.

Or

- (b) Write a python program to check whether a given year is leap year or not.

13. (a) What are the formal and actual arguments? Explain.

Or

- (b) State the difference between the lists and dictionary.

14. (a) Compare class and object with python code.

Or

- (b) Write a short note on encapsulation in python.

15. (a) How do you plot a straight line on a pylab?  
Discuss.

Or

- (b) Explain the role of sorting in python.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Demonstrate the various operators in python.

Or

- (b) Classify the elements of python.

17. (a) Explain while loop and for loop with an example.

Or

- (b) Write a python program to print fibonacci series up to n terms.

18. (a) Discuss about list operations in python.

Or

- (b) Illustrate the date and time function with an example.

19. (a) Categorize the types of exception with an example.

Or

- (b) Elaborate note on inheritance with example.

20. (a) Create a program for linear search using array.

Or

- (b) Write a python program to perform selection sort on the elements read from the user.

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(6 pages)

**Reg. No. :** .....

**Code No. : 10367 E      Sub. Code : AEIT 62**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Sixth Semester

Information Technology

Major Elective – E GOVERNANCE

(For those who joined in July 2020 only)

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 NOT an e-governance model?  
(a) G2B                                      (b) B2C  
(c) C2C                                      (d) B2B
2. Which of the following is an example of e-governance infrastructure?  
(a) Social media                              (b) Cyber cafes  
(c) Mobile devices                              (d) All of the above

3. What is the main goal of e-governance?
  - (a) To reduce government spending on technology
  - (b) To improve the efficiency and effectiveness of government services
  - (c) To centralize power within government agencies
  - (d) To restrict citizen access to government services
4. Which of the following is an example of a push model in e-governance?
  - (a) E-filing of tax returns
  - (b) Online voting
  - (c) Social media engagement
  - (d) Chatbots for customer support
5. What is the benefit of using cloud computing in e-governance?
  - (a) Improved data security
  - (b) Decreased infrastructure costs
  - (c) Increased citizen participation
  - (d) Better access to government services

6. What is the main challenge of implementing e-governance in developing countries?
  - (a) Lack of technological infrastructure
  - (b) Lack of skilled human resources
  - (c) Resistance to change
  - (d) All of the above
7. What is the importance of interoperability in e-governance?
  - (a) It improves the quality of government services
  - (b) It increases citizen engagement
  - (c) It facilitates data sharing between government agencies
  - (d) It decreases government spending on technology
8. What is the role of social media in e-governance?
  - (a) To provide an alternative platform for government services
  - (b) To improve citizen engagement and communication with government agencies
  - (c) To restrict citizen access to government services
  - (d) To centralize power within government agencies

9. Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?
- (a) Warehousing      (b) Data Mining  
(c) Text Mining      (d) Data Selection
10. The classification of the data mining system involves:
- (a) Database technology  
(b) Information Science  
(c) Machine learning  
(d) All of the above

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain E - Governance in detail.
- Or
- (b) What is an online service delivery?
12. (a) Write about comparative analysis model.
- Or
- (b) Give short notes on Government to Citizen to Government Model.

13. (a) Expound data centers in detail.

Or

(b) Explain about technological infrastructural preparedness.

14. (a) Discuss about the security for E - Government.

Or

(b) Comment on E-Government security architecture.

15. (a) Elucidate on prices of essential commodities.

Or

(b) Give detailed notes on data mining for commerce.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain uses of E – Government life cycle in detail.

Or

(b) Explain scope of E - Governance.

17. (a) Write about mobilization and lobbying model.

Or

- (b) Illustrate on five maturity models.

18. (a) Expound cloud governance with necessary theory.

Or

- (b) Explain human infrastructure preparedness with suitable example.

19. (a) Discuss about challenges of E–Government security.

Or

- (b) Explain security standards with necessary theory.

20. (a) Explain in detail about data warehouse.

Or

- (b) Discuss about data mining for education.

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(6 pages)

**Reg. No. :** .....

**Code No. : 10368 E      Sub. Code : AEIT 63**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Information Technology

Major Elective — CYBER SECURITY

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What does cyber security protect?
  - (a) Cyber security protects criminals
  - (b) Cyber security protects internet-connected systems
  - (c) Cyber security protects hackers
  - (d) None of the mentioned

2. What are the features of cyber security?
- (a) Compliance
  - (b) Defense against internal threats
  - (c) Threat Prevention
  - (d) All of the above
3. Which of the following is not an advantage of cyber security?
- (a) Makes the system slower
  - (b) Minimizes computer freezing and crashes
  - (c) Gives privacy to users
  - (d) Protects system against viruses
4. Which of the following act violates cyber security?
- (a) Exploit                      (b) Attack
  - (c) Threat                      (d) Vulnerability
5. Cryptographic algorithms are based on mathematical algorithms where these algorithms use \_\_\_\_\_ for a secure transformation of data.
- (a) Secret key                      (b) External programs
  - (c) Add-ons                      (d) Secondary key



6. Data leakage is popularly known as \_\_\_\_\_
- (a) Data theft
  - (b) Data crack
  - (c) Low and slow data theft
  - (d) Slow data theft
7. “Cyberspace” was coined by \_\_\_\_\_
- (a) Richard Stallman
  - (b) William Gibson
  - (c) Andrew Tannenbaum
  - (d) Scott Fahlman
8. Which of the following is not an email-related hacking tool?
- (a) Mail Password      (b) Email Finder Pro
  - (c) Mail Pass View      (d) Sendinc
9. Lack of access control policy is a \_\_\_\_\_
- (a) Bug                      (b) Threat
  - (c) Vulnerability      (d) Attack
10. Which of the following is not a cybercrime?
- (a) Denial of Service      (b) Man in the Middle
  - (c) Malware                  (d) AES

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) What are the different types of threats? Explain.

Or

- (b) Describe the main purpose of authentication.

12. (a) Elaborate the different types of network security attack.

Or

- (b) Summarize the functions of Rootkit.

13. (a) Point out the advantages of firewalls.

Or

- (b) Write down the purpose of database disclosure.

14. (a) Explain the privacy impacts of emerging technologies.

Or

- (b) Analysis the importance of data mining in cyberspace.

15. (a) Bring out the business continuity planning in cyber security.

Or

- (b) Mention the need of Internet of Things in cyber security.

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 security issues in web attacks.

Or

- (b) Determine the obtaining user and website data.

17. (a) Outline the purpose of security in the design of operating system.

Or

- (b) Illustrate the basic concept of wireless network security.

18. (a) Demonstrate the reliability and integrity in databases.

Or

- (b) Compare the data mining and big data.

19. (a) Discuss the privacy principles and policies in cyberspace.

Or

- (b) Analysis the problems in Email security in cyberspace.

20. (a) Explain the need of cyberspace and the law.

Or

- (b) Formulate the emerging technologies of electronic voting.
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(6 pages)

**Reg. No. :** .....

**Code No. : 10556 E      Sub. Code : CMIT 11/  
CMCT 11**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

First Semester

Information Technology / Computer Science and  
I.T. – Core

INTRODUCTION TO INFORMATION TECHNOLOGY  
AND HTML

(For those who joined in July 2021–2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer.

1. Which type of memory is located within the CPU and is the fastest to access?
  - (a) RAM
  - (b) Cache Memory
  - (c) ROM
  - (d) Hard Disk Drive

2. Which input device is primarily used for pointing and selecting objects on the screen?
- (a) Mouse
  - (b) Keyboard
  - (c) Scanner
  - (d) Microphone
3. What is the primary language used to create web pages?
- (a) Java
  - (b) C++
  - (c) Python
  - (d) HTML
4. ISP stands for \_\_\_\_\_.
- (a) Internet Security Protocol
  - (b) Internet Service Provider
  - (c) International Software Provider
  - (d) Information Storage Provider
5. Which of the following is not a basic component of HTML?
- (a) Tags
  - (b) Attributes
  - (c) Elements
  - (d) Variables

6. Numbered list or the ordered list can be created by giving the \_\_\_\_\_ tags.
- (a) <UL> </UL>
  - (b) <OL> </OL>
  - (c) <LI> <LI>
  - (d) <I> </I>
7. Which image format supports animation?
- (a) GIF
  - (b) JPEG
  - (c) PNG
  - (d) BMP
8. Which of the following tag is used to add rows in the table?
- (a) <td> and </td>
  - (b) <th> and </th>
  - (c) <tr> and </tr>
  - (d) <th> and </td>
9. CSS stands for \_\_\_\_\_
- (a) Computer Style Sheets
  - (b) Cascading Style Sheets
  - (c) Creative Style Sheets
  - (d) Combined Style Sheets

10. Which CSS property is used to set the color of text?
- (a) Text-color                      (b) Font-color  
(c) Text-style                      (d) Color

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) What is meant by Information Technology?  
Explain its advantages and disadvantages.

Or

- (b) Describe the function of Input Devices in a computer system. Provide example.

12. (a) Write a note on how the web works.

Or

- (b) Elaborate on Domain naming system.

13. (a) Demonstrate on basic structure of HTML.

Or

- (b) Describe the syntax of <a> tag and its attributes for creating hyperlinks in HTML.



14. (a) Illustrate the concept of hyperlink anchors and creating clickable image links on web pages.

Or

- (b) Discuss <Marquee> tag and its attributes.
15. (a) Write down the syntax of CSS rule including selectors, properties and values.

Or

- (b) Explain the @keyframes rule in CSS and its role in defining animations.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss the concept of Memory Hierarchy in computer architecture.

Or

- (b) Categorize the different types of output devices.

17. (a) Illustrate the architecture of typical web server and its components.

Or

- (b) Give a brief note on Integrated Services Digital Network (ISDN).

18. (a) Explain the different types of lists available in HTML with example program.

Or

- (b) Explore the various formatting options available in HTML for styling text.

19. (a) Explore the different types of form input elements with suitable program.

Or

- (b) Discuss <input> tag and its various types with example program.

20. (a) Explain the importance of typography in web design and role of CSS in controlling text appearance.

Or

- (b) Explicate the concept of transitions and transforms and animation in CSS.

(6 Pages)

**Reg. No. : .....**

**Code No. : 10557 E      Sub. Code : CMIT 21/  
CMCT 21**

**B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.**

**Second Semester**

**Information Technology/Computer Science and I.T –  
Core**

**C PROGRAMMING**

**(For those who joined in July 2021-2022 onwards)**

**Time : Three hours                      Maximum : 75 marks**

**PART A — (10 × 1 = 10 marks)**

**Answer ALL the questions.**

**Choose the correct answer :**

1. What is the size of char datatype?  
(a) 8 byte                      (b) 4 byte  
(c) 2 byte                      (d) 1 byte
2. \_\_\_\_\_ are user defined words used to name entities like variables, arrays, functions, structures etc.,  
(a) Character set              (b) Identifiers  
(c) Constants                  (d) Storage class

3. While.., loop is an \_\_\_\_\_ type loop  
(a) Entry-controlled (b) Exit-controlled  
(c) Both (d) None of the above
4. What is the purpose of the 'continue' statement in C?  
(a) Skip the loop  
(b) Exit the program  
(c) Skip the current iteration  
(d) Exit the loop
5. If S is an array of 80 characters, then the value assigned to S through the statement `scanf("%o", S)` with input 12345 would be.  
(a) "12345"  
(b) Nothing since 12345 is an integer  
(c) S is an illegal name for string  
(d) %s cannot be used for reading in values of S
6. Array of character is a \_\_\_\_\_.  
(a) enum (b) union  
(c) string (d) file

7. In C, what is the purpose of the 'return' statement in a function?
- (a) To declare the function's return type
  - (b) To exit the program
  - (c) To return a value from the function
  - (d) To define a function
8. Function declaration is also known as function \_\_\_\_\_.
- (a) Definition
  - (b) Prototype
  - (c) Call
  - (d) Return
9. In C, how do you declare a pointer variable that can store the address of an integer?
- (a) `int *ptr;`
  - (b) `ptr int;`
  - (c) `int ptr;`
  - (d) `ptr *int;`
10. In C, what is a pointer primarily used for.
- (a) Decision making
  - (b) Code organization
  - (c) Variable declaration
  - (d) Storing values

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain C character set.

Or

- (b) Describe any four functions for managing input output operations in C.

12. (a) Briefly explain if...else statement in C.

Or

- (b) Write the use of switch statement with its syntax and example.

13. (a) Designate multidimensional arrays with example.

Or

- (b) Elucidate how to compare two strings. Give example.

14. (a) Define a function with no arguments and no return values.

Or

- (b) Outline how to access structure members with syntax and example.

15. (a) Write a C program to illustrate pointers.

Or

- (b) Discuss error handling of files.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Illustrate evaluation of expressions in C with examples.

Or

- (b) Express the declaration of storage classes.

17. (a) Discuss nesting of if... else statement with example.

Or

- (b) Develop a C program to illustrate while.., loop.

18. (a) How do you declare and initialize one dimensional arrays. Give examples?

Or

- (b) Explain any five string handling functions.

19. (a) Exemplify recursion with example program.

Or

- (b) Describe user-defined functions with examples.

20. (a) Exemplify accessing a variable through its pointer with an example.

Or

- (b) Elucidate I/O operations on file.
-



(6 pages)

Reg. No. : .....

**Code No. : 10558 E      Sub. Code : CMIT 31/  
CMCT 31**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Third Semester

Information Technology/  
Computer Science and IT – Core

**OBJECT ORIENTED PROGRAMMING WITH C++**

(For those who joined in July 2021 – 2022)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ refers to the act of representing essential features without including the background details.
  - (a) Encapsulation
  - (b) Data Abstraction
  - (c) Inheritance
  - (d) Polymorphism

2. Identify the method is used to set various flags for formatting output.
- (a) width()                      (b) precision()  
(c) unsetf()                      (d) setf()
3. \_\_\_\_\_ statement terminates the execution of the loop.
- (a) exit()                      (b) continue  
(c) break                      (d) terminate()
4. Name the command used to transfer the control of execution to any place in a program.
- (a) goto                      (b) if  
(c) for                      (d) switch
5. The class can be accessed only through \_\_\_\_\_.
- (a) variables                      (b) functions  
(c) objects                      (d) structure
6. \_\_\_\_\_ is a keyword used to preserve the value of the variable.
- (a) private                      (b) public  
(c) protected                      (d) static

7. The outcome of inheritance is \_\_\_\_\_.
- (a) increasing space
  - (b) increasing time
  - (c) reusability
  - (d) overloading
8. \_\_\_\_\_ is a memory variable that stores a memory address.
- (a) integer
  - (b) pointer
  - (c) class
  - (d) object
9. The function `get( )`, `getline( )`, `read( )` and `>>` or defined in the \_\_\_\_\_ class.
- (a) `math`
  - (b) `ostream`
  - (c) `fstream`
  - (d) `istream`
10. When a file is opened in \_\_\_\_\_ mode the get pointer is set at the beginning of the file.
- (a) `binary`
  - (b) `write`
  - (c) `read`
  - (d) `seek`

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Describe the advantages of Object Oriented Programming.

Or

- (b) Elaborate on Formatted console I/O Operations.

12. (a) Demonstrate Jump statement with example program.

Or

- (b) Illustrate the principles of function overloading.

13. (a) How do you achieve data hiding in C++. Give an example.

Or

- (b) Elucidate on friend function and illustrate with an example.

