19COA601 Reg No : .....

CHOICE BASED CREDIT SYSTEM

BCA SIXTH SEMESTER DEGREE EXAMINATION MAY 2025

COMPUTER APPLICATIONS

Computer Graphics and Multimedia

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

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

1. Expand: (i) PHIGS (ii) SRGP
2. List any two techniques for generating characters.
3. What do you understand by scan line algorithm?
4. What is Y Shear? Give an example.
5. What is dithering?
6. Give any two features of CD-ROM technology.

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

7. Explain the development of hardware and software for computer graphics.
8. With an example, explain the replicating pixel method.
9. Write the 3D matrix representations for translation and scaling. Give a diagramatic example for each.
10. Explain the approaches used to fill a polygon.
11. What is a data stream? Explain the various transmission modes of data streams.
12. Given a 3D object with coordinate points A(0, 3, 1), B(3, 3, 2), C(3, 0, 0), D(0, 0, 0). Apply translation with the distance 1 towards x axis, 1 towards y axis and 2 towards z axis and obtain the new coordinates of the object.

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

13. (a) Explain the midpoint technique used to draw a circle.
    (b) Explain the various antialiasing techniques used for better quality images.
14. (a) What is Normalization transformation? Describe Window to Viewport transformation.
    (b) Show that two successive rotations are additive.

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15. (a) Describe the types of MIDI messages.

(b) List and explain the four MIDI reception modes.

16. (a) Write a C program to draw a line using DDA algorithm.

(b) Write a C program to rotate an object about the origin.

17. (a) With suitable diagrams, explain the processing of edges of the polygon against the left window boundary using Sutherland Hodgeman polygon clipping.

(b) Consider a line from (2,3) to (9,8). Use simple DDA algorithm to rasterize this line.

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21COAC601 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A SIXTH SEMESTER DEGREE EXAMINATION MAY 2025

COMPUTER APPLICATIONS

PHP and MYSQL

Duration:2 Hours **Max Marks:60**

PART A

Answer any FIVE questions: **(5×2= 10)**

1) Explain the usage of define() function.
2) List the different categories of Looping statements.
3) How do you create and declare a string in PHP?
4) What do the following MySQLi functions return i) mysqli_query() ii) fetch_array()
5) How do you create and access a class object?
6) How do you embed PHP code in your Web Page?

PART B

Answer any FIVE questions : **(5×6= 30)**

7) Explain get method with an example.
8) Explain the switch statement with syntax and example.
9) Define a function to calculate the area of a triangle by accepting two arguments and explicitly returning a value.
10) What are the functions of the following SQL statements? Explain with syntax and example i) SELECT ii) UPDATE
11) Explain with example the date() function with different formatting codes.
12) Explain with example , reading and appending files in PHP.

PART C

Answer any TWO questions : **(2×10= 20)**

13) Explain library functions with relevant examples.
14) Explain the following array functions with examples:
    i) array_unshift() ii) array_push() iii) array_unique()
    iv) explode() v) array_slice()
15) Explain hierarchical inheritance in PHP with a programming example.

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21COAC602 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A SIXTH SEMESTER DEGREE EXAMINATION MAY 2025

COMPUTER APPLICATIONS

Artificial Intelligence and Application

Duration:2 Hours **Max Marks:60**

PART A

Answer any FIVE questions: **(5×2= 10)**

1) Expand the following: a) ML b) NLP
2) Define uninformed search strategies? Give examples.
3) List the various operations performed by Knowledge-based agent.
4) What are the main characteristics of Information Retrieval System?
5) Define informed search strategies? Give examples.
6) Write a short note on supervised learning.

PART B

Answer any FIVE questions : **(5×6= 30)**

7) What is a Simple Reflex Agent? Write the pseudocode of a Simple Reflex Agent.
8) What is problem solving agent? Explain the steps to solve a problem.
9) Explain Knowledge-based agent in detail with a neat diagram.
10) Write a note on single-layer feed forward network of ANNs.
11) Explain Background Chaining with its properties.
12) Illustrate the use of decision trees for deciding whether a patron will wait for a table at a restaurant. Give a description of the input attributes.

