18COA201

Reg No : .....

CREDIT BASED SECOND SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021
COMPUTER APPLICATIONS
Database Management Systems

Duration:3 Hours **Max Marks:80**

I. Answer any FIVE of the following : **(5×2= 10 Marks)**

1. Define DBMS.
2. What are Stored & Derived attributes in an E-R model?
3. What is a DML compiler?
4. What is a relation? Give example.
5. What is a Domain constraint?
6. What is SQL?

II. Answer any FIVE of the following : **(5×6= 30 Marks)**

7. Explain the classification of DBMS.
8. What is data independence? Differentiate logical and physical data independence.
9. Explain Armstrong's Inference rules for functional dependencies.
10. What are Spurious Tuple? Explain with example.
11. Explain 2NF. Check if a relation is in 2NF with example.
12. Explain Iterative control in PL/SQL with syntax & example.

III. Answer any FOUR of the following : **(4×10= 40 Marks)**

13. Explain the types of functions provided by Database System Utilities.
14. Explain the disadvantages of file processing system .
15. Explain the SELECT & PROJECT opeartions of relational algebra with example.
16. Create a table using SQL commands to store the details of students such as Roll no, Name, Class, Marks1, Marks2, Marks3.
    i) Add columns 'total', 'Average' to the above table and calculate the same and write it into the table
    ii) Modify Marks1 of roll no 105 to 80
    iii) List details of students belonging to 'I BCA class'
    iv) Calculate the hightest marks scored in Marks2
    v) Remove record of student named 'Kiran'.
17. What are the various types of cursors that can be defined in a PL/SQL program? Explain in detail Explicit cursor with example.

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COA201 Reg No : .....

CREDIT BASED SECOND SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021
COMPUTER APPLICATIONS
Database Management Systems Theory

Duration:3 Hours **Max Marks:80**

I. Answer any FIVE of the following : **(5×2= 10 Marks)**

1. What is a DML compiler?
2. Define DBMS.
3. What are Simple & Composite attributes in an E-R model? Give an example.
4. What is Functional Dependency?
5. What is the purpose of INSERT command?
6. What is pattern searching in Oracle?

II. Answer any FIVE of the following : **(5×6= 30 Marks)**

7. Explain the main categories of database users.
8. a) Explain the various levels of data abstraction
   b) What is Data independence? Explain.
9. Explain 2NF. Check if a relation is in 2NF with example.
10. Explain Referential Integrity constraint in a Relational Database.
11. Write SQL Query to
    a) Find the maximum SALARY from the table EMPLOYEE
    b) Find the sum of all the SALARY from the table EMPLOYEE.
12. What is a parameterized cursor? Give syntax & example for declaring a parameterized cursor.

III. Answer any FOUR of the following : **(4×10= 40 Marks)**

13. Explain the 3-schema architecture of DBMS. What are mappings?
14. Explain the types of functions provided by Database System Utilities.
15. Explain the UNION, INTERSECTION & DIFFERENCE operation with example.
16. Explain the concept of third normal form. How does it differ from BCNF?
17. a) Explain the structure of PL/SQL program.
    b) Explain with an example Exception handling in PL/SQL.

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18COA202 Reg.No. .....

CREDIT BASED SECOND SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021

B.C.A

Advanced Programming in C and Data Structures

Time: 3 Hrs Max. Marks: 80

PART – A

1. **Answer any 10 questions from the following:** 10x2=20

a. List any two advantages of pointer.

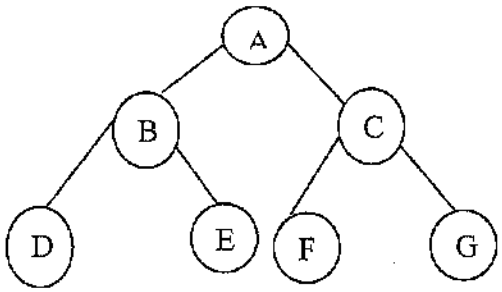
b. What do you mean by Pivot in quick sort?

c. List any two applications of Queue.

d. How malloc ( ) is different from realloc ( )?

e. Define priority queue.

f.