14. (a) How to define pointer to objects in C++? Give its usage in program.

Or

- (b) What are the constraints in increment and decrement operators?

15. (a) Characterize the file opening modes in C++.

Or

- (b) Comment on Abstract classes.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Deliberate the key concepts of object oriented programming.

Or

- (b) Represent the usage of input and output in C++.

17. (a) Discuss the looping commands with an example.

Or

- (b) Comment on functions in C++.

18. (a) Demonstrate the constructors and destructors with example program.

Or

- (b) Intricate on copy constructor with suitable example.

19. (a) Represent the type conversion operation with an example program.

Or

- (b) Elucidate the purpose of virtual base classes in C++.

20. (a) Originate the mechanism of virtual functions.

Or

- (b) Describe the manipulators with arguments in C++.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10559 E      Sub. Code : CMIT 41/  
CMCT 41**

B.Sc.(CBCS) DEGREE EXAMINATION, APRIL 2024.

Fourth Semester

Information Technology/Computer Science and  
Information Technology – Core

**JAVA PROGRAMMING**

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Who invented Java Programming?
  - (a) Guido van Rossum
  - (b) James Gosling
  - (c) Dennis Ritchie
  - (d) Bjarne Stroustrup

2. Which one of the following is not a Java feature?
  - (a) Object-oriented
  - (b) Use of pointers
  - (c) Portable
  - (d) Dynamic and Extensible
3. Which of the following is not an OOPS concept in Java?
  - (a) Polymorphism
  - (b) Inheritance
  - (c) Compilation
  - (d) Encapsulation
4. What is the extension of compiled Java classes?
  - (a) .txt
  - (b) .js
  - (c) class
  - (d) java
5. Which of these keywords can be used to prevent Method overriding?
  - (a) Static
  - (b) Constant
  - (c) Protected
  - (d) Final



6. What is the process of defining a method in a subclass having same name & type signature as a method in its superclass?
- (a) Method overloading
  - (b) Method Overriding
  - (c) Method hiding
  - (d) Constructor
7. Which of these keywords must be used to monitor for exceptions?
- (a) Try
  - (b) Finally
  - (c) Throw
  - (d) Catch
8. Which of these packages contains the exception Stack Overflow in Java?
- (a) Java.io
  - (b) Java.system
  - (c) Java.lang
  - (d) Java.util
9. Which of these events is generated when the window is closed?
- (a) TextEvent
  - (b) MouseEvent
  - (c) FocusEvent
  - (d) WindowEvent

10. Which is a component in AWT that can contain another components like buttons, text fields, labels?
- (a) Window                      (b) Container  
(c) Panel                        (d) Frame

PART B — ( $5 \times 5 = 25$  marks)

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

11. (a) Illustrate the data types supported by java.

Or

- (b) List out the different features of java.

12. (a) Discuss about constructor overloading with example.

Or

- (b) Write a factorial value program using recursion

13. (a) Identify the steps involved in creating packages.

Or

- (b) Differentiate between classes and interfaces.

14. (a) Explain synchronization with example.

Or

- (b) How exception can be handled in java?  
Explain.

15. (a) Interpret the delegation event model in Java.

Or

- (b) Elaborate note on event listener interfaces.

PART C — ( $5 \times 8 = 40$  marks)

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

16. (a) Categorize the different types of operators

Or

- (b) Explain if else and switch statements with example.

17. (a) Describe the importance of this keyword in java with an example program.

Or

- (b) Interpret the concept of class and object with example.

18. (a) Classify the various inheritance with suitable example.

Or

- (b) Write a java program to create a package which has a classes and methods to read student admission detail.

19. (a) Develop a java program to implement built in exceptions.

Or

- (b) Compare and contrast difference between applets and applications.

20. (a) Describe the types of layout manager in Java.

Or

- (b) Write a Java program to design login window using AWT controls.
-

(8 pages)

**Reg. No. :** .....

**Code No. : 10560 E      Sub. Code : CMIT 51/  
CMCT 51**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Fifth Semester

Information Technology/Computer Science and  
Information Technology – Core

**SOFTWARE ENGINEERING AND TESTING**

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. What is the primary goal of software engineering?
  - (a) Developing software quickly
  - (b) Building high-quality software cost-effectively
  - (c) Producing complex software without documentation
  - (d) Minimizing user involvement

2. Which software development myth involves the belief that adding more people to a late software project will speed up its completion?
  - (a) The Myth of the Silver Bullet
  - (b) The Myth of the Magical Manager
  - (c) The Myth of More
  - (d) The Myth of Infinite Resources
3. Which of the following is a technique used to elicit requirements by observing and analyzing how users perform their tasks and interact with a system?
  - (a) Brainstorming      (b) Interviews
  - (c) User observation    (d) Surveys
4. What is a use case in requirements engineering?
  - (a) A list of software requirements
  - (b) A textual description of the user interface
  - (c) A comprehensive model of system functionality from the users perspective
  - (d) A detailed design of the database schema

5. What is the primary goal of software design in the software development process?
- (a) Writing code efficiently
  - (b) Producing comprehensive documentation
  - (c) Translating requirements into a solution
  - (d) System testing and validation
6. In software design, what is a design model?
- (a) A graphical representation of code structure
  - (b) A set of test cases
  - (c) A user manual
  - (d) A detailed project schedule
7. Why are software testing guidelines important?
- (a) To make software developers responsible for testing
  - (b) To increase project cost
  - (c) To ensure that testing is conducted systematically and effectively
  - (d) To eliminate the need for documentation

8. When selecting software testing tools, what factor should be a top priority?
- (a) Tool popularity
  - (b) Cost
  - (c) Alignment with testing needs and objectives
  - (d) The availability of training materials
9. In the seven-step testing process, which step typically involves test planning, including defining objectives, test cases, and schedules?
- (a) Test execution
  - (b) Test closure
  - (c) Test design and implementation
  - (d) Test planning and control
10. In the context of rapid application development (RAD) testing, what is a key advantage?
- (a) Extensive documentation is not required
  - (b) Testing is not necessary in RAD projects
  - (c) Test cases can be prepared in the coding phase
  - (d) RAD projects do not require testing since they are developed quickly



PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the importance of software engineering in the context of software development and how it differs from traditional programming.

Or

- (b) Describe the iterative and incremental development approach in software process models and provide an example of a process model that follows this approach.

12. (a) Explain the significance of requirements elicitation in the software development process. Provide examples of techniques or methods used to elicit requirements effectively.

Or

- (b) Describe the key components of a use case in software development. How do use cases help in modeling system functionality?

13. (a) Explain the importance of design concepts in the software development process.

Or

- (b) Define architectural design in the context of software development.

14. (a) How do these software testing process phases contribute to the overall quality of the software product?

Or

- (b) Discuss the importance of adherence to software testing guidelines and best practices.
15. (a) Differentiate between verification and validation testing in software testing.

Or

- (b) Discuss the importance of testing software in a multiplatform environment.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Compare and contrast the principles and practices of Agile development with those of Extreme Programming (XP). Highlight how XPs practices, such as Test-Driven Development (TDD) and Pair Programming, contribute to the overall success of Agile projects.

Or

- (b) Compare and contrast the Waterfall model and the Agile model as software development process models. Discuss their key characteristics, phases, and advantages and disadvantages. Provide examples of situations where each model is best suited.
17. (a) Explain how UML (Unified Modeling Language) methods are supplemented by use cases in software development. Provide examples of how use cases are integrated into UML diagrams and how they enhance the modeling of software systems.

Or

- (b) Discuss the role of requirement negotiation in managing conflicts and trade-offs among stakeholders in software development projects.
18. (a) Describe the phases of the software design process.

Or

- (b) Elaborate on the benefits and challenges of component-based development in software engineering.

19. (a) Explain the significance of training testers in the usage of testing tools.

Or

- (b) Discuss the evolution of software testing from manual to automated testing approaches.
20. (a) Discuss the challenges that testing aims to address and how a well-structured testing process can mitigate these challenges.

Or

- (b) Highlight the potential challenges that can be encountered during the testing processes.
-

(7 Pages)

**Reg. No. : .....**

**Code No. : 10561 E      Sub. Code : CMIT 52/  
CMCT 52**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Fifth Semester

Information Technology/Computer Science and I.T. –  
Core

**RELATIONAL DATABASE MANAGEMENT SYSTEM**

(For those who joined in July 2021-2022)

Time : Three hours                      Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Which data model is best suited for representing hierarchical data structures?
  - (a) Relational data model
  - (b) Hierarchical data model
  - (c) Network data model
  - (d) NoSQL data model

2. What is the primary goal of transaction management in a database system?
  - (a) To ensure high availability
  - (b) To ensure data consistency and integrity
  - (c) To improve query performance
  - (d) To manage database storage
3. In relational algebra, what operation is used to combine two relations to produce a new relation containing all rows from both relations?
  - (a) Selection
  - (b) Projection
  - (c) Union
  - (d) Join
4. In tuple relational calculus, what does the expression  $\{ t \mid R(t) \}$  represent?
  - (a) All tuples in relation R
  - (b) The union of two relations
  - (c) The projection of relation R
  - (d) The intersection of two relations
5. What does the SQL UPDATE statement do?
  - (a) Add new rows to a table
  - (b) Modify existing rows in a table
  - (c) Remove rows from a table
  - (d) Create a new table

6. What is the purpose of SQL OUTER JOINS?
- (a) To combine only matching rows from multiple tables
  - (b) To combine all rows from multiple tables, including unmatched rows
  - (c) To create a new table
  - (d) To delete rows from a table
7. What is the purpose of a reference object view in a database?
- (a) To create a new user
  - (b) To reference data from another table or view
  - (c) To revoke privileges from a user
  - (d) To store large binary data
8. In the context of database security, what is the role of a database user?
- (a) To store and organize data
  - (b) To grant privileges to other users
  - (c) To access and interact with the database
  - (d) To manage database backups

9. What is a declaration in PL/SQL?
- (a) A statement to declare variables, constants, and cursors.
  - (b) A SQL query.
  - (c) A conditional statement.
  - (d) A loop statement.
10. Which PL/SQL section contains the main executable code?
- (a) Declaration section
  - (b) Exception handling section
  - (c) Execution section
  - (d) Trigger section

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Describe the role of the buffer manager in a database system and how it improves data access efficiency.

Or

- (b) Explain the role of a Database Administrator (DBA) in a database management system. What are the key responsibilities of a DBA?



12. (a) Explain the basic principles of Tuple Relational Calculus. How is it different from Domain Relational Calculus?

Or

- (b) Describe the Third Normal Form (3NF) and its significance in relational database design.
13. (a) What are single value tests in SQL, and how are they used in SQL queries to filter data?

Or

- (b) How can you create a table in SQL using another existing table as a template? Explain the SQL statement and its purpose.
14. (a) What is the role of an abstract data type (ADT) in database design, and how does it differ from native data types?

Or

- (b) What are Large Objects (LOBs) in a database, and what types of data are typically stored as LOBs?
15. (a) What is the purpose of the declaration section in PL/SQL, and what types of elements can be declared in this section?

Or

- (b) What is the significance of the %TYPE attribute in PL/SQL variable declarations, and how is it used?

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Define and explain the importance of referential integrity in a relational database system. Describe how referential integrity constraints are used to maintain data consistency and quality, providing examples to illustrate their impact.

Or

- (b) Describe the architectural components and layers of a typical database system in detail.

17. (a) Explain the concept of integrity constraints in a relational database system.

Or

- (b) Describe the concepts of Tuple Relational Calculus and its usage in database querying.

18. (a) Explain the concepts of SQL transactions, and how do the COMMIT and ROLLBACK statements relate to ensuring data integrity in a database?

Or

- (b) How do you create a unique index on a column in a SQL table? What is the significance of a unique index in database management?

19. (a) Describe the steps involved in creating a new user in a relational database. Additionally, explain how you can grant specific privileges to the newly created user.

Or

- (b) How can you revoke specific privileges from a user in a database, and what is the purpose of revoking privileges? Furthermore, explain the concept of a synonym in a database.
20. (a) What are database-level triggers and how do they differ from table-level triggers in PL/SQL? Explain the process of enabling, disabling, replacing, and dropping triggers.

Or

- (b) Explain the concept of a PL/SQL package, and how does it enhance code organization and reusability?
-

(7 pages)

**Reg. No. :** .....

**Code No.: 10562 E      Sub. Code: CMIT 53 /  
CMCT 53**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Information Technology / Computer Science and  
Information Technology – Core

**.NET PROGRAMMING**

(For those who joined in July 2021–2022 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is an instance of a class in the context of object-oriented programming in .NET?
  - (a) A static method
  - (b) A collection of data
  - (c) A reference to a type
  - (d) A specific object created from a class

2. In .NET, what is a namespace used for?
  - (a) Creating object-oriented classes -
  - (b) Managing the memory of objects
  - (c) Organizing and grouping related classes and types
  - (d) Defining object properties
3. What is the purpose of the <input> element with type =“text” in HTML?
  - (a) To display an image
  - (b) To create a text box for user input
  - (c) To define a list item
  - (d) To play audio content
4. In web development, what is a server control?
  - (a) A control that resides on the client-side
  - (b) A control that performs server-side processing
  - (c) A type of web browser
  - (d) A form of user authentication
5. In ASP.NET, what is a session state used for?
  - (a) Storing data on the client-side
  - (b) Storing data temporarily on the server-side for a user session
  - (c) Storing data in a query string
  - (d) Handling errors and exceptions

6. Which type of data is suitable for storing in a session variable?
  - (a) Highly sensitive and confidential data
  - (b) Data that doesn't need to persist between sessions
  - (c) Data that is better stored in a cookie
  - (d) User preferences
7. In ADO.NET, what is the role of the Command object?
  - (a) Storing database records
  - (b) Establishing database connections
  - (c) Executing SQL commands against a database
  - (d) Creating user interfaces
8. Which of the following programming languages is commonly used to develop ADO.NET applications?
  - (a) Python
  - (b) Java
  - (c) C#
  - (d) Ruby
9. What is the primary purpose of an XML Schema (XSD)?
  - (a) To transform XML data into HTML
  - (b) To validate the structure and data types of XML documents
  - (c) To create XML documents from scratch
  - (d) To display XML data in web browsers

10. Which technology is commonly used in conjunction with XSLT to style and format XML documents for display in web browsers?
- (a) JavaScript
  - (b) CSS (Cascading Style Sheets)
  - (c) HTML (Hypertext Markup Language)
  - (d) SQL (Structured Query Language)

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 relationship between ASP.NET and Internet Information Services (IIS). How does IIS enable the hosting of ASP.NET applications?

Or

- (b) Describe the role of namespaces in .NET programming. Provide an example of how namespaces are used to organize code.

12. (a) Explain the purpose of validation controls in web development and give an example of a validation control.

Or

- (b) Discuss the role of navigation controls in web development and provide an example of a navigation control.

13. (a) What is tracing in the context of web development, and how does it aid in debugging and monitoring web applications?

Or

- (b) What are the advantages and limitations of using query strings for data transfer in web applications?
14. (a) Discuss the common steps involved in creating a simple ADO.NET sample program that connects to a database, retrieves data, and displays it in a user interface.

Or

- (b) Differentiate between the DataList, DataGrid, and Repeater controls in ADO.NET, and provide examples of scenarios where each control is typically used.
15. (a) How does XSLT help in transforming an XML document into another format, and what are some common use cases for such transformations?

