618384 DCCA311

Reg. No.

III Semester B.C.A. Degree Examination, December/January - 2025/26
COMPUTER APPLICATIONS
Database Management System
(SEP Scheme Freshers)

Time : 3 Hours **Maximum Marks : 80**

***Instructions to Candidates*:**

Answer All the sections.

SECTION - A

Answer any Ten of the following questions. Each question carries 2 marks. (10×2=20)

1. Define Database Management System.
2. What is data independence?
3. Mention any two advantages of DBMS.
4. Define Weak Entity.
5. What is a relationship type?
6. Define secondary storage.
7. What is functional dependency?
8. Define tuple and attribute.
9. What is BCNF?
10. What is a transaction?
11. Write the syntax of creating a table in DBMS.
12. What is a PL/SQL Block?

SECTION - B

Answer any Five of the following questions. Each question carries 6 marks. (5×6=30)

13. Explain three schema architecture with a neat diagram.
14. Explain any two types of joints.
15. Explain the different types of attributes with example.

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16. Write the difference between primary storage and secondary storage devices.
17. Discuss anomalies in database with examples.
18. Explain the different integrity constraints in relational model.
19. Explain SELECT and PROJECT operators with example.
20. Explain the states of a transaction.

SECTION - C

Answer any Three of the following questions. Each question carries 10 marks. (3×10=30)

21. Discuss actors on the scene and workers behind the scene in DBMS environment.
22. Draw an ER - diagram for a company database.
23. Explain DDL, DML and DCL commands with example.
24. a) Discuss failure types and recovery techniques. **(5)**
    b) Explain the structure of a PL/SQL program with an example. **(5)**

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III Semester B.C.A. Degree Examination, December/January - 2025/26

COMPUTER SCIENCE

Computer Networks

(SEP Scheme Freshers)

Time : 3 Hours **Maximum Marks : 80**

***Instructions to Candidates*:**

Answer All the Parts.

PART - A

I. Answer any Ten of the following questions. Each question carries 2 marks. (10×2=20)

1. Define Computer Networks.
2. What is QoS?
3. Explain the command PING.
4. Write a note on WWW.
5. Define protocols. Give two examples.
6. What is HTTP?
7. Expand ICMP, SMTP.
8. What is transmission media?
9. What is an error? What are the different types of errors?
10. Define bit stuffing.
11. What is token passing ring?
12. Calculate the even parity bit for

    a) 10011001 b) 1101000

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PART - B

II. Answer any Five questions. Each question carries 6 marks. **(5×6=30)**

13. Explain star network topology in detail.
14. Explain TCP/IP reference model.
15. Differentiate between data gram and virtual circuit approaches.
16. Explain CSMA.
17. Explain the types of transmission modes.
18. What are the goals of networking?
19. Explain IPv4 address with its classes.
20. Explain HDLC frame format.

PART - C

III. Answer any Three of the following questions. Each question carries 10 marks. **(3×10=30)**

21. Explain OSI reference model with a neat diagram. **(10)**
22. a) Explain Pure ALOHA. **(5)**
    b) Explain Leaky Bucket Algorithm. **(5)**
23. a) Explain Distance Vector Routing Algorithm. **(6)**
    b) Explain PPP. **(4)**
24. a) Explain Co-axial cable with neat diagram. **(5)**
    b) Explain File Transfer Protocol. **(5)**

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III Semester B.C.A. Degree Examination, December/January - 2025/26
COMPUTER SCIENCE
Cyber Security
(SEP Scheme Freshers)

Time : 2 Hours **Maximum Marks : 40**

Instructions to Candidates:

1. Answer All the parts.
2. Write neat labelled diagrams wherever required.

PART - A

I. Answer any FIVE questions. Each question carries 2 marks. **(5×2=10)**

1. List any four types of Cyber Crimes.
2. Define Vulnerability.
3. What is Phishing?
4. Define User Authentication.
5. State any two secure password policies.
6. Give any two functions of firewall.

PART - B

II. Answer any FOUR questions. Each question carries 5 marks. **(4×5=20)**

7. Explain Malware and its types.
8. Explain the components of Cryptography with a neat diagram.
9. Write a note on Two-Factor Authentication (2FA).
10. What are Cookies? Describe how they affect user privacy.