Write the in-order traversal of above tree.

g. Find error, if any, in the following statements.

file fp;

fp=fopen ("filename",w)

h. Evaluate the postfix expression abc*+ with values $a = 7, b = 2, c = 4$

i. Define Binary search tree.

j. How does an append mode differ from write mode?

k. Write any two differences between array and linked list.

l. State whether the following statements are true or false.

i) A tree in which every parent has either one or two children is a Binary Tree.

ii) Every node in a Binary Tree should contain at least one descendant node.

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a. With example explain the declaration and initialization of a pointer variable.
   b. Explain any five file opening modes. Give example. (5+5)

3. a. Write a C program to exchange the values of two variables using pointers.
   b. Explain any two random access functions available in file. (5+5)

4. a. Write a C program to read N numbers from keyboard. And store all the positive numbers into a file positive .Dat.
   b. What do you mean by dynamic memory allocation? Explain any one memory management function. **(5+5)**

UNIT – II

5. a. Write an algorithm to perform the following stack operations.
   i) push ( ) ii) pop ( )
   b. With example explain the advantage of using circular list over linear list. **(6+4)**

6. a. How to insert a new node in a list after the given node. Explain with example.
   b. Convert the given expression into postfix expression.
   $a+b/c+d*e$
   (6+4)

7. a. Define Circular Queue. Write an algorithm to delete an element from Circular Queue.
   b. With neat diagram explain the node structure of doubly linked list. **(6+4)**

UNIT – III

8. a. Define the following tree terminologies with examples
   i) Binary tree ii) Complete Binary Tree iii) Sub Tree
   iv) Leaf node v) ancestor of a node
   (10)

9. a. Sort the following array using Buddle sort
   15 20 16 99 100 10
   b. Construct the Binary Tree for the given pre-order, in-order traversal
   Pre-Order : a b c h d e f g
   In-Order : h c b d a g f e
   (5+5)

10. a. Draw a binary search tree with following elements.
   50 90 60 10 75 42 9 100 55
   b. Given: Arr is an array with following elemnts.
   Arr =

75	10	11	16	4	5

   Explain successful and unsuccessful sequential search. **(5+5)**

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GVE201.2 Reg. No. .....

CREDIT BASED SECOND SEMESTER B.A./B.Sc./B.Com/B.B.A./B.C.A DEGREE EXAMINATION AUGUST 2021

GENERAL EDUCATION – II

Environment and Disaster Management

Time: 3 Hrs. **Max. Marks: 80**

I. Answer any FOUR of the following: 4×5=20

1. What is Food Chain? Explain with an example.
2. What are the Abiotic factors of Ecology?
3. Explain the sources of Air Pollutants.
4. Write a note on the causes of Tsunami.
5. What is the significance of Water Conservation?
6. Explain the types of Disaster with examples.

II. Answer any TWO of the following: 2×10=20

7. Explain the various components of Environment.
8. Comment on the agencies involved in Environment protection in India.
9. Explain the types, causes and effects of Forest Fire.
10. "Media plays a vital role in Disaster Management". Justify the statement.

III. Answer any TWO of the following: 2×20 =40

11. Define Ecosystem. Explain pond as an Ecosystem.
12. Explain the sources and effects of air and water pollution.
13. Discuss the various Disaster Coping Strategies.
14. Explain the different types of Accidents with reference to Disaster. Add a note on First Aid.
15. Discuss the functions of National Disaster Management Authority of India.

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COA401 Reg No : .....

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021
COMPUTER APPLICATIONS
Java Programming

Duration:3 Hours Max Marks:80

I. Answer any FIVE of the following : (5×2= 10 Marks)

1. Write the general form of the for loop.
2. What is dynamic inheritance?
3. Why is java popularly known as internet language?
4. List any two restrictions associated with static methods.
5. Give an example to create a variable size array
6. How many arguments can be passed to an applet using tags?