Or

- (b) What is the purpose of an XML Schema (XSD), and how does it ensure the integrity of XML data?



PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Describe the significance of namespaces in .NET programming. Explain how namespaces help organize code and prevent naming conflicts, and provide an example of a situation where namespaces are crucial.

Or

- (b) Explain the purpose of the web. config file in ASP.NET. Discuss the types of configuration settings it can contain and their significance in application development.
17. (a) Explain the role of client-side and server-side validation in web forms. How can validation controls in ASP.NET help ensure data integrity and security?

Or

- (b) Describe the purpose of site navigation controls in web development. Provide an example of a navigation control and explain its role in improving website usability.

18. (a) Compare and contrast various state management techniques, such as session, view state, query string, and cookies. Discuss their advantages, limitations, and typical use cases.

Or

- (b) Describe potential challenges and best practices for managing session state in a web farm or load-balanced environment.
19. (a) Explain the key components of ADO.NET that are essential for data access in .NET applications.

Or

- (b) What is data binding in the context of ADO.NET, and why is it important in user interface development?
20. (a) Discuss the key characteristics of XML and its advantages over other data formats. Provide examples of scenarios where XML is commonly used.

Or

- (b) Explain the fundamental concept of web services and their role in enabling interoperability between diverse systems and platforms.

(6 Pages)

**Reg. No. :** .....

**Code No. : 10563 E      Sub. Code : CMIT 61**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Information Technology – Core

**OPERATING SYSTEM**

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL the questions.

Choose the correct answer :

1. What is an Operating System?
  - (a) A collection of hardware components
  - (b) An interface between user and hardware
  - (c) A network protocol for data transfer
  - (d) A set of software applications

2. Which of the following is a characteristic of handheld systems?
  - (a) Large physical size
  - (b) High processing power
  - (c) Portability
  - (d) Complex user interfaces
3. What is the term for the operation of suspending a process temporarily?
  - (a) Suspend
  - (b) Resume
  - (c) Dispatch
  - (d) Create
4. Which of the following is NOT an operation performed on a process?
  - (a) Terminate
  - (b) Allocate memory
  - (c) Create
  - (d) Block
5. Which of the following is a solution to the Producer/Consumer problem?
  - (a) Semaphore
  - (b) Deadlock
  - (c) Virtual memory
  - (d) Compiler optimization

6. Which condition in the “deadlock prerequisites” is related to processes holding resources while waiting for others?
- (a) Mutual Exclusion    (b) Hold and Wait
- (c) No Preemption      (d) Circular Wait
7. Which component of an operating system is responsible for memory allocation?
- (a) CPU scheduler      (b) Memory manager
- (c) Device driver        (d) File system
8. With paging there is no \_\_\_\_\_ fragmentation.
- (a) Internal
- (b) External
- (c) Either type of
- (d) None of the mentioned
9. Which operating system is known for its open-source nature and is popular among developers for its flexibility and customization options?
- (a) Windows              (b) macOS
- (c) UNIX                    (d) Linux

10. Which of the following is NOT a type of device driver?

- (a) File system driver    (b) Network driver  
(c) Terminal driver      (d) Compiler driver

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the concept of virtual machines.

Or

(b) Explain multiprocessor system and its advantages.

12. (a) Describe the fields in a process control block.

Or

(b) Illustrate the FIFO scheduling algorithm.

13. (a) Explain about deadlock avoidance.

Or

(b) Write about deadlock prevention methods.

14. (a) Explain about fixed partition memory management.

Or

(b) Differentiate between paging and segmentation.

15. (a) Illustrate the role of device driver.

Or

- (b) State the key features of Unix operating system.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) List and explain the services provided by operating system.

Or

- (b) Explain different categories of system calls with example.

17. (a) Explain process states in detail with diagram.

Or

- (b) Write a note on process hierarchy in detail.

18. (a) Explain the following term related to IPC:

- (i) Race condition
- (ii) Critical region

Or

- (b) Explain about deadlock prerequisites.

19. (a) Describe the single contiguous memory management in detail.

Or

- (b) Explain the basic concepts of segmentation.

20. (a) Write a brief note on file management.

Or

- (b) Differentiate between protection and security in file system. How they are implemented?
-



(6 pages)

**Reg. No. :** .....

**Code No. : 10564 E      Sub. Code : CMIT 62**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Sixth Semester

Information Technology – Core

INTERNET OF THINGS

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. What does IoT stand for?
  - (a) Internet of Tele communications
  - (b) Internet of Things
  - (c) Internet of Tools
  - (d) Internet of Tunnels

2. Which type of network is commonly employed in IoT for short-range communication?
  - (a) WiMAX
  - (b) Wireless Sensor Networks (WSN)
  - (c) GSM
  - (d) Satellite networks
3. Which programming paradigm is commonly used in IoT development?
  - (a) Procedural programming
  - (b) Object-oriented programming
  - (c) Functional programming
  - (d) Declarative programming
4. Which programming language is often used for Arduino programming?
  - (a) Java
  - (b) C++
  - (c) Python
  - (d) Ruby
5. In which application area of IoT might smart thermostats and lighting systems be commonly found?
  - (a) Homes
  - (b) Healthcare
  - (c) Agriculture
  - (d) Military applications

6. In which IoT application area would you find remote patient monitoring systems?
- (a) Homes                      (b) Healthcare
- (c) Agriculture                (d) Military
7. What is an example of a Smart City IoT use case related to smart health?
- (a) Monitoring crop conditions
- (b) Controlling street lighting
- (c) Remote patient monitoring
- (d) Managing waste collection
8. In which sector can IoT applications in Smart Cities enhance governance?
- (a) Healthcare                (b) Transportation
- (c) Education                (d) E-governance
9. Which organization is responsible for defining security standards in IoT and M2M networks?
- (a) IEEE                        (b) IETF
- (c) ISO                         (d) ITU

10. What is one of the primary focuses of security for IoT and M2M technologies?
- (a) Enhancing device performance
  - (b) Reducing device cost
  - (c) Ensuring data privacy and integrity
  - (d) Expanding device compatibility

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) List out the characteristics of IoT.
- Or
- (b) Differentiate between Logical and physical design.
12. (a) Analyze on features of Raspberry PI.
- Or
- (b) Explain the basic structure of an Arduino program.
13. (a) How does IoT contribute to home automation? Explain.
- Or
- (b) State the challenges associated with implementing cloud IoT.

14. (a) How can IoT enhance education in Smart Cities? Explain.

Or

- (b) Elaborate note on industrial IoT.

15. (a) Summarize the difference between IoT and M2M.

Or

- (b) Explain the network technology is used in IoT.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Describe the IoT network protocol stack.

Or

- (b) Illustrate the Near Field Communication (NFC) and its role in IoT.

17. (a) Illustrate Programming Raspberry Pi with Python with examples.

Or

- (b) Define embedded virtualization and its role in IoT.

18. (a) How is IoT utilized in military applications? Discuss.

Or

- (b) Explain the relationship between cloud computing and IoT.

19. (a) How can IoT technology enhance healthcare services in Smart Cities? Explain with example.

Or

- (b) How does IoT technology transform traditional educational systems? Discuss.

20. (a) Why is security essential in IoT and M2M technologies? Discuss.

Or

- (b) Discuss one security mechanism specified by ETSI for M2M communication.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10565 E      Sub. Code : CMIT 63/  
CMCT 63**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Information Technology/Computer Science  
and I.T. – Core

**PYTHON PROGRAMMING**

(For those who joined in July 2021–2022)

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 the correct extension of the Python file?  

(a) .python	(b) .pl
(c) .py	(d) .p

2. Which of the following is NOT a reserved word in Python?
- (a) for (b) if  
(c) speed (d) while
3. Which of the following is not used as loop in Python?
- (a) for loop (b) while loop  
(c) do-while loop (d) none of the above
4. Which of the following is a Python tuple?
- (a) {1, 2, 3} (b) {}  
(c) [1, 2, 3] (d) (1, 2, 3)
5. Which of the following refers to mathematical function?
- (a) sqrt (b) rhombus  
(c) add (d) rhombus
6. Which of the following is an example of a built-in function in Python?
- (a) my\_function() (b) define\_function()  
(c) print() (d) call\_function()



7. What method is used to write data to a file in Python?
- (a) read()                      (b) append()  
(c) write()                      (d) open()
8. What is the method used to change the current working directory in Python?
- (a) change\_directory()   (b) cd()  
(c) chdir()                      (d) setcwd()
9. Which of the following is not a character class in regular expressions?
- (a) \d                              (b) \w  
(c) \s                              (d) \c
10. Which term describes the ability of a class to have more than one method with the same name but different implementations?
- (a) Encapsulation  
(b) Inheritance  
(c) Polymorphism  
(d) Abstraction

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the data types supported by python.

Or

- (b) Explain logical operators in Python.

12. (a) Describe the *for loop* with example.

Or

- (b) How to slice a list in Python? Explain.

13. (a) Write a program to print *n numbers* iteratively using function.

Or

- (b) Describe the different ways parameters can be passed to a function in Python.

14. (a) Explain the concept of data streams in Python.

Or

- (b) Explain the process of reading data from a file in Python.

15. (a) Describe the process of creating classes in Python.

Or

- (b) Describe class variables in Python classes.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain output statement with example program.

Or

- (b) How do you execute a Python script from the command line? Explain with example.

17. (a) Illustrate the ways of creating the Tuple and the Tuple assignment with suitable programs.

Or

- (b) Describe the operations of Dictionaries.

18. (a) Explain the difference between type conversion and type coercion in Python.

Or

- (b) Explain how functions can be stored and accessed using dictionaries in Python.

19. (a) Describe the hierarchy of exceptions in Python.

Or

- (b) Discuss strategies for handling multiple exceptions in Python.

20. (a) Categorize the types of inheritance in python.

Or

- (b) Explain the concept of quantifiers in regular expressions.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10566 E      Sub. Code : CAIT 11/  
CACT 11**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

First Semester

Information Technology/Computer Science and  
Information Technology – Allied

**OFFICE AUTOMATION**

(For those who joined in July 2021-2022 onwards)

Time : Three hours                      Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is not an edition of MS Word?  
(a) MS Word 2003              (b) MS Word 2007  
(c) MS Word 2010              (d) MS Word 1020
2. The \_\_\_\_\_ works with the standard Copy and Paste commands.  
(a) View tab                      (b) Paragraph dialog box  
(c) Office Clipboard              (d) All of these

3. Which enables us to send the same letter to different people?
- (a) Macros (b) Template  
(c) Mail merge (d) None of above
4. Select all the text in MS Word document by \_\_\_\_\_.
- (a) Ctrl+ S (b) Ctrl+ 1  
(c) Ctrl+ A (d) Ctrl+ V
5. Excel is a \_\_\_\_ program developed by Microsoft.
- (a) Spreadsheet  
(b) Document  
(c) Data management  
(d) All of the above
6. What is the extension of a Microsoft Excel file?
- (a) msxcl (b) xcl  
(c) xlsx (d) xlsm
7. Which of the following is not a database object?
- (a) Tables (b) Queries  
(c) Relationships (d) Reports

8. In a database table, a category of information is called \_\_\_\_\_.  
(a) Record (b) Tuple  
(c) Field (d) None of the above
9. In MS PowerPoint presentations, the designs regulate the layout and formatting for the slide. These are commonly known as \_\_\_\_\_.  
(a) Blueprints (b) Placeholders  
(c) Templates (d) Design Plates
10. Which of these PowerPoint features would allow any user to create a given simple presentation quicker?  
(a) Animations  
(b) Chart Wizard  
(c) Transition Wizard  
(d) AutoContent Wizard

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) How will you save and close the word document? Explain.  
Or  
(b) Explain the undoing operation in MS word document.

12. (a) Write down the steps to setting the top and bottom margins in word document.

Or

- (b) What are the steps to setting page numbers on your document? Explain.

13. (a) Analyse the simple calculations using mathematical in MS Excel.

Or

- (b) Illustrate the steps to create simple graphs of MS Excel.

14. (a) Elaborate the objects of a relational database.

Or

- (b) Describe the steps to save the table in MS Access.

15. (a) Explain the steps to create a simple presentation in MS PowerPoint.

Or

- (b) Mention the steps to add graphics to PowerPoint presentation.



PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Determine the automatic correction of spelling in word document.

Or

- (b) Outline how to change the page size of a word document.

17. (a) What is mail merge? What are the advantages of mail merge? Explain.

Or

- (b) Elaborate the purpose of delete a column in table in MS Word document.

18. (a) List out the various types of functions of MS Excel and explain

Or

- (b) Analyse the changing size of a work book and excel window.

19. (a) Explain the steps to define primary key in MS Access.

Or

- (b) Discuss the methods of creating database in MS Access.

20. (a) Formulate the charts and tables in MS PowerPoint.

Or

- (b) Elaborate the uses of slide transition in MS PowerPoint.
-

(6 pages)

**Reg. No. :** .....

**Code No.: 10567 E**

**Sub. Code: CAIT 21/  
CACT 21**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology / Computer Science and  
Information Technology

DIGITAL DESIGN

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer:

1. The binary number 10101 is equivalent to decimal number \_\_\_\_\_.  
(a) 19                                      (b) 12  
(c) 27                                      (d) 21

2. The convert the binary number 1011010 to hexadecimal number.
- (a) 5C                                      (b) 5D  
(c) 5A                                      (d) 5B
3. \_\_\_\_\_ can be determined the Instability condition.
- (a) Table                                      (b) Logic diagram  
(c) Map                                        (d) Graph
4. For every possible combination of logical states, the inputs which shows the logical state of digital circuit output.
- (a) Function table                      (b) ASCII table  
(c) Truth table                          (d) Routing
5. For a 4 bit parallel adder, if the carry is connected to a logical high, the result is \_\_\_\_\_.
- (a) Same as if tied low  
(b) A one will be added to the 4 bit result  
(c) None  
(d) A one will be added to the final result
6. Normally, the synchronous counter is designed using.
- (a) S.R. Flip Flop                      (b) J.K. Flip Flop  
(c) R.S. Flip Flop                      (d) None

7. The sequential circuit design is used to \_\_\_\_\_.
  - (a) Count down
  - (b) Count up
  - (c) Decode an end point
  - (d) Count in a random order
8. In master-slave flip flop, when in the master enabled?
  - (a) When the gate is low
  - (b) When gate in high
  - (c) Both of the above
  - (d) None
9. The basic multiplexer principle can be demonstrated through the use of \_\_\_\_\_.
  - (a) Single pole relay
  - (b) Rotary switch
  - (c) DPDT switch
  - (d) Linear stepper
10. How many different states does a 3 bit asynchronous counter have?
  - (a) 2
  - (b) 4
  - (c) 8
  - (d) 16

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Discuss about AND gate.

Or

- (b) Prove the following them

$$x + \bar{x}y = x + y$$

12. (a) Describe product of sum.

Or

- (b) Draw the logic symbols and Truth tables for OR and NAND gates.

13. (a) Explain in detail about seven segment decoder.

Or

- (b) Draw and explain Block diagram, function table and logic diagram of 8 to 1 line multiplexer.

14. (a) Draw the logic diagram of J.K. flip flop and explain with the help of truth table.

Or

- (b) Differentiate Encoder and Decoder.

15. (a) What are the applications of shift register?