PART C

Answer any TWO questions : **(2×10= 20)**

13) Explain the following environments with examples:
    i) Discrete vs continuous environment

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ii) Single agent vs multiagent environment

iii) Fully observable vs partially observable environment

iv) Known vs unknown environment

14) Explain the following real world problem:

a) Travel planning website b) Travel salesperson problem c) Robot navigation

15) a) Write a short note on univariate and multivariate data analysis.

b) Describe the architecture of Artificial Neural Networks with a neat diagram.

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21COAC603 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A SIXTH SEMESTER DEGREE EXAMINATION MAY 2025

COMPUTER APPLICATIONS

Advanced JAVA and J2EE

Duration:2 Hours **Max Marks:60**

PART A

Answer any FIVE questions: **(5×2= 10)**

1) What is Java Bean?
2) What is the purpose of startsWith()? Give example.
3) What is the purpose of StringBuilder.append()?
4) What is the purpose of the jspInit() method?
5) What is the first step in building an RMI application?
6) How do you create a String using the new keyword? Give example.

PART B

Answer any FIVE questions : **(5×6= 30)**

7) What are annotations in Java? Explain their importance with an example.
8) Explain the Java Collections Framework and its goals.
9) What are cookies? How are they used in servlets?
10) What are the advantages of using StringBuffer over String for modifications? Explain with example.
11) What is a ResultSet in JDBC? Explain its types.
12) How does Java handle remote method invocations efficiently?

PART C

Answer any TWO questions : **(2×10= 20)**

13) What is an Enumeration in Java? Describe the values() and valueOf() methods in Java enums with suitable examples.
14) Explain the implementation of MVC in Java with an example using class name College.
15) i) Explain how indexOf() and lastIndexOf() work for character and substring searches.
    ii) Compare the performance of equals() and compareTo() for large strings.

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21COADS601 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

BCA SIXTH SEMESTER DEGREE EXAMINATION MAY 2025

COMPUTER APPLICATIONS

Fundamentals of Data Science

Duration:2 Hours Max Marks:60

PART A

Answer any FIVE questions: **(5×2= 10)**

1) What does the ETL process consist of?
2) State any two ways to implement a data cube.
3) What are the initial paths in an FP-tree known as?
4) State any two characteristics of Density based methods.
5) List any two applications in data mining.
6) What is linkage metrics?

PART B

Answer any FIVE questions : **(5×6= 30)**

7) Explain Discretization and Binarization preprocessing techniques.
8) Write a note on i) Data cleaning ii) Data transformation
9) Write a note on text clustering and scatter/gather.
10) Describe the role of scaling and weighting in K-means algorithm.
11) What are the desired features of cluster analysis? Explain.
12) Explain the working of a divisive hierarchical method.

PART C

Answer any TWO questions : **(2×10= 20)**

13) Explain the following core data mining tasks:
    i) Predictive modelling ii) Cluster Analysis
    iii) Association Analysis iv) Anamoly detection
14) Explain the following: a) Web content mining b) Web usage mining
15) Explain i) frequent itemset ii) association rule
    iii) Itemset and Support Count iv) support and confidence

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21COAVC61 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A SIXTH SEMESTER DEGREE EXAMINATION MAY 2025

COMPUTER APPLICATIONS

Web Content Management System

Duration:2 Hours **Max Marks:60**

PART A

Answer any FIVE questions: **(5×2= 10)**

1) What is training and documentaion in digital graphics?

2) What considerations should be taken into account when planning a multilingual content?

3) Write two CSS properties commonly used to customize text styles in a CMS-based website.

4) What role does Moodle play in facilitating interactive learning experiences for students?

5) What is the role of permission and access control in a WikiSite?

6) Write two features of e-publication tools that streamline content creation within a CMS.

PART B

Answer any FIVE questions : **(5×6= 30)**

7) Explain the norms and guidelines of content development.

8) Write a note on web hosting and its types.

9) What are the essential processes for effectively designing and building dynamic web content sites within a content management system (CMS), emphasizing functionality, user experience, and engagement?

10) Detail the features of Joomla, a content management system (CMS) and outline the primary distinctions between Joomla and Drupa

11) Explain the role of admininstrators in content management?

12) Compose a brief overview explaining the process of creating 2D animations, along with outlining the main characteristics of 2D animation.

PART C

Answer any TWO questions : **(2×10= 20)**

13) What is screen casting? What are some common tools used for screen casting and how do they differ in terms of features and usability?

14) What roles do simulation and virtual reality technologies play across different industries and use cases?

15) Explain the concept of content management system (CMS) in the context of creating and managing a blog site.

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