II. Answer any FIVE of the following : (5×6= 30 Marks)

7. What is typecasting? Explain with examples.
8. Explain increment and decrement operators and conditional operators in java.
9. Explain simple if and nested if statements with syntax and example.
10. Explain the methods of the wrapper classes to convert numbers to strings and string objects to numeric objects.
11. Describe the various levels of access protection available for packages and their implications.
12. How do applets differ from stand-alone applications?

III. Answer any FOUR of the following : (4×10= 40 Marks)

13. Explain: a) General structure of a java program b) java statements
14. Explain the following: a) Types of constants b) types of variable data types
15. Explain abstract methods and abstract classes with an example.
16. Give an example where interface can be used to support multiple inheritance.
17. Explain the two ways to create threads with examples? Explain.

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COA 403.1 Reg.No. .....

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021

B.C.A

SOFTWARE ENGINEERING

Time: 3 Hrs **Max. Marks: 120**

PART – A

1. Answer any 15 questions from the following: **15x2=30**

a. Give IEEE definition of software engineering.

b. Define reliability and portability.

c. Define product metrics and process metrics.

d. Differentiate between software project and software process.

e. What is PDL? Why it is used?

f. Expand KLOC and MLOC.

g. What is top-down and bottom-up design approach.

h. Define error and fault.

i. List any two common errors while designing the DFD.

j. Define coupling and cohesion.

k. What do you mean by verification and validation?

l. What are test cases?

m. Define software metrics.

n. What is unit testing?

o. What is design methodology?

p. What is perfective maintenance?

q. What do you mean by information hiding?

r. What is throwaway prototyping?

PART – B

Answer any TWO Questions from each unit:

UNIT – I

2. a. Explain the various problems in software.

b. With the help of a diagram. Explain the waterfall model.

c. Explain SCM life cycle of an item. **(5+6+4)**

3. a. Explain different phase of phased development process.

b. Write a note on prototyping model.

c. Explain different characteristics of a software process **(6+4+5)**

4. a. Explain the spiral model with the help of a diagram.
   b. Explain any five quality attributes of software engineering.
   c. Explain the software configuration item (SCI). **(6+5+4)**

UNIT – II

5. a. Explain the different levels of cohesion.
   b. Explain the components of SRS.
   c. Explain Logic /Algorithm Design. **(5+6+4)**

6. a. Explain structure chart with example.
   b. Write a note on SDM strategy.
   c. Explain the activities of requirement process. **(5+5+5)**

7. a. Write a note on i) Design Walkthroughs
      ii) Critical Design reviews.
   b. What are the characteristics of SRS?
   c. List and explain the common errors in DFD. **(6+5+4)**

UNIT – III

8. a. Explain the Black Box testing.
   b. Explain the cause-effect graphing with the help of a diagram.
   c. Explain structural testing. **(5+5+5)**

9. a. Explain the concept of structured programming.
   b. Write a note on Internal documentation.
   c. Explain i) Boundary value Analysis
      ii) Equivalence Class partitioning **(5+4+6)**

10. a. Write a note on top-down and bottom –up approaches in Coding.
    b. Write a note on symbolic execution and execution tree.
    c. Explain data flow based testing with an example. **(5+5+5)**

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COA404 Reg. No. ----------

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021

B.C.A.

COMPUTER NETWORKS

Duration: 3 Hrs. Max. Marks: 120

1. Answer any 15 questions from the following. (15x2=30)

a) What do you mean by data communication?
b) What is half duplex with respect to data flow?
c) Define transmission medium.
d) What is encapsulation?
e) What do you mean by local logging and remote logging?
f) What are nodes and links?
g) What is point-to-point protocol?
h) What is throughput?
i) What is fragmentation?
j) What is CSMA/CD?
k) What is a hub? In which layer does it operate?
l) Mention the services provided by PPP.
m) Why ICMPv4 is designed?
n) How many bits are used in IPv4 and IPv6 addressing?
o) What is dynamic document?
p) What is unicast address and multicast address?
q) Differentiate between unicast and multicast transmission.
r) What do you mean by processing delay and queuing delay?