Or

- (b) Explain memory Reference Instruction.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Briefly explain with diagram of NOR gate.

Or

- (b) Perform the following operations.

(i)  $(2671)_8 = ?_{10}$

(ii)  $(205)_8 = ?_2$

(iii)  $(56)_8 = ?_{16}$

17. (a) (i) With an example show how Karnaugh map can be used for minimizing the logical expression.

- (ii) Convert the following into decimal

(1)  $(10.10001)_2$

(2)  $(101110.0101)_2$

Or

- (b) Briefly explain about R.S. Flip Flop.

18. (a) Draw a full adder circuit and explain its operation with truth table.

Or

- (b) Draw a four bit binary asynchronous counter and explain its operation.

19. (a) What is ripple counter? Design a MOD 9 ripple counter.

Or

- (b) Describe in detail the Internal organisation of ROM.

20. (a) Briefly explain about computer Instructions.

Or

- (b) Write short notes on
- (i) Timing and control
  - (ii) Instruction cycle
-



(6 pages) **Reg. No. :** .....

(6 pages) **Reg. No. :** .....

**Code No. : 10568 E**      **Sub. Code : CAIT 31/**  
**CACT 31**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

### Third Semester

Information Technology/Computer Science and I.T.

Allied – DATA STRUCTURES

(For those who joined in July 2021-2022)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. In general, the index of the first element in an array is \_\_\_\_\_.
  - (a) 0
  - (b) -1
  - (c) 2
  - (d) 1
2. How is the 2<sup>nd</sup> element in an array accessed based on pointer notation?
  - (a)  $*a + 2$
  - (b)  $*(a + 2)$
  - (c)  $*( *a + 2)$
  - (d)  $\&(a + 2)$

3. Which of the following is false about a doubly linked list?
- (a) We can navigate in both the directions
  - (b) It requires more space than a singly linked list
  - (c) The insertion and deletion of a node take a bit longer
  - (d) Implementing and deletion of a node take a bit longer
4. Which matrix has most of the elements (not all) as Zero?
- (a) Identity Matrix      (b) Unit Matrix
  - (c) Sparse Matrix      (d) Zero Matrix
5. Which of the following data structures finds its use in recursion?
- (a) Stack      (b) Arrays
  - (c) Linked list      (d) Queue
6. Which of the following data structures allow insertion and deletion from both end
- (a) Stack      (b) Queue
  - (c) Dequeue      (d) Array

7. If several elements are competing for the same bucket in the hash table, what is it called?
- (a) Diffusion                      (b) Replication  
(c) Collisiond                      (d) Duplication
8. Which type of traversal of binary search tree outputs the value in sorted order?
- (a) Pre-order                      (b) In-order  
(c) Post-order                      (d) None of the above
9. The time complexity of help sort in worst case is
- (a)  $O(\log n)$                       (b)  $O(n)$   
(c)  $O(n \log n)$                       (d)  $O(n^2)$
10. Where is linear searching used?
- (a) When the list has only a few elements  
(b) When performing a single search in an unordered list  
(c) Used all the time  
(d) When the list has only a few elements and when performing a single search in an unordered list

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Write about linear and non-linear data structures.

Or

- (b) Explain in detail about how memory to be allocated for an array.

12. (a) Discuss single linked list and its representation of a linked list in memory.

Or

- (b) How will you traverse in a circular linked list? Demonstrate it with example.

13. (a) Categorize the various ways of representation of a stack. (a)

Or

- (b) Convert the given expression  $(A + B) * (C * D.E) * F / G$  from infix to position.

14. (a) Illustrate any two hash functions with examples.

Or

- (b) Explicate linear representation of a Binary tree.

15. (a) Elucidate Straight Insertion Sort algorithm with example.

Or

- (b) Examine Linear Search with array.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Write an algorithm for sorting an array and traversing in an array.

Or

- (b) Outline the concept of Two-dimensional array with an example.

17. (a) Illustrate insertion in a Double linked list.

Or

- (b) Enumerate polynomial representation with example.

18. (a) Classify the various operations on Stack.

Or

- (b) Illustrate evaluation of a postfix expression algorithm with an example

19. (a) Discuss closed hashing with Hashlinear probe algorithm.

Or

- (b) Demonstrate insertion operation on a binary tree with example

20. (a) Analyze Quick sort algorithm with example

Or

- (b) Examine linear searching with linked list.
-

**Reg. No. : .....**

**Code No. : 10569 E      Sub. Code : CAIT 41**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Fourth Semester

Information Technology – Allied

NUMERICAL METHODS AND OPERATIONS  
RESEARCH

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. In the bisection method, the interval containing the root is halved successively until:
  - (a) The root is found exactly
  - (b) The function values at the endpoints have the same sign
  - (c) The difference between the function values at the endpoints is less than a specified tolerance
  - (d) The number of iterations exceeds a specified limit

2. Which method is generally faster but may fail if the initial guess is far from the root?
  - (a) Bisection method
  - (b) Regula Falsi method
  - (c) Secant method
  - (d) Newton Raphson method
3. In the Gauss-Jacobi method, the equations are solved sequentially for each variable using:
  - (a) The values from the previous iteration
  - (b) The values from the current iteration
  - (c) The initial guess values
  - (d) The values from the next iteration
4. Which method converges faster for most systems of equations compared to the Gauss-Jacobi method?
  - (a) Gauss elimination method
  - (b) Gauss-Jordan method
  - (c) Gauss-Seidel method
  - (d) Gauss-Jacobi method



5. Trapezoidal rule uses linear interpolation to approximate the integral by fitting
- (a) Parabolas
  - (b) Straight lines
  - (c) Cubic polynomials
  - (d) Quadratic polynomials
6. Simpson's one-third rule approximates the area under a curve using:
- (a) Quadratic interpolation
  - (b) Linear interpolation
  - (c) Cubic interpolation
  - (d) Exponential interpolation
7. Which method is commonly used to solve the Assignment Problem?
- (a) Simplex Method
  - (b) Hungarian Method
  - (c) Greedy Algorithm
  - (d) Branch and Bound Method

8. In a transportation problem, what is the primary difference from an assignment problem?
- (a) It involves the allocation of resources to destinations
  - (b) It involves the allocation of tasks to agents
  - (c) It involves finding the shortest path
  - (d) It involves finding the maximum profit
9. In the Least Cost Method, when multiple cells have the same minimum cost, how is the tie typically broken?
- (a) By selecting the cell with the highest supply or demand
  - (b) By selecting the cell closest to the center of the matrix
  - (c) By selecting the cell with the lowest opportunity cost
  - (d) By selecting the cell with the highest transportation cost

10. In the Vogel's Approximation Method, what does the penalty cost represent?
- (a) The difference between the two lowest costs in each row and column
  - (b) The total transportation cost of the entire solution
  - (c) The opportunity cost of selecting a particular cell
  - (a) The transportation cost associated with the highest-demand or supply node

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Solve the equation  $x^2 - 5x + 6 = 0$  using the Bisection method.

Or

- (b) Find the solution to  $e^x - 3x = 0$  using the Newton-Raphson method, stating with an initial guess  $x_0 = 1$ .

12. (a) Solve the following equations by the Gauss elimination method

$$x + y + z = 9, 2x - 3y + 4z = 13, 3x + 4y + 5z = 40$$

Or

- (b) Explain about Gauss-Siedal iteration method.

13. (a) Use the trapezoidal rule to estimate the integral  $\int_0^2 e^{x^2} dx$  taking the number 10 intervals.

Or

- (b) Find solution using Simpson's 1/3 rule.

$x$	$f(x)$
1.4	4.0552
1.6	4.9530
1.8	6.0436
2.0	7.3891
2.2	9.0250

14. (a) Explain the mathematical formulation of assignment problem.

Or

- (b) Four jobs are to be done on four different machines. The cost (in dollars) of producing  $i^{\text{th}}$  job on the  $j^{\text{th}}$  machine is given below :

Jobs		$M_1$	$M_2$	$M_3$	$M_4$
	$J_1$	15	11	13	15
	$J_2$	17	12	12	13
	$J_3$	14	15	10	14
	$J_4$	16	13	11	17

Assign the jobs to different machines so as to minimize the total cost.

15. (a) A company has three warehouses and three retail stores. The table below shows the transportation costs (in dollars) per unit of goods from each warehouse to each store:

	Store 1	Store 2	Store 3
Warehouse 1	5	8	7
Warehouse 2	6	9	6
Warehouse 3	8	9	5

Using the North West Corner Rule, determine the initial feasible solution for minimizing the total transportation cost.

Or

- (b) Obtain an initial basic feasible solution to the following transportation problem by using the least-cost method.

	$D_1$	$D_2$	$D_3$	Supply
$O_1$	9	8	5	25
$O_2$	6	8	4	35
$O_3$	7	6	9	40
demand	30	25	45	

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Find the real root lying between 1 and 2 of the equation  $x^3 - 3x + 1 = 0$  upto 3 places of decimals using Regula-Falsi method.

Or

- (b) Find the root of the equation  $xe^x = \cos x$  using the secant method correct to four decimal places.
17. (a) Solve the following system of linear simultaneous equations using the Gauss-Jordan method:

$$3x + 2y - z = 7, 2x - 2y + 4z = -3, 5x - 3y + 2z = 11$$

Or

- (b) Using the Gauss elimination method, solve the equations:

$$x + 2y + 3z - u = 10, 2x + 3y - 3z - u = 1,$$

$$2x - y + 2z + 3u = 7, 3x + 2y - 4z + 3u = 2.$$

18. (a) Using the trapezoidal rule with  $h = \frac{1}{2}$ , find solution of an equation  $2x^3 - 4x + 1$  where  $x_1 = 2$  and  $x_2 = 4$ .

Or

- (b) Compute the value of  $\int_{0.2}^{1.4} (\sin x - \log x + e^x) dx$  using Simpson's 3/8 rule.

19. (a) A marketing manager has 5 salesmen and 5 sales districts. Considering the capabilities of the salesmen and the nature of districts, the marketing manager estimates that sales per month (in hundred Dollars) for each salesman in each district would be as follows:



Salesman	Sales districts					
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
	1	32	38	40	28	40
	2	40	24	28	21	36
	3	41	27	33	30	37
	4	22	38	41	36	36
	5	29	33	40	35	39

Find the assignment of salesmen to districts that will result in maximum sales.

Or

- (b) Four professors are each capable of teaching any one of the four different courses. Class preparations time in hours for different topics varies from professor to professor and is given in the table below. Each professor is assigned only one course. Find the assignment policy schedule so as to minimize the total course preparation time for all courses.

Prof.	L.P.	Queuing Theory	Dynamic Programming	Regression Analysis
A	2	10	9	7
B	15	4	14	8
C	13	14	16	11
D	3	15	13	8

20. (a) Solve the given transportation problem using Vogel's approximation method.

Factories	Destination centers				Supply
	$D_1$	$D_2$	$D_3$	$D_4$	
$F_1$	3	2	7	6	50
$F_2$	7	5	2	3	60
$F_3$	2	5	4	5	25
Demand	60	40	20	15	

Or

(b) Solve the following transportation problem:

		To						
From		9	12	9	6	9	10	5
		7	3	7	7	5	5	6
		6	5	9	11	3	11	2
		6	8	11	2	2	10	9
		4	4	6	2	4	2	22

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(6 pages)

**Reg. No. :** .....

**Code No. : 10570 E      Sub. Code : CNIT 31/  
CNCT 31**

U.G. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Third Semester

Information Technology/Computer Science and I.T

Non Major Elective – SOFTWARE FUNDAMENTALS

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A person responsible for designing writing and modifying computer programs is known as
  - (a) System analyst
  - (b) Software Engineer
  - (c) Computer programmer
  - (d) Maintenance engineer

2. A \_\_\_\_\_ is a pictorial representation of an algorithm in which the steps are drawn in the form of different shapes of boxes and the logical flow is indicated by interconnecting arrows
- (a) program                      (b) Algorithm  
(c) flow chart                  (d) both (a) and (c)
3. The \_\_\_\_\_ error occurs when the rules of the programming languages are not followed
- (a) Run time                      (b) Syntax  
(c) Flow                          (d) None
4. \_\_\_\_\_ is the idea of allowing the same code to be used with the different types resulting in more general and abstract implementations
- (a) Encapsulation              (b) Object  
(c) Polymorphism              (d) Inheritance
5. Expansion of COBOL is \_\_\_\_\_
- (a) Computer Business Oriented Language  
(b) Common Business Object Language  
(c) Common Business Oriented Language  
(d) Computer Binary Oriented Language

6. A \_\_\_\_\_ is a kind of translator that it translate a high level language program into assembly program
- (a) interpreter                      (b) compiler  
(c) linker                              (d) assembler
7. A set of instructions which control the sequence of operations are known as \_\_\_\_\_
- (a) Hardware                      (b) Software  
(c) Program                      (d) Driver
8. A \_\_\_\_\_ is a system program which is responsible for proper functioning of the device attached to the computer
- (a) Device driver                      (b) Software  
(c) Device                              (d) All the mentioned
9. What kind of data can you send by email
- (a) audio only  
(b) audio, pictures only  
(c) video only  
(d) audio, video, text and images
10. Which of the following is a search engine?
- (a) Macromedia Flash (b) Google  
(c) Internet Explorer (d) Dream weaver

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Write an algorithm determining largest of three numbers.

Or

- (b) Outline the flow chart symbols with an example.

12. (a) Distinguish between structured programming and unstructured programming approaches.

Or

- (b) List and explain the characteristics of a good program.

13. (a) Specify and explain the classification of programming languages.

Or

- (b) Identify any five popular high level languages and explain about them.

14. (a) Present an elaborate note on language translators.

Or

- (b) Distinguish between firmware and live ware.

15. (a) Explain the following internet terms :

(i) World Wide Web

(ii) Browsers

Or

- (b) How do you get connected with the Internet?

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Elaborately explain program development cycle with its block representation.

Or

- (b) Illustrate the four quadrants of the decision tables with an example.

17. (a) Explain White box testing with its advantages and disadvantages.

Or

- (b) Express the following

(i) program documentation

(ii) inheritance.



18. (a) Propose any eight features of good programming languages.

Or

- (b) Compare assembly languages and the machine languages.

19. (a) Explicate the concepts of system software.

Or

- (b) What are application softwares? Explain any five application software packages.

20. (a) Present an illustration of composing and sending an e-mail?

Or

- (b) Enumerate the internet applications. Explain any four.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10571 E      Sub. Code : CNIT 41/  
CNCT 41**

U.G. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Fourth Semester

Information Technology / Computer Science and  
Information Technology

Non Major Elective – FUNDAMENTALS OF  
INTERNET

(For those who joined in July 2021–2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer.

