

2022

COMPUTER SCIENCE

(Honours)

Paper Code : VIII - A & B

(New Syllabus)

Full Marks : 100

Time : Four Hours

Paper Code : VIII - A

(Marks : 20)

Choose the correct answer.

Each question carries 1 Mark.

1. What is the output of below program ?

```
int main(){  
int a=20;  
cout<<a++;  
return 0;}
```

- (A) 20
- (B) 21
- (C) 22
- (D) Not defined

2. What is the output of below program ?

```
int main(){  
int a, b=20;  
a=90/b;  
cout<<a;  
return 0; }
```

- (A) 4.5
- (B) 4
- (C) 4.0
- (D) Compilation error

3. Which operator has highest precedence ?

- (A) ()
- (B) =
- (C) *
- (D) ++

4. What is current syntax of for loop ?
 - (A) for(initialization;condition;increment/decrement)
 - (B) for(increment/decrement;initialization;condition)
 - (C) for(initialization, condition,increment/decrement)
 - (D) none of these
5. What is size of int data type in CPP ?
 - (A) 2 Bytes
 - (B) 4 Bytes
 - (C) 1 Byte
 - (D) Depends on compiler
6. What does the RAD software process stand for ?
 - (A) Rapid Application Development
 - (B) Recent Application Development
 - (C) Relative Application Development
 - (D) Rapid Application Design
7. _____ is the most important feature of the spiral model ?
 - (A) Efficiency management
 - (B) Time management
 - (C) Risk management
 - (D) Quality management
8. Identify the model which is also known as verification and validation model ?
 - (A) Waterfall model
 - (B) V-model
 - (C) Prototype model
 - (D) Evolutionary model
9. The SRS document is also known as _____ specification.
 - (A) Grey box
 - (B) Black box
 - (C) White box
 - (D) none
10. Identify the incorrect testing technique.
 - (A) Unit testing
 - (B) System testing
 - (C) Integration testing
 - (D) Collaboration testing

11. In an E-R diagram, _____ is used for representing an entity.
 - (A) Square
 - (B) Rectangle
 - (C) Diamond
 - (D) Ellipse
12. The term "FAT" is stands for _____
 - (A) File Allocation Tree
 - (B) File Allocation Table
 - (C) File Allocation Time
 - (D) All of the above
13. To which of the following the term 'DBA' referred ?
 - (A) Database Administrator
 - (B) Data Bank Administrator
 - (C) Data Admission
 - (D) None of the above
14. Rows of a relation are known as the _____
 - (A) Degree
 - (B) Tuples
 - (C) Entity
 - (D) All of the above
15. _____ is the example of data manipulation language.
 - (A) Create
 - (B) Alter
 - (C) Delete
 - (D) All of the above
16. Translation, Rotation and Scaling are the basic _____
 - (A) Coordinates
 - (B) Position Vectors
 - (C) Representations
 - (D) Transformations
17. Which of the following is the purpose for using clipping in computer graphics ?
 - (A) Copying
 - (B) Zooming
 - (C) Adding graphics
 - (D) Removing objects and lines

18. _____ is not a valid aggregate function ?
- (A) COUNT
 - (B) AVG
 - (C) MAX
 - (D) COMPUTE
19. Bitmap is a collection of _____ that describes an image.
- (A) Pixels
 - (B) Algorithms
 - (C) Bits
 - (D) Colors
20. DDA stands for —
- (A) Digital Differential Analyzer
 - (B) Differential Digital Analyzer
 - (C) Digital Data Analyzer
 - (D) Differential Digital Analysis
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Paper Code : VIII - B

(Marks : 80)

*The figures in the margin indicate full marks.
Candidates are required to give their answers in their
own words as far as practicable.*

Answer any *five* questions taking at least one from each group.

Group - A

1. (a) Define class. Differentiate between class and structure. 2+2
- (b) What is the use of scope resolution operator in C++ ? 2
- (c) How does object-oriented programming overcome the limitations of traditional programming approaches ? 3
- (d) What is virtual destructor ? 2
- (e) What is class template ? Give an example of it. 2+3
2. (a) Why friend function is required to overload binary operators ? 2
- (b) Explain the inheritance property of object-oriented programming with example. 6
- (c) Explain error handling in C++ ? 3
- (d) What is copy constructor ? Explain the necessity of defining your own copy constructor ? 2+3
3. (a) Explain data abstraction and information hiding with proper example. 4
- (b) What is virtual base class ? Explain with suitable example. 4
- (c) Explain briefly about abstract class. 4
- (d) Explain protected and private member access mode. 4

Group - B

4. Write short note on the following : 4×4
- (a) Software Quality Assurance
- (b) White Box Testing
- (c) Data Dictionary
- (d) COCOMO model
5. (a) What are the disadvantages of waterfall model over other models ? 5
- (b) Draw the DFD of library management system up to level 2. 5
- (c) Compare validation and verification. 3
- (d) Why SRS documentation also known as black box specification of a system ? 3

Group - C

6. (a) Trace Bresenham's line drawing algorithm for drawing a line segment from (8, 5) to (2, 10). 5
- (b) Magnify the triangle with vertices A (0,0), B (1,1) and C (5,2) to twice its size while keeping C (5,2) fixed. 5
- (c) What is (i) local coordinates, (ii) world coordinates and (iii) device coordinates. 2+2+2
7. Write short notes on the following : 4×4
- (a) Graphics Software
- (b) Shearing
- (c) Inverse Transformation
- (d) Cohen Sutherland line clipping
8. (a) Explain the role of homogeneous co-ordinates system in computer graphics. 6
- (b) Compare raster scan and random scan display principals. 4
- (c) What is the difference between Parallel Projection and Perspective Projection ? 3
- (d) Write short note on CMYK color model. 3

Group - D

9. (a) Consider the employee database, where the primary keys are Underlined. 3×3
- employee (emp id, empname, street, city)
- works (emp id, company id, salary)
- company (company id, companyname, city)
- manages (emp id, management)
- Give an expression in the SQL Query for each request.
- (i) Find the names of all employees who work for First Bank Corporation.
- (ii) Find the names, street addresses and cities of residence of all employees who work for First Bank Corporation and earn more than 200000 per annum.
- (iii) Find the names of all employees in this database who live in the same city as the company for which they work.
- (b) What is normalization ? Discuss 2NF and 3NF briefly. 2+5
10. (a) State the advantages of data independence. 2
- (b) Express natural join and selection operation in terms of relational algebra operation with proper example. 6
- (c) Explain specialization and generalization in the context of DBMS with suitable example. 4
- (d) Explain 3 levels of data abstraction. 4
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