PART – B

Answer any TWO questions from each unit:

UNIT-I

2. a) Write a note on i) Radio waves ii) Microwaves
   b) Define physical topology. Explain Bus and Ring topology. (8+7)

3. a) With diagram explain:
      i) A frame and character-oriented protocol
      ii) A frame in a byte-oriented protocol
   b) Write a note on High-Level Data Link Control (HDLC) (8+7)

4. a) Explain in detail Coaxial Cable in detail.
   b) What is Address resolution Problem? Explain. (8+7)

UNIT-II

5. a) Explain the three methods that can be devised for communication between switches.
   b) Write a short note on i) CDMA ii) TDMA (7+8)

GVE401.3 Reg. No. .....

CREDIT BASED FOURTH SEMESTER B.A./B.Sc./B.C.A DEGREE EXAMINATION
AUGUST 2021

GENERAL EDUCATION – IV

Environmental Studies

Time: 3 Hrs. **Max. Marks: 120**

I. Answer any Five of the following: **6X5=30**

1. Write a note on Forest Eco System.
2. Mention and explain the ecological factors.
3. What are the causes for Water Pollution?
4. How Population acts as a component of Environment?
5. How to Prevent Soil Pollution?
6. Mention any four types of Disasters.

II. Answer any Two of the following: **15X2=30**

7. Elaborate the Food Chain System.
8. Briefly explain the safety measures of Disasters.
9. Narrate the Concept of Ecology.
10. Explain the Radioactive Pollution with its causes and impacts.

III. Answer any Three of the following: **20X3=60**

11. Briefly explain Water, Air and Soil Pollution with its causes and Effects.
12. Narrate the preventive measures for Environmental Pollution.
13. Explain the Disaster Management Act and its Principles.
14. What are the major reasons for the Urban Pollution? Explain.
15. Elaborate the types and safety measures of Disasters.

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18COA601 Reg No : .....

CREDIT BASED SIXTH SEMESTER B.C.A. DEGREE EXAMINATION AUGUST 2021

COMPUTER APPLICATIONS

Computer Graphics and Multimedia

Duration:3 Hrs **Max Marks:100**

PART - A

I. Answer any SEVEN from the following: **(7×2= 14 Marks)**

1. Write the standard equation of a straight line.
2. Write the standard equation of a Circle.
3. What are region codes? Draw the 4-bit codes for nine regions.
4. Define (i) Window (ii) Viewport
5. Define data stream. Give one example of a data stream.
6. Define multimedia.
7. State any two characteristics of the Moving Pen method.
8. What is homogeneous coordinate system?

PART - B

II. Answer any SIX from the following: **(6×6= 36 Marks)**

9. Distinguish between Raster Scan Display and Vector Scan Display Systems.
10. List and explain any 6 representative uses of interactive graphics?
11. List and explain the four MIDI reception modes.
12. Give a 3X3 homogeneous coordinate transformation matrix for each of the following translations:
    a) Shift the image to the right by 3 units.
    b) Move the image down by 1/2 unit and right by 1 unit.
    c) Move the image down by 2/3 units and left by 4 units.

13. Write the matrix for rotation about the 3 Axis in 3D homogenous coordinate system

14. Define reflection. Explain common reflections with suitable diagrams.

15. Explain flood fill algorithm.

PART - C

III. Answer any FIVE from the following: (5×10= 50 Marks)

16. (a) Write a C Program to scale an object.
    (b) Implement the concept of rectangle filling using C programming.

17. With a neat diagram explain the working of DVST. Also write its advantages and disadvantages.

18. (a) Explain various steps of image recognition with a neat diagram.
    (b) Explain the JPEG compression technique.

19. (a) Explain the even-odd method of determing polygon inside points.
    (b) Explain 4-connected and 8-connected region filling methods.

20. (a) What is clipping? Explain clipping in the raster world.
    (b) Describe the technique to generate characters.

21. Write a note on: (a) CD-MO (b) CD-WO

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