1. DNS means —————
  - (a) Domain Name System
  - (b) Double Name System
  - (c) Different Name Service
  - (d) Domain Naming Service

2. A large number of several computer networks spreading across the world is
- (a) Internet
  - (b) WWW
  - (c) Wide area network
  - (d) None of the above
3. Linked pages are called as
- (a) Hypertext
  - (b) Webpages
  - (c) Links
  - (d) Hyperlinks
4. Which one is a search engine?
- (a) Hotmail
  - (b) G-mail
  - (c) Google
  - (d) Y-mail
5. \_\_\_\_\_ as a method to transfer mail from one user to another.
- (a) UDP
  - (b) SMTP
  - (c) FTP
  - (d) TCP

6. Web access is a program available to analysis the \_\_\_\_\_ to site.
- (a) Visitor (b) Hacker  
(c) Programmer (d) All of these
7. M–Commerce means \_\_\_\_\_
- (a) Multiple Commerce  
(b) Media Commerce  
(c) Mobile Commerce  
(d) Mobility Commerce
8. Which trade is between customer and seller?
- (a) B2C (b) B2B  
(c) C2C (d) C2B
9. The \_\_\_\_\_ is a kind of cybercrime.
- (a) Hacking (b) Update  
(c) Threats (d) Delete
10. A \_\_\_\_\_ attack is when a malicious party.
- (a) Spoofing (b) Download  
(c) Upload (d) All of these

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 advantages of Internet.

Or

- (b) Write short notes on E-Mail.

12. (a) Explain types of website.

Or

- (b) Write about URL.

13. (a) Write about web hosting.

Or

- (b) Discuss about front page and Dreamweaver.

14. (a) Explain advantages of E-Commerce

Or

- (b) Write short notes on Cookie.

15. (a) Discuss about social networks.

Or

- (b) Explain Internet Threats and its types.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain Internet Services in detail.

Or

- (b) Explain the next generation technologies.

17. (a) Discuss about types internet access.

Or

- (b) Explain the types of Internet accounts.

18. (a) Discuss the structure of the website with an example.

Or

- (b) Explain website promoting methods.

19. (a) Explain marketing strategies on the web.

Or

- (b) Describe various issues of E-Commerce and M-Commerce.

20. (a) Discuss about Firewalls and Intrusion Prevention Systems.

Or

- (b) What is Blogs in Internet? What are the uses of Blogs?
-

(6 pages)

**Reg. No. :** .....

**Code No.: 10574 E                      Sub. Code: CEIT 53**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Information Technology

Major Elective – CLOUD COMPUTING

(For those who joined in July 2021–2022 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. \_\_\_\_\_ is the one of the most common benefit facilitated by virtualization.
  - (a) Resource Availability
  - (b) Services capability
  - (c) Hosted tools
  - (d) Operational Efficiency



2. \_\_\_\_\_is the provisioning of hardware, OS and special-purpose software made available through the internet.
- (a) Software-as-a-Service
  - (b) Platform-as-a-Service
  - (c) Storage-as-a-Service
  - (d) Desktop-as-a-Service
3. Which of the following are categories of opportunities for cloud brokers?
- (a) cloud service intermediation
  - (b) cloud aggregation
  - (c) cloud service arbitrage
  - (d) All the above
4. \_\_\_\_\_ is the capacity to rapidly adapt and respond to risks, as well as opportunities.
- (a) Provisioning
  - (b) Resiliency
  - (c) Virtualization
  - (d) Virtual terminal service

5. \_\_\_\_\_ controls the scheduling and testing of additions and updates to environments.
- (a) Pool management
  - (b) Configuration management
  - (c) System management
  - (d) Release management
6. \_\_\_\_\_ is an operating system-level virtualization solution rather than a hardware-level hypervisor solution.
- (a) Logical Partitions
  - (b) Logical Domains
  - (c) Zones
  - (d) Dyanmic Load-Balancing
7. NAS stands for
- (a) Network Assessment Storage
  - (b) Network Attached Storage
  - (c) Network Accessing Service
  - (d) Network Adoption Service
8. \_\_\_\_\_ looks for the different hardware factors that affect the database.
- (a) OLTP
  - (b) TCP-H
  - (c) ORACLE benchmark
  - (d) SAP benchmark

9. Which of the following is not a cloud computing barrier?
- (a) Data security
  - (b) Governance and regulatory compliance
  - (c) Integration and interoperability
  - (d) Data sharing.
10. \_\_\_\_\_ partition is a partition that is allowed to update the hypervisor.
- (a) Network
  - (b) Logical Memory
  - (c) Service
  - (d) Physical Memory.

PART B — ( $5 \times 5 = 25$  marks)

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

11. (a) Explain about collaboration to cloud.
- Or
- (b) Explain working of cloud computing.
12. (a) Explain about centralizing Email communications.
- Or
- (b) Discuss about collaborating on event management.

13. (a) Illustrate about Google spreadsheets.

Or

- (b) Explain about Dabble DB.

14. (a) Describe about creating group on social networks.

Or

- (b) Explain about evaluating Wikis for collaboration.

15. (a) Explain about Amazon Simple Storage Service.

Or

- (b) Discuss about Adobe Photoshop express.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss the pros and cons of cloud computing.

Or

- (b) Explain about the cloud services development.

17. (a) Discuss about cloud computing for corporation.

Or

- (b) Elucidate about managing project in a cloud.

18. (a) Discuss about understanding event management applications.

Or

- (b) Summarize the exploring project management applications.

19. (a) Explain briefly about evaluating instant messaging.

Or

- (b) Elucidate about evaluating blogs for collaboration.

20. (a) Discuss about exploring online book marking services.

Or

- (b) Explain about evaluating Web-Based Desktops.
-

(6 pages)

**Reg. No. :** .....

**Code No.: 10575 E                      Sub. Code: CEIT 54**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Information Technology

Major Elective – DATA COMMUNICATIONS AND  
NETWORKING

(For those who joined in July 2021–2022 only)

Time : Three hours                      Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Which topology requires a central controller or hub?  
(a) mesh                      (b) star  
(c) bus                      (d) ring
2. A \_\_\_\_\_ connection provides a dedicated link between two devices.  
(a) point-to-point                      (b) multipoint  
(c) primary                      (d) secondary

3. Synchronous transmission, does not have ————
- (a) a start bit
  - (b) a stop bit
  - (c) gap between bytes
  - (d) all of the above
4. ————— cable consists of an inner copper core and a second conducting outer sheath.
- (a) Twisted-pair
  - (b) Coaxial
  - (c) Fiber-optic
  - (d) Shielded twisted-pair
5. Which multiplexing technique transmits digital signals?
- (a) FDM
  - (b) WDM
  - (c) TDM
  - (d) QAM
6. In synchronous TDM, for  $n$  signal sources of the same data rate, each frame contains slots.
- (a)  $n$
  - (b)  $n+1$
  - (c)  $n-1$
  - (d) 0 to  $n$

7. In which type of switching do all the datagrams of a message follow the same channels of a path?
- (a) circuit switching
  - (b) datagram packet switching
  - (c) virtual circuit packet switching
  - (d) message switching
8. A bearer channel is defined at a rate of \_\_\_\_\_
- (a) 8 Kbps
  - (b) 16 Kbps
  - (c) 32 Kbps
  - (d) 64 Kbps
9. In VRC , a parity bit is added to every data unit so that the total number of 1's become
- (a) odd
  - (b) even
  - (c) prime
  - (d) complex
10. In LRC, a block of bits is organized in a \_\_\_\_\_
- (a) file
  - (b) list
  - (c) table
  - (d) tuple



PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Distinguish between IEEE and EIA standards.

Or

- (b) Summarize the responsibilities of the transport layer.

12. (a) What are the advantages and disadvantages of serial data transmission?

Or

- (b) Explain the transmission using Twisted-Pair cable.

13. (a) How does TDM combine multiple signals into one? Explain.

Or

- (b) What is purpose of guard bands? Explain.

14. (a) Compare switched virtual circuit with permanent virtual circuits.

Or

- (b) Discuss the ISDN standard channel types.

15. (a) Discuss the concept of redundancy in error detection.

Or

- (b) List the advantages and disadvantages of VRC.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) State the advantages and disadvantages of network topologies.

Or

- (b) Give brief note on concerns of physical and datalink layer.

17. (a) Discuss on the concept of Asynchronous serial transmission.

Or

- (b) Distinguish between DTE and DCE.

18. (a) Comment on Frames and Interleaving in TDM.

Or

- (b) Explain the process of WDM.

19. (a) Illustrate on the concepts of Digital subscriber loops.

Or

- (b) Explain the working of Packet switching.

20. (a) Narrate the redundancy checking technique-CRC.

Or

- (b) Elaborate the mechanism of Go-Back-n ARQ control.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10576 E      Sub. Code : CEIT 61/  
CECT 61**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Information Technology/Computer Science and I.T

Major Elective — BIG DATA ANALYTICS

(For those who joined in July 2021–2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Data in ————— bytes size is called big data.  
(a) Tera                      (b) Giga  
(c) Peta                      (d) Meta
2. What are the V's of big data?  
(a) Variety                      (b) Velocity  
(c) Volume                      (d) All of these

3. Which step is executed by the data scientist after obtaining the data?
- (a) Data Replication (b) Data Integration  
(c) Data Cleansing (d) Data Saving
4. Which of the following emphasizes on the discovery of earlier properties that are not known on the data?
- (a) Machine Learning (b) Big Data  
(c) Data mining (d) Database
5. The big data word coined in \_\_\_\_\_ year.
- (a) 1980 (b) 1970  
(c) 1990 (d) 2000
6. \_\_\_\_\_ algorithms are used with discrete data.
- (a) Classification (b) Regression  
(c) Clustering (d) Grouping
7. \_\_\_\_\_ is a process of finding the correlations between dependent and independent variables.
- (a) Classification (b) Regression  
(c) Clustering (d) Grouping

8. \_\_\_\_\_ learning is the machine learning task of learning a function that maps an input to an output based on example input-output pairs.
- (a) Supervised                      (b) Unsupervised  
(c) Reinforcement                (d) Structured
9. \_\_\_\_\_ learning involves training a model on unlabeled data
- (a) Supervised                      (b) Unsupervised  
(c) Reinforcement                (d) Structured
10. \_\_\_\_\_ learning involves training a model through trial and error.
- (a) Supervised                      (b) Unsupervised  
(c) Reinforcement                (d) Structured

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Mention the advantages of big data analytics.

Or

- (b) Discuss about data quality.

12. (a) Why and when can we use big data analytics? Explain.

Or

- (b) List out the big data analytics applications.

13. (a) What are skills are required to be big data Analyst? Explain.

Or

- (b) State the methods to construct the data in BOA.

14. (a) Compare regression with classification.

Or

- (b) Discuss about clustering.

15. (a) What is machine learning algorithm? Explain.

Or

- (b) Mention the features of machine algorithms.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Write detail notes on databases and raw data.

Or

- (b) Elaborate the business opportunities and challenges in big data analytics.

17. (a) Compare traditional and advanced big data analytics methods.

Or

- (b) Discuss about the Statistical and computational paradigm for BDA.

18. (a) Describe the third phase of data analytics process.

Or

- (b) Explain – how to transform data into actionable knowledge?



19. (a) Discuss about supervised and unsupervised algorithms.

Or

- (b) Write notes on K-means algorithm.

20. (a) Discuss about machine learning algorithms.

Or

- (b) Write a case study on Amazon.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10578 E      Sub. Code : CEIT 63**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Sixth Semester

Information Technology

Major Elective —MOBILE COMPUTING

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. What are the primary components of a wireless communication system?
  - (a) Transmitter and receiver
  - (b) Antenna and modem
  - (c) Modulation and demodulation
  - (d) All of the above

2. Which technology is commonly used for short-range wireless communication between devices like smartphones, laptops, and IoT devices?
  - (a) NFC
  - (b) Wi-Fi
  - (c) Bluetooth
  - (d) LTE
3. Which of the following is a type of wireless MAC protocol?
  - (a) TCP
  - (b) FTP
  - (c) CSMA/CA
  - (d) HTTP
4. Which of the following is not a category of MAC protocols?
  - (a) Fixed Assignment Schemes
  - (b) Dynamic Assignment Schemes
  - (c) Reservation-based Schemes
  - (d) Static Assignment Schemes
5. Which layer of the TCP/IP model is responsible for establishing, maintaining, and terminating connections between devices?
  - (a) Network Layer
  - (b) Transport Layer
  - (c) Data Link Layer
  - (d) Application Layer

6. What is the main function of TCP?
  - (a) Establishing connections between devices
  - (b) Ensuring reliable data delivery
  - (c) Resolving domain names into IP addresses
  - (d) Determining the best path for data packets
7. What is the architecture of a sensor node in WSN?
  - (a) Centralized                      (b) Hierarchical
  - (c) Peer-to-peer                      (d) Linear
8. Which operating system is developed by Google and commonly used in smart phones?
  - (a) iOS                                  (b) Android
  - (c) Windows Mobile      (d) Blackberry OS
9. What is Android Application Development primarily based on?
  - (a) Objective-C                      (b) Java
  - (c) Swift                                  (d) C++
10. What does M-Commerce stand for?
  - (a) Mobile Computing
  - (b) Mobile Commerce
  - (c) Mobile Communication
  - (d) Mobile Connectivity

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the concept Wireless Local Area Network.

Or

- (b) Elaborate note on General Packet Radio Service.

12. (a) Illustrate packet delivery mechanism in Mobile IP network.

Or

- (b) State the key features of mobile IP.

13. (a) Point out the advantages and disadvantages of Mobile TCP.

Or

- (b) Discuss the recovery process in mobile databases.

14. (a) List the applications of wireless sensor networks.

Or

- (b) Elaborate note on mobile operating system.

15. (a) Discuss the different types of mobile payment systems used in M-Commerce.

Or

- (b) Outline the structure of Mobile Commerce.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the components of wireless communication system.

Or

- (b) Demonstrate the Global System for Mobile communication.

17. (a) Explain the issues in wireless MAC.

Or

- (b) Describe the various random assignment schemes used in MAC protocol.

18. (a) With the neat diagram explain the Architecture of TCP/IP.

Or

- (b) Describe the transaction processing environment in mobile databases.

19. (a) Compare and contrast Wireless Sensor Networks and Mobile Ad-hoc Networks.

Or

- (b) Discuss the various routing protocols used in Wireless Sensor Networks.

20. (a) How are mobile devices utilized as web clients? Discuss.

Or

- (b) Classify the various applications of Mobile Commerce.
-

(6 pages)

**Reg. No. : .....**

**Code No. : 10579 E      Sub. Code : CEIT 64/  
CECT 64**

**B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.**

**Sixth Semester**

**Information Technology / Computer Science and I.T.**

**Major Elective – COMPUTER GRAPHICS**

**(For those who joined in July 2021-2022)**

**Time : Three hours**

**Maximum : 75 marks**

**PART A — (10 × 1 = 10 marks)**

**Answer ALL questions.**

**Choose the correct answer :**

1. Among the options, which is NOT considered a Hand Input Device in a graphics system?
  - (a) Touchpad                      (b) Joystick
  - (c) Scanner                      (d) Stylus
2. Which category of devices primarily receives input through physical touch or gestures?
  - (a) Video Display Devices
  - (b) Hand Input Devices
  - (c) Output Devices
  - (d) Graphics Software



3. What is the significance of Matrix Representations and Homogeneous Coordinates in graphics?
  - (a) They describe curve attributes
  - (b) They represent character attributes
  - (c) They enable composite transformations
  - (d) They describe two-dimensional geometric transformations
4. Attributes related to characters in graphics systems include:
  - (a) Line attributes
  - (b) Curve attributes
  - (c) Output primitive attributes
  - (d) Character attributes
5. During which stage of the viewing pipeline are point clipping and line clipping operations performed?
  - (a) Viewing coordinate reference frame
  - (b) Two-dimensional viewing function
  - (c) Clipping operations
  - (d) Window to viewport coordinate transformation
6. Which clipping algorithm is specifically used for clipping lines and segments in computer graphics?
  - (a) Cohen-Sutherland line clipping
  - (b) Sutherland-Hodgeman polygon clipping
  - (c) Two-dimensional viewing function
  - (d) Window to viewport coordinate transformation

7. Which interactive input method allows users to input graphical data by directly touching a screen?
  - (a) Keyboard
  - (b) Mouse
  - (c) Stylus
  - (d) Joystick
8. What function do input functions primarily serve in computer graphics?
  - (a) Outputting graphical data
  - (b) Importing text data
  - (c) Handling user inputs
  - (d) Generating 3D models
9. Which method is used to determine which surfaces are visible from the viewer's perspective in a 3D scene based on their depths?
  - (a) Back face deduction
  - (b) Depth buffer method
  - (c) A-Buffer Method
  - (d) Scanline Method
10. What is the purpose of the A-Buffer Method in 3D graphics?
  - (a) Determining surface visibility
  - (b) Storing depth information
  - (c) Handling transparency
  - (d) Generating 3D models

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Discuss the importance of Input Devices in graphics systems and provide examples of commonly used input devices.

Or

- (b) Compare and contrast the DDA algorithm and Bresenham's line algorithm.

12. (a) Discuss the importance of Character attributes in text rendering and their role in enhancing readability.

Or

- (b) Explain fixed point scaling.

13. (a) What role does the Two-dimensional Viewing Function play in the graphics pipeline?

Or

- (b) Discuss the significance of Clipping Operations in computer graphics, focusing on Point Clipping and Line Clipping algorithms.

14. (a) Examine the concept of Three Dimensional Display Methods in computer graphics.

Or

- (b) Discuss the principles of Three Dimensional Geometric and Modeling Transformations.

15. (a) What are Visible-surface deduction methods in Three Dimensional Viewing and why are they essential for rendering?

Or

- (b) Explain the Depth buffer method and its significance in managing depth information during rendering.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Examine the function and significance of Video Display Devices in graphics systems.

Or

- (b) Evaluate the role of Computer-Aided Design (CAD) software in graphics systems.

17. (a) Examine the concept of Line attributes in graphics systems and discuss their significance.

Or

- (b) Discuss the significance of Curve attributes in graphics systems and their role in shaping graphical representations.

18. (a) Analyze the Cohen-Sutherland Line Clipping algorithm.

Or

- (b) Examine the Sutherland-Hodgeman Polygon Clipping algorithm.

19. (a) Evaluate the significance of Interactive Input Methods in computer graphics systems.

Or

- (b) Inspect the functions and capabilities of Input Functions in computer graphics systems.

20. (a) Explain parallel projection.

Or

- (b) Analyze the A-Buffer Method in Three Dimensional Viewing.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10767 E      Sub. Code : EMIT 11**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

First Semester

Information Technology — Core

**PROGRAMMING IN C**

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

**PART A — (10 × 1 = 10 marks)**

Answer ALL questions.

Choose the correct answer :

1. What is the size of integer data type in C language?  
(a) 2 bytes                      (b) 1 byte  
(c) 8 bytes                      (d) 4 bytes
2. C programs are converted into machine language with the help of  
(a) an editor  
(b) a compiler  
(c) an operating system  
(d) an assembler

3. Which of the following is an exit-controlled type loop?
- (a) for (b) while  
(c) do ... while (d) switch
4. \_\_\_\_\_ is the collection of similar data types or collection of similar entity stored in contiguous memory location.
- (a) Struct (b) Union  
(c) Array (d) Pointer
5. Function declaration is also known as function \_\_\_\_\_
- (a) formal argument (b) actual argument  
(c) argument (d) prototype
6. \_\_\_\_\_ reduce the length and complexity of program
- (a) Structure (b) Union  
(c) Array (d) Function
7. Union differs from structure in the following way
- (a) All members are used at a time  
(b) Only one member can be used at a time  
(c) Union cannot have more members  
(d) Union initialized all members as structure

8. Which of the following is a collection of different data types?
- (a) String                      (b) Array
- (c) Structure                  (d) Files
9. The getw and putw functions are used to read and write \_\_\_\_\_ values from/into files
- (a) integer                      (b) character
- (c) alphanumeric              (d) string
10. A \_\_\_\_\_ is nothing but a variable that contains an address which is a location of another variable in memory.
- (a) Array                        (b) Pointer
- (c) File                         (d) Union

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Discuss the basic structure of a C program.

Or

- (b) List and explain the categories of languages.



12. (a) Illustrate do...while looping statement in C with example program.

Or

- (b) Demonstrate any two types of if...statements with example programs.

13. (a) Write a user defined function to calculate area of the square.

Or

- (b) How do you define a function and call a function? Write a simple program to illustrate it.

14. (a) How will you define a structure in C language? Give example.

Or

- (b) Explain arrays within a structure with example program.

15. (a) What is the use of fscanf and fprintf functions?

Or

- (b) Write a program to print the address of a variable along with its value.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Enumerate and explain various primitive data types in C.

Or

- (b) Discuss the following operators in C

(i) arithmetic

(ii) increment and decrement.

17. (a) Write the use of switch ... statement with its syntax and example.

Or

- (b) Distinguish between while ... and do.. while statements with syntax and example programs.

18. (a) Formulate the elements of user-defined functions with syntax and example program.

Or

- (b) Illustrate nesting of functions.

19. (a) Summarize the concepts behind unions with example code.

Or

- (b) How do you find size of structures? Give example code in C.

20. (a) Describe pointers and scale factors.

Or

- (b) How will you define, open and close a file?

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(6 pages)

**Reg. No. :** .....

**Code No. : 10768 E      Sub. Code : EMIT 21/  
EMCT 21**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Second Semester

Information Technology/Computer Science and I.T –  
Core

**JAVA PROGRAMMING**

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which component is used to compile, debug and execute the java programs?  
(a) JRE                                      (b) JIT  
(c) JDK                                        (d) JVM

2. Which one of the following is not a Java feature?
- (a) Object-Oriented
  - (b) Use of pointers
  - (c) Portable
  - (d) Dynamic and Extensible
3. Number of primitive data types in Java are \_\_\_\_\_.
- (a) 6
  - (b) 7
  - (c) 8
  - (d) 9
4. Which of these has highest precedence?
- (a) ()
  - (b) ++
  - (c) \*
  - (d) >>
5. Which of these is used as a default for a member of a class if no access specifier is used for it?
- (a) Private
  - (b) Public
  - (c) Public, within its own package
  - (d) Protected
6. If super class and subclass have same variable name, \_\_\_\_\_ keyword should be used to use super class.
- (a) Super
  - (b) This
  - (c) Upper
  - (d) Classname

7. Using which of the following. multiple inheritance in Java can be implemented?
- (a) Interfaces
  - (b) Multithreading
  - (c) Protected methods
  - (d) Private methods
8. Which interface is used to create thread in java?
- (a) Processor
  - (b) Threadable
  - (c) Runnable
  - (d) Executor
9. 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)
10. Which interface contains servlet lifecycle methods?
- (a) init
  - (b) servlet
  - (c) servletcontext
  - (d) destroy

PART B — ( $5 \times 5 = 25$  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) Explain about java virtual machine.

12. (a) Discuss constants in java with example.

Or

- (b) Discuss for-loop with example program.

13. (a) How will you define a class, create an object and access class members? Demonstrate it with example.

Or

- (b) Explain about static member with example program.

14. (a) Analyze exception handling with examples.

Or

- (b) Explicate thread priority with example.

15. (a) Comment on java Servlet. Discuss java servlet architecture.

Or

- (b) Examine grid layout with example.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss Java program structure with example program.

Or

- (b) Explain about the features of java.

17. (a) Illustrate any four types of operators with example.

Or

- (b) Enumerate switch-case statement with example.

18. (a) Discuss hierarchical inheritance with example program.

Or

- (b) Discuss abstract methods and classes with an example.



19. (a) Discuss multiple catch statements with example.

Or

- (b) Demonstrate how will you implement interface with example.

20. (a) Analyze border layout with example.

Or

- (b) Examine servlet API and its packages.
-

(8 pages)

Reg. No. : .....

**Code No. : 10769 E      Sub. Code : EEIT 11/  
EECT 11**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

First Semester

Information Technology/Computer Science and I.T.

Elective – NUMERICAL METHODS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Fit a straight line  $y = a + bx$  into the given data.  
What is the value of  $y$  when  $x = 8$ ?

$x$	:	1	2	3	4	5	6
$y$	:	20	21	22	23	24	25

- |        |        |
|--------|--------|
| (a) 27 | (b) 26 |
| (c) 28 | (d) 37 |

2. The method of least squares finds the best fit line that \_\_\_\_\_ the error between observed and estimated points on the line.
- (a) Maximize
  - (b) Minimize
  - (c) Reduces to zero
  - (d) Approaches to infinity
3. Which of the following transformations are allowed in the Gauss Jordan method?
- (a) Swapping a column
  - (b) Swapping two rows
  - (c) Swapping two columns
  - (d) Swapping a row
4. In Newton Raphson method  $f'(x)$  for a given point is given by the formula \_\_\_\_\_.
- (a)  $y/x'$
  - (b)  $y'/x$
  - (c)  $y/x$
  - (d)  $y'/x'$
5. The convergence of which of the following method depends on initial assumed value?
- (a) False position
  - (b) Gauss Seidel method
  - (c) Newton Raphson method
  - (d) Euler method

6. Find the root of  $x^4 - x - 10 = 0$  approximately upto 5 iterations using Bisection Method. Let  $a = 1.5$  and  $b = 2$ .
- (a) 1.68                      (b) 1.86  
(c) 1.88                      (d) 1.66
7. Rate of convergence of the Newton-Raphson method is generally \_\_\_\_\_.
- (a) Linear                      (b) Quadratic  
(c) Super-linear              (d) Cubic
8. The equation  $f(x)$  is given as  $x^3 - x^2 + 4x - 4 = 0$ . Considering the initial approximation at  $x = 2$  then the value of next approximation correct upto 2 decimal places is given as \_\_\_\_\_.
- (a) 0.67                      (b) 1.33  
(c) 1.00                      (d) 1.50
9. How many assumptions are there in Jacobi's method?
- (a) 2                              (b) 3  
(c) 4                              (d) 5

10. Division by zero during in Gaussian elimination of the set of equations  $[A]*[X]=[C]$  signifies the coefficient matrix  $[A]$  is \_\_\_\_\_.
- (a) Invertible
  - (b) Non Singular
  - (c) Not determinable to be singular or non singular
  - (d) Singular

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Summarize the concept of curve fitting.

Or

- (b) Fit a second degree parabola to the following data:

$x:$  0    1    2    3    4

$y:$  1    1.8    1.3    2    6.3

12. (a) Find a root of the equation  $x^3 - 4x - 9 = 0$ , using the bisection method correct to three decimal places.

Or

- (b) Using Newton's iterative method, find the real root of  $x \log_{10} x = 1.2$  correct to five decimal places.
13. (a) Using the Gauss elimination method, solve the equations:
- $$\begin{aligned} x + 2y + 3z - u &= 10, \\ 2x + 3y - 3z - u &= 1, \\ 2x - y + 2z + 3u &= 7, \\ 3x + 2y - 4z + 3u &= 2. \end{aligned}$$

Or

- (b) Using Gauss-Jordan method, find the inverse

of the matrix  $\begin{bmatrix} 1 & 1 & 2 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ .

14. (a) Write a note on trapezoidal rule.

Or

- (b) Using Newton's backward difference formula, construct an interpolating polynomial of degree 3 for the data:  $f(-0.75) = -0.0718125$ ,  $f(-0.5) = -0.02475$ ,  $f(-0.25) = 0.3349375$ .

15. (a) Given  $\frac{dy}{dx} = x^2(1+y)$  and  $y(1)=1$ ,  
 $y(1.1)=1.233$ ,  $y(1.2)=1.548$ ,  $y(1.3)=1.979$ ,  
evaluate  $y(1.4)$  by the Adams–Bashforth  
method.

Or

- (b) Mention the advantages of Runge-Kutta  
method.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the fitting a straight line with  
example.

Or

- (b) Fit a straight line to the following data:

$x:$  6 7 7 8 8 8 9 9 10

$y:$  5 5 4 5 4 3 4 3 3

17. (a) Using the bisection method, find an approximate root of the equation  $\sin x = 1/x$ , that lies between  $x = 1$  and  $x = 1.5$  (measured in radians). Carry out computations up to the 7<sup>th</sup> stage.

Or

- (b) Find a real root of the equation  $x \log_{10} x = 1.2$  by Regula-Falsi method correct to four decimal places.
18. (a) Solve the equations  $10x - 7y + 3z + 5u = 6$ ;  $-6x + 8y - z - 4u = 5$ ;  $3x + y + 4z + 11u = 2$ ; and  $5x - 9y - 2z + 4u = 7$  by the Gauss-Jordan method.

Or

- (b) Using Jacobi's method, find all the eigen values and the eigenvectors of the matrix

$$\begin{bmatrix} 1 & \sqrt{2} & 2 \\ \sqrt{2} & 3 & \sqrt{2} \\ 2 & \sqrt{2} & 1 \end{bmatrix}.$$

19. (a) Use the Trapezoidal rule to estimate the integral  $\int_0^2 ex^2 dx$  taking the number 10 intervals.

Or



- (b) Use Simpson's 1/3rd rule to find  $\int_0^{0.6} e^{-x^2} dx$  by taking seven ordinates.

20. (a) Apply the Runge–Kutta fourth order method to find an approximate value of  $y$  when  $x = 0.2$  given that  $dy/dx = x + y$  and  $y = 1$  when  $x = 0$ .

Or

- (b) Using Milne's method find  $y(4.5)$  given  $5xy' + y^2 - 2 = 0$  given  $y(4) = 1$ ,  
 $y(4.1) = 1.0049$ ,  $y(4.2) = 1.0097$ ,  
 $y(4.3) = 1.0143$ ;  $y(4.4) = 1.0187$ .
-

(7 pages)

**Reg. No. :** .....

**Code No. : 10770 E**

**Sub. Code : EEIT 12/  
EECT 12**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

First Semester

Information Technology/Computer Science and I.T.

Elective — DISCRETE MATHEMATICS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. If  $x$  is a set and the set contains the real number between 1 and 2, then the set is \_\_\_\_\_.
  - (a) Empty set
  - (b) Finite set
  - (c) Infinite set
  - (d) None of the mentioned

2. \_\_\_\_\_ may exist between objects of the same set or between objects of two or more sets.
- (a) Relations (b) Sets  
(c) Graphs (d) Domains
3. Let  $A = \{1, 2, 3\}$ ,  $B = \{a, b, c\}$  and  $f = \{(1, a), (2, b), (3, a)\}$ . The range of  $f$  is \_\_\_\_\_.
- (a)  $(1, 3)$  (b)  $\{3, b\}$   
(c)  $\{a, b\}$  (d)  $(a, b)$
4. Let  $f_1$  and  $f_2$  be two functions from  $A$  to  $R$ . Then  $f_1 f_2$  is defined by
- (a)  $(f_1 f_2) x = f_1(x) f_2(x)$   
(b)  $(f_1 + f_2) x = f_1(x) + f_2(x)$   
(c)  $(f_1 f_2) x = f_1(x) + f_2(x)$   
(d)  $(f_1 + f_2) x = f_1(x) f_2(x)$
5.  $\sim (p \vee q) \equiv \sim p \wedge \sim q$  is \_\_\_\_\_ law.
- (a) Demorgans law (b) Idempotent law  
(c) Associative law (d) Distributive

6. A preparation  $P(p, q)$  is called a \_\_\_\_\_ if it contains only  $F$  in the last column of its truth value.
- (a) Tautology                      (b) Contradiction  
(c) Contingency                  (d) None of the above
7. A square matrix in which every non-diagonal element is zero and all diagonal elements are equal is called a \_\_\_\_\_ matrix.
- (a) Triangular                      (b) Scalar  
(c) Diagonal                        (d) Unit
8. A square matrix  $A$  is known as Idempotent if, \_\_\_\_\_
- (a)  $A^2 = I$                           (b)  $A^n = 0$   
(c)  $A^2 = A$                         (d)  $AI = 1$
9. Any pair of nodes that is connected by an edge in a graph is called \_\_\_\_\_ nodes.
- (a) Incident                        (b) Adjacent  
(c) Isolated                        (d) Order
10. A graph is a collection of
- (a) Rows and columns  
(b) Vertices and edges  
(c) Equations  
(d) Values and symbols

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Let  $A = \{1, 2, 3, 4\}$  and  $B = \{3, 4, 5, 6\}$ . Find the elements of each relation  $R$  stated below. Also, find the domain and range of  $R$ .
- (i)  $aRb$  if and only if  $a < b$
  - (ii)  $aRb$  if and only if  $a$  and  $b$  are both odd numbers.

Or

- (b) Illustrate reflexive relation and symmetric relation with examples.
12. (a) Let  $f : Z \rightarrow Z$  be a function defined by  $f(x) = 2x + 3$ .
- Let  $g : Z \rightarrow Z$  be another function defined by  $g(x) = 3x + 2$ .
- Determine the compositions  $f \circ g$  and  $g \circ f$ .

Or

- (b) Prove that the function  $f(x) = x + 1$  from the set of integers to the set of integers onto.

13. (a) Explain the following logical operators with truth tables :

(i) conjunction

(ii) disjunction

Or

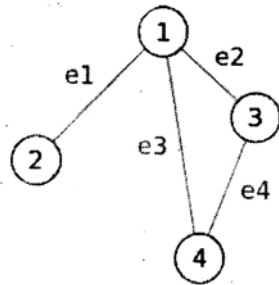
- (b) Show that  $p \wedge (q \vee r)$  is equivalent to  $(p \wedge q) \vee (p \wedge r)$ .

14. (a) Outline the step-by-step procedure for inverse of a matrix.

Or

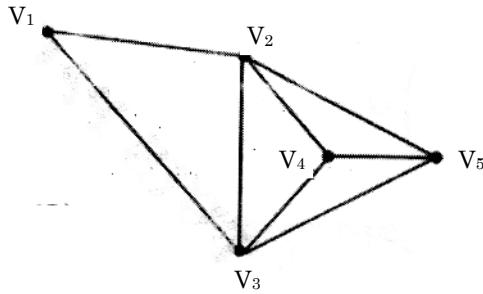
- (b) Find the determinant of matrix  $\begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$ .

15. (a) Write the incidence matrix of the graph  $G$  given in figure.



Or

- (b) Draw any four sub-graphs of a given graph.



PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Elaborate on the two closure operations on relations with examples.

Or

- (b) (i) Define inverse of relation with example.

- (ii) Let  $A = \{1, 2, 3\}$  and  $R = \{(1, 2), (1, 3), (2, 3)\}$ . Determine  $M_R$ .

17. (a) Show that the function  $f(x) = x^3$  and  $g(x) = x^{1/3}$  for all  $x \in R$  are inverses of each other.

Or

- (b) Let  $f: R \rightarrow R$  be defined by  $f(x) = 3x - 4$ . Find a formula for  $f^{-1}$ .

18. (a) Show that the following  $(p \wedge \sim q) \vee \sim(p \wedge \sim q)$  is a tautology.

Or

- (b) State and prove De-Morgan's law.

19. (a) If  $A = \begin{pmatrix} 1 & 2 & -1 \\ 3 & 0 & 2 \\ 4 & 5 & 0 \end{pmatrix}$  and  $B = \begin{pmatrix} 1 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 1 & 3 \end{pmatrix}$  show that  $(AB)^T = B^T A^T$ .

Or

- (b) Demonstrate that the matrix

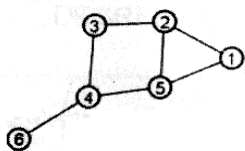
$$A = \begin{pmatrix} -5 & -8 & 0 \\ 3 & 5 & 0 \\ 1 & 2 & -1 \end{pmatrix} \text{ is involutory.}$$

20. (a) Explain any three different types of graphs.

Or

- (b) For the following graph  $G$ ,

- (i) Write the degree sequence of  $G$ .  
(ii) Find the number of odd-degree vertices and the number of edges in the graph  $G$ .





(6 pages)

**Reg. No. :** .....

**Code No. : 10771 E      Sub. Code : EEIT 21**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology

Elective – DATA STRUCTURES

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. What is the space complexity of an algorithm?
  - (a) The amount of memory required to execute the algorithm
  - (b) The number of steps required to execute the algorithm
  - (c) The efficiency of the algorithm
  - (d) The size of the input for the algorithm

2. In \_\_\_\_\_, search start at the beginning of the list and check every element in the list.  
(a) binary search            (b) linear search  
(c) hash search            (d) binary tree search
3. Which data structure is based on the Last-In-First-Out (LIFO) principle?  
(a) Queue            (b) Stack  
(c) Tree            (d) Linked List
4. Which data structure allows deleting data elements from front and inserting at rear?  
(a) Stacks            (b) Queues  
(c) Deques            (d) Binary search tree
5. What would be the time complexity if user tries to insert the element at the end of the linked list (head pointer is known)?  
(a)  $O(1)$             (b)  $O(n)$   
(c)  $O(\log n)$             (d)  $O(n \log n)$
6. What is the maximum number of children that a node can have in a binary tree?  
(a) 3            (b) 1  
(c) 4            (d) 2

7. Which sorting algorithm has the best-case time complexity of  $O(n)$ ?
- (a) Merge Sort                      (b) Quick Sort  
(c) Bubble Sort                      (d) Insertion Sort
8. The quick sort algorithm exploit \_\_\_\_\_ design technique.
- (a) overflow  
(b) back tracking  
(c) dynamic programming  
(d) divide and conquer
9. Dijkstra's Algorithm is the prime example for \_\_\_\_\_
- (a) Dynamic programming  
(b) Back tracking  
(c) Branch and bound  
(d) Greedy algorithm
10. Floyd Warshall's Algorithm can be applied on \_\_\_\_\_
- (a) Undirected and unweighted graphs  
(b) Undirected graphs  
(c) Directed graphs  
(d) Acyclic graphs

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Explain in detail about data structure operations.

Or

- (b) Demonstrate omega notation, theta notation and little oh notation with example.

12. (a) Explain about towers of Hanoi.

Or

- (b) Write an algorithm to find the factorial of a given number using recursion.

13. (a) Illustrate insertion algorithms with diagram.

Or

- (b) Explain double linked list with example.

14. (a) Write insertion sort algorithm.

Or

- (b) Analyze selection sort algorithm.

15. (a) Demonstrate the following

(i) adjacency matrix

(ii) path matrix

Or

(b) Diagnose greedy approach with example.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Illustrate conditional structures available in data structure.

Or

(b) Summarize linear search algorithm.

17. (a) Discuss linked representation of stack.

Or

(b) Discuss priority queue and its representation.

18. (a) Explicate deletion algorithm in linked list with example.

Or

- (b) Demonstrate the operations on two-way list.

19. (a) Discuss quick sort algorithm with example.

Or

- (b) Enumerate bubble sort algorithm with example.

20. (a) Diagnose depth first search algorithm with example.

Or

- (b) Analyze knapsack problem with example.
-

(6 pages)

**Reg. No. :** .....

**Code No. : 10773 E**

**Sub. Code : ESIT 11**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

First Semester

Information Technology

Skill Enhancement Core – INTRODUCTION TO HTML

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ARPANET stands for \_\_\_\_\_
  - (a) Advanced Research Projects Agency
  - (b) Advanced Reserve Plan Agency
  - (c) Advanced Return Plan Agency
  - (d) Advanced Research Pro Agency

2. Full form of W3C is \_\_\_\_\_
- (a) World Wide Website Catalog
  - (b) World Wide Web Community
  - (c) World Wide Web Consortium
  - (d) World Web website consortium
3. HTML stands for \_\_\_\_\_
- (a) Hyper Text Markup Language
  - (b) High Text Markup Language
  - (c) Hyper Text Markdown Language
  - (d) High Level Text Markup Language
4. Which of the following HTML tag is used to create an unordered list?
- (a) <ol>
  - (b) <ul>
  - (c) <li>
  - (d) <ll>
5. How to create an unordered list (a list with the list items in bullets) in HTML?
- (a) <ul>
  - (b) <ol>
  - (c) <li>
  - (d) <i>
6. How to insert an image in HTML?
- (a) <img href = "jtp.png"/>
  - (b) <img url = "jtp.png"/>
  - (c) <img link = "jtp.png"/>
  - (d) <img src = "jtp.png"/>



7. Which of the following tag is used to add rows in the table?
- (a) <td> and </td>      (b) <th> and </th>  
(c) <tr> and </tr>      (d) <th> and </td>
8. HTML tags with no content are called
- (a) Special tags      (b) Advanced tags  
(c) Empty tags      (d) Other tags
9. What is the use of iframe in HTML?
- (a) to display a webpage within a webpage  
(b) to display a webpage with animation effect  
(c) to display a webpage without browser  
(d) all of the above
10. Which HTML element is used to define a multiline input field?
- (a) <text>      (b) <text area>  
(c) <block>      (d) <text fields>

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Give a brief note on WWW.
- Or
- (b) What do you mean by Anatomy of URL in HTML?

12. (a) Illustrate the basic structure of HTML.

Or

- (b) What are the different levels of heading tags and paragraph in HTML? Explain.

13. (a) Write a HTML code with simple form with two input fields and a submit button.

Or

- (b) Discuss <ul> and <ol> with all attributes and example.

14. (a) Create a HTML webpage with a table having three columns and three rows.

Or

- (b) Explain the following:

- (i) Rowspan
- (ii) Colspan
- (iii) Cellpadding

15. (a) Write an html program to implement student registration form using Input and Textarea tags.

Or

- (b) Write a HTML code to insert target links within a web page.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the basic understanding html : `<b>`, `<i>`, `<big>` `<heading>`, `<p>`, `<br>` `<hr>` and `<div>` tags.

Or

- (b) Explain the html formatting elements with example code.
17. (a) Discuss the formatting text and tags with example.

Or

- (b) What is list tag in html? Explain the types of html tag with example.
18. (a) Write a HTML code for a hyperlink that opens a new tab when clicked.

Or

- (b) Create web pages using ordered and unordered lists within a WebPages.

19. (a) Write an HTML code to create the Student Information table.

Student Information		
Stu. No.	Name	Marks
101	ABIN	500
102	SINI	475
103	ANU	450
104	KUMAR	300

Or

- (b) Create a webpage to insert ordered and unordered lists within pages.
20. (a) Explain the Frameset and Nested Frameset with an example.

Or

- (b) Explain the following: <Frame>, <Frameset> and <No Frame> tag with example.
-

(6 pages)

Reg. No. : .....

**Code No. : 10775 E**

**Sub. Code : ESIT 21**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology

Skill Enhancement Course – ROBOTICS AND ITS  
APPLICATIONS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. An automatic apparatus or device that performs functions ordinarily ascribed to humans or operate with what appears to be almost human intelligence is called \_\_\_\_\_
  - (a) Robot
  - (b) Human
  - (c) Animals
  - (d) Reptiles

2. Classification of Robot is based on:
  - (a) Geometry and geometric classification
  - (b) Left right classification
  - (c) Based on control system
  - (d) All of the mentioned
3. Which one of the following reads variables in robot motion for use in control?
  - (a) kinematics                      (b) dynamics
  - (c) actuator                        (d) sensor
4. Resolving joint of the robot is referred to as
  - (a) L Joint                        (b) V Joint
  - (c) O Joint                        (d) T Joint
5. Which one of the following robots comes under second generation?
  - (a) information robots
  - (b) autonomous loading
  - (c) autonomous harvesting
  - (d) electrical robot
6. What is GPS?
  - (a) Global Point System
  - (b) Global System
  - (c) Global Path System
  - (d) Global Positioning System

7. Generating a feasible path from a start point to a goal point. A path usually consists of a set of connected waypoints is called
- (a) path planning (b) task planning
  - (c) trajectory planning (d) trajectory following
8. A color vision system can use three grey-scale cameras, equipped with filters that allow which three colors of light to pass?
- (a) blue, red and yellow
  - (b) blue, red and green
  - (c) orange, green and yellow
  - (d) orange, red and green
9. The number of moveable joints in the base, arm and end effectors of robot determine \_\_\_\_\_
- (a) degrees of freedom
  - (b) payload
  - (c) operational limit
  - (d) flexibility
10. Which of the following is application of robot?
- (a) welding
  - (b) machine loading and unloading
  - (c) both (a) and (b)
  - (d) neither (a) nor (b)

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Briefly discuss about classification of robot.

Or

- (b) Discuss working of robots arm.

12. (a) Discuss in detail about purpose of sensor.

Or

- (b) Discuss in detail about homogeneous matrix.

13. (a) Summarize the challenges in localization.

Or

- (b) Demonstrate GPS localization system.

14. (a) What do you mean by path planning? Write about the road map path planning.

Or

- (b) Write about robotic vision system and its image representation.

15. (a) Elucidate collision avoidance robots for agriculture.

Or

- (b) Elucidate industrial robots and its applications.



PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Illustrate components of robot system.

Or

- (b) Illustrate service robot and its applications.

17. (a) Explain actuators and types of actuators.

Or

- (b) Explain the following :

(i) Representation of joints

(ii) Frames and frames transformation.

18. (a) Paraphrase Infra Red based localizations.

Or

- (b) Paraphrase self localizations and mapping.

19. (a) Elucidate potential field path planning.

Or

- (b) Elucidate object recognition and categorization of vision system.

20. (a) Discuss Artificial Intelligence in robot.

Or

(b) Discuss nuclear applications of robot.

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(8 pages)

**Reg. No. :** .....

**Code No. : 10776 E**

**Sub. Code : ESIT 22/  
ESCT 22**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology/Computer Science and I.T.

Skill Enhancement Course – QUANTITATIVE  
APTITUDE

(For those who joined in July 2003 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Find cube root of 6859.  
(a) 17                                      (b) 18  
(c) 19                                      (d) 20
2. Which one of the following is not a prime number?  
(a) 31                                      (b) 61  
(c) 71                                      (d) 91

3. Alfred buys an old scooter for Rs. 4,700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5,800, his gain percent is:
- (a)  $4\frac{4}{7}\%$  (b)  $5\frac{5}{11}\%$   
(c) 10% (d) 12%
4. If a quarter kg of potato costs 60 paise, how many paise will 200gm cost?
- (a) 48 paise (b) 54 paise  
(c) 56 paise (d) 72 paise
5. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. The sum is:
- (a) Rs. 650 (b) Rs. 690  
(c) Rs. 698 (d) Rs. 700
6. The diagonal of a rectangle is 41 cm and its area is 20 sq. cm. The perimeter of the rectangle must be:
- (a) 9 cm (b) 18 cm  
(c) 20 cm (d) 41 cm
7. The true discount on Rs. 2,562 due 4 months hence is Rs. 122. The rate percent is \_\_\_\_\_:
- (a) 12% (b)  $13\frac{1}{3}\%$   
(c) 15% (d) 14%
8. Find the odd man out:  
3,5,11,14,17,21
- (a) 21 (b) 17  
(c) 14 (d) 3

9. In order to obtain an income of Rs. 650 from 10% stock at Rs. 96, one must make an investment of \_\_\_\_\_:
- (a) Rs. 3,100                      (b) Rs. 6,240  
(c) Rs. 6,500                      (d) Rs. 9,600
10. The angle between the minute hand and the hour hand of a clock when the time is 4.20, is \_\_\_\_\_:
- (a)  $0^\circ$                               (b)  $10^\circ$   
(c)  $5^\circ$                                 (d)  $20^\circ$

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) The difference of two numbers is 1365. On dividing the larger number by the smaller, we get 6 as quotient and the 15 as remainder. What is the smaller number?
- Or
- (b) The price of 2 sarees and 4 shirts is Rs. 1,600. With the same money one can buy 1 saree and 6 shirts. If one wants to buy 12 shirts, how much shall he have to pay?
12. (a) Sam is 16 years older than Peter. If 6 years back, Sam's age was 3 times Peter's age, what are their present age?
- Or
- (b) A dealer incurs a loss of 5% if he sells an article for Rs. 1,805. What price must he sell the article so as to gain 5 % on that article?

13. (a) A thief is noticed by a policeman from a distance of 200 m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 10km and 11 km per hour respectively. What is the distance between them after 6 minutes?

Or

- (b) Mr. Thomas invested an amount of Rs. 13,900 divided in two different schemes A and B at the simple interest rate of 14% p.a. and 11% p.a. respectively. If the total amount of simple interest earned in 2 years be Rs. 3,508, what was the amount invested in Scheme B?
14. (a) There are 5 women and 3 men applicants for a job. Only two out of eight are selected for a job. Find the probability that at least one of the selected person will be a women?

Or

- (b) Insert the missing number.  
7,26,63,124,215,342, (...)
15. (a) If Feb 12<sup>th</sup>, 1986 falls on Wednesday then Jan 1<sup>st</sup>, 1987 falls on which day?

Or

- (b) A businessman buys 10 shares of Rs. 100 at 10 discount, and the rate of dividend is 30. Find the rate of interest.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) In a regular week, there are 5 working days and for each day, the working hours are 8. A man gets Rs. 2.40 per hour for regular work and Rs 3.20 per hours for overtime. If he earns Rs. 432 in 4 weeks, then how many hours does he work for?

Or

- (b) The price of commodity X increases by 40 paise every year, while the price of commodity Y increases by 15 paise every year. If in 2001, the price of commodity X was Rs. 4.20 and that of Y was Rs. 6.30, in which year commodity X will cost 40 paise more than the commodity Y?
17. (a) A mixture contains sugar solution and colored water in the ratio of 4:3. If 10 liters of colored water is added to the mixture, the ratio becomes 4: 5. Find the initial quantity of sugar solution in the given mixture.

Or

- (b) An industrial loom weaves 0.128 metres of cloth every second. Approximately, how many seconds will it take for the loom to weave 25 metres of cloth?

18. (a) Three pipes A, B, and C are connected to a tank. Out of the three, A and B are the inlet pipes and C is the outlet pipe. If opened separately, A fills the tank in 10 hours. B fills the tank in 12 hours and C empties the tank in 30 hours. If all three are opened simultaneously, how much time does it take to fill / empty the tank?

Or

- (b) A 10cm cube was divided into  $n$  number of cubes of side length 1 cm cubes. Determine the total surface area ratio of the larger cube to the total surface areas of the smaller cubes.
19. (a) Two ships X and Y are sailing away from a glacier in the same direction. If the height of the glacier is 1000 m and the angle of elevation made by the 2 ships are 45 and 30 degree respectively, then what is the distance between the two ships?

Or

- (b) If Rs. 10 be allowed as true discount on a bill of Rs. 110 at the end of a certain time, then the discount allowed on the same sum due at the end of double the time is?



20. (a) Study the following table carefully and answer the questions given below it:

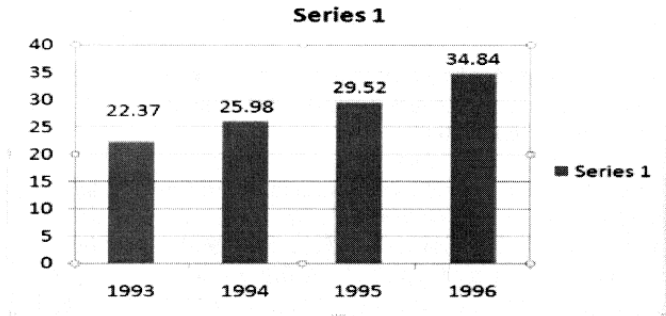
Number of Different categories of vehicles sold in the country over the years (in thousands)

Year	Heavy Vehicles	Light Commercial Vehicles	Cars	Jeep	Two Wheelers
1990	26	64	232	153	340
1991	45	60	242	172	336
1992	72	79	248	210	404
1993	81	93	280	241	411
1994	107	112	266	235	442
Total	331	408	1268	1011	1933

- (i) In which of the following years was the number of light commercial vehicles sold approximately 25% of the number of 2-wheelers sold?
- (ii) If the same percentage increase in the number of Heavy Vehicle as in 1994 over 1993 is expected in 1995, approximately how many heavy vehicles will be sold in 1995?
- (iii) The number of Heavy Vehicles sold in 1993 was approximately what percent of the total number of Vehicles sold in 1992?
- (iv) In which year was the number of 2-wheelers sold as a percentage of the total number of Vehicles sold during that year, the highest?

Or

- (b) In the following graph, the increase in the wheat over years is shown. Based on this answer the questions below.



- (i) How much does the wheat grow in 1994 as compared to the previous year?
  - (ii) What was an increase in the average rate of growth of wheat from 1993 to 1995?
  - (iii) How much percentage of growth of wheat was less in 1994 as compared to 1993?
  - (iv) What was the average of the total wheat, grew from 1995 to 1997?
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(6 pages)

**Reg. No. :** .....

**Code No. : 10777 E      Sub. Code : ESIT 23/  
ESCT 23**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology/Computer Science and I.T.

Skill Enhancement Course – SOFTWARE TESTING

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. What is testing process first goal?
  - (a) Bug prevention      (b) Testing
  - (c) Execution            (d) Analyses

2. \_\_\_\_\_ Which term is used to define testing?
- (a) evaluating deliverables to find errors
  - (b) find broken code
  - (c) stage in all projects
  - (d) exception handling
3. In a flow graph, node that contains a condition and is characterized by two or more edges emanating from it, is called as
- (a) Parent node                      (b) Two Edge node
  - (c) Predicate node                  (d) None of the above
4. \_\_\_\_\_ instrumentation is what we have to do to confirm that the outcome was achieved by the intended path.
- (a) path                                  (b) graph
  - (c) predicate                          (d) None of the above
5. \_\_\_\_\_ testing is a software testing technique that involves selecting a small number of test cases from a nearly infinite group of candidate test cases.
- (a) path                                  (b) Domain
  - (c) interface                          (d) All of the above

6. Data flow Testing Strategies are \_\_\_\_\_
- (a) path testing strategies
  - (b) structural strategies
  - (c) unstructured strategies
  - (d) none of the above
7. \_\_\_\_\_ are being an abstract representation of programs.
- (a) Flow graphs                      (b) path
  - (c) Domain                          (d) interface
8. The \_\_\_\_\_ sign was used to denote the fact that path names were part of the same set of paths
- (a) “/”                                  (b) “+”
  - (c) +                                      (d) “v”
9. Which of the following is not a white box technique?
- (a) State transition testing
  - (b) Path testing
  - (c) Statement testing
  - (d) Data flow testing
10. The Decision table testing is a
- (a) White box Test Design Technique
  - (b) Black Box Test Design Technique
  - (c) Experience-based Test Design Technique
  - (d) Grey Box Test Design Technique

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Summarize purpose of testing.

Or

- (b) Write note on importance of bugs.

12. (a) Discuss about Get the transaction flow in testing technique.

Or

- (b) Describe about

(i) Link markers

(ii) Link counters

13. (a) Mention the terminologies of data flow.

Or

- (b) Express about slicing and dicing.

14. (a) Write note on identity elements of path products.

Or

- (b) Discuss about test case design.

15. (a) What are the definitions and notations of decision tables?

Or

- (b) Describe about Limitations and extensions of state testing.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Explain in detail model for testing.

Or

- (b) What are the types bugs? Explain.

17. (a) Write note on inspection, reviews, walkthroughs.

Or

- (b) Elaborate
- (i) path predicate expressions
  - (ii) predicate coverage

18. (a) Explain data flow testing strategies.

Or

(b) Summarize

(i) Closure compatibility

(ii) Bug Assumption

19. (a) Write about linguistic metrics.

Or

(b) Explain what, why, and how syntax testing.

20. (a) Illustrate state graphs.

Or

(b) Explain about Impact of bugs in state testing.

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(6 pages)

**Reg. No. :** .....

**Code No. : 10778 E**

**Sub. Code : ESIT 24**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2024.

Second Semester

Information Technology

Skill Enhancement Course – CYBER FORENSICS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer :

1. Computer forensics is the process of methodically  
\_\_\_\_\_computer media for evidence.
  - (a) Accessing
  - (b) Examining
  - (c) Deleting
  - (d) Avoiding

2. Which of the following describes malicious computer programs such as viruses, worms, and Trojan horses?
- (a) Software piracy (b) Malware  
(c) Larceny (d) Arson
3. The \_\_\_\_\_ is the period of time when back-ups can be run.
- (a) Back-up window  
(b) Network bandwidth  
(c) System throughput  
(d) All the above
4. \_\_\_\_\_ affects data accessibility.
- (a) live backups (b) network backup  
(c) offline backup (d) mirroring
5. \_\_\_\_\_ was the first software for taking bit stream back-ups developed by Michael White.
- (a) IMNDUMP (b) INDUMP  
(c) IPDUMP (d) IMDUMP
6. When the time arrives to begin collecting evidence, the first rule that must be followed is \_\_\_\_\_
- (a) Do it Immediately (b) Do not rush  
(c) Make it fast (d) Slow down

7. \_\_\_\_\_ is the process of obtaining and exchanging evidence in a legal case or investigation.
- (a) E-Discovery            (b) Digital data  
(c) Binary data            (d) Information
8. The most important thing to keep track in computer forensic analysis is \_\_\_\_\_.
- (a) data and time            (b) back up  
(c) device                    (d) document
9. \_\_\_\_\_ is the process of completely and irreversibly removing data from computing equipment.
- (a) Data recovery            (b) Data Convergence  
(c) Data Intrusion            (d) Data destruction
10. Deleted e-mails are stored in \_\_\_\_\_.
- (a) Thrash                    (b) Draft  
(c) Inbox                    (d) Sent mail

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 computer forensics? Use of computer forensics in law enforcement.

Or

- (b) List the types of business computer forensic technology.

12. (a) Write note on The Data Recovery Solution.

Or

- (b) Explain about Evidence Search and Seizure.

13. (a) How do Certificate Authorities work?

Or

- (b) Write note on The Evidence Notebook.

14. (a) Describe about identification of data.

Or

- (b) Write any one of forensic identification and analysis of technical surveillance devices.

15. (a) How to become a digital detective?

Or

- (b) What is damaging computer evidence in network forensics?

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) Illustrate the computer forensics services.

Or

- (b) Elaborate Preservation of Evidence.

17. (a) What are the Types of Evidence and its Rules?

Or

- (b) Describe about Controlling Contamination: The Chain of Custody.

18. (a) Write in detail about Legal Aspects of Collecting and Preserving Computer Forensic Evidence.

Or

- (b) How Authenticode works with VeriSign Digital IDs?

19. (a) How does the e-discovery process work?

Or

(b) Write note on A powerful new litigation tool.

20. (a) Explain about network forensics Scenarios and destruction of E-Mail.

Or

(b) Summarize documenting the intrusion on destruction of data.

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(6 pages)

**Reg. No. :** .....

**Code No. : 10779 E      Sub. Code : EFIT 11**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

First Semester

Information Technology

Foundation Course—FUNDAMENTALS OF  
COMPUTERS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Central Processing Unit contains \_\_\_\_\_
  - (a) Arithmetic Logic Unit
  - (b) Central Unit
  - (c) Memory Unit
  - (d) All the above

2. Components used in Second generation computers
- (a) Vacuum Tube                      (b) Transistor  
(c) IC                                      (d) All the above
3.                      Codes used in Machine Language
- (a) English                              (b) Mnemonic  
(c) Binary                                (d) All the above
4.                      are High level languages
- (a) C                                        (b) C++  
(c) Pascal                                (d) All the above
5. Solutions that can not be reached through a direct set of steps are called                      solutions
- (a) heuristic                              (b) indirect  
(c) Both (a) and (b)                      (d) None
6. Integers are                      numbers
- (a) Whole                                (b) Decimal  
(c) Both (a) and (b)                      (d) None
7. Step by step procedure to solve the problem is called
- (a) Flowchart                              (b) Alogrithm  
(c) Result                                 (d) None



8. \_\_\_\_\_ is an integer, during program execution the value of it will change.
- (a) Pointer                      (b) Function  
(c) Constant                    (d) Variable
9. \_\_\_\_\_ variables cannot access outside the function
- (a) Local                      (b) Global  
(c) Both (a) and (b)        (d) None
10. What are the things should be available in looping statements?
- (a) Initialization  
(b) Condition checking  
(c) Increment / Decrement Variables  
(d) All the above

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) List out the different characteristics of a computer.

Or

- (b) Write down the five basic operations of a computer system.

12. (a) What is Machine Language?  
Or  
(b) Give a brief note on Assembly language.
13. (a) Define and describe the concept of Algorithm.  
Or  
(b) Write down the difficulties faced in problem solving.
14. (a) What is a function?  
Or  
(b) How do you define Flowchart? Give one example.
15. (a) What is sequential logic structure?  
Or  
(b) Write short note on Decision Tables.

PART C — ( $5 \times 8 = 40$  marks)

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

16. (a) Discuss the different generations available in evolution of computer.  
Or  
(b) With neat diagram, explain the working principle of computer.

17. (a) List out the different concepts of Object Oriented Programming languages.

Or

- (b) What is Software? Explain its types.

18. (a) How to solve problem in everyday life?

Or

- (b) Name three problems that might arise at college or Business that could be solved more efficiently with the computer assistance. Do these problems require an algorithmic or heuristic solution? Why?

19. (a) Describe the different operators used in problem solving.

Or

- (b) Write short note on constants and variables.

20. (a) How to solve problems with loops? Explain.

Or

(b) Explain in detail about programming structure.

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