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11. Explain the importance of Access Control in digital world.

12. Discuss features of Antivirus and Anti-malware Software.

PART - C

III. Answer any ONE question. This question carries 10 marks. **(1×10=10)**

13. Define Cryptography. Explain Symmetric and Asymmetric Cryptography with a neat diagram. **(10)**

14. a) Explain importance of Secure Password Policies. **(5)**

    b) Explain the role of HTTPs and SSL in ensuring secure communication. **(5)**

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III Semester B.C.A. Degree Examination, December/January - 2025/26

COMPUTER SCIENCE

Python Programming

(SEP Scheme Freshers)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Answer All the Sections.

SECTION-A

I. Answer any TEN questions. Each question carries 2 marks. **(10×2=20)**

1. Why Python is called dynamically typed language?
2. Write about print( ) and input ( ) functions in python
3. Define a string? Write the different ways to represent the strings in python.
4. Define a list. Give an example.
5. Explain membership operator used "in" in Set.
6. What is pickling and unpickling in python?
7. Define a constructor. Write the General syntax for constructor method in python.
8. What is Numpy? List any two features of Numpy.
9. Define DataFrame in Pandas? Give an example.
10. What is API and Web API?
11. List any four python libraries used for data analysis and visualization.
12. What is JSON?

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SECTION - B

II. Answer any FIVE questions. Each question carries 6 marks. **(5×6=30)**

13. Write about the "Type ( )" function in python. Explain with an example. **(6)**

14. Explain different string operations in Python. **(6)**

15. Define a Tuple. Write any four Built-in functions used on Tuples. **(6)**

16. Write different ways of traversing techniques in a dictionary? **(6)**

17. Write in detail different types of constructors used in python. **(6)**

18. Write a program to create Numpy arrays, perform elements - wise operations and reshape array. **(6)**

19. What is Matplotlib? Explain any four functions of Matplotlib. **(6)**

20. What is Data understanding? Explain about head ( ), tail ( ), info ( ) and describe ( ) functions. **(6)**

SECTION - C

III. Answer any THREE questions. Each question carries 10 marks. **(3×10=30)**

21. Write about loop control statements in python with general syntax and example. **(10)**

22. Write about Indexing and slicing in a list. **(10)**

23. Explain the Inheritance concept in python with types. **(10)**

24. a) Define data visualization. Write and explain different types of charts used in data visualization. **(5)**

    b) Write a program to display line graph in Python. **(5)**

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III Semester B.C.A. Degree Examination, December/January - 2025/26

COMPUTER APPLICATIONS

Python Programming (Theory)

(NEP Scheme 2021 (R))

Time : 2½ Hours **Maximum Marks : 60**

Instructions to Candidates:

Answer all the sections.

SECTION-A

I. Answer any **FOUR** questions. Each question carries 2 marks. (4×2=8)

1. Mention the different data types available in python.
2. Give an simple example for If ..... Else statement in python.
3. How to create a list in python? Write its syntax and give an example.
4. What is a dictionary? What are keys and values in dictionary?
5. What are the membership operators in python? Give an example.
6. What is Data Visualization?

SECTION-B

II. Answer any **FOUR** questions. Each question carries 5 marks. (4×5=20)

7. Explain the features of python.
8. What do you mean by slicing? Explain string slicing with examples.
9. Explain tuple methods with examples.
10. Mention different types of inheritance in python. Write a program to demonstrate.
11. Explain any five functions of Numpy with example.
12. Write a note on JSON.

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SECTION - C

III. Answer any **FOUR** of the following questions. Each question carries 8 marks. **(4×8=32)**

13. Explain the different types of control flow statement in python. **(8)**

14. a) Explain the set data type with suitable example. **(5)**

    b) Write a note on scope of variables. **(3)**

15. a) Differentiate between list and tuple. **(5)**

    b) What is picking and un picking? **(3)**

16. Explain different types of constructor in python with suitable examples. **(8)**

17. a) What is Pandas? Explain the features of Pandas. **(5)**

    b) Explain the concept of duck typing. **(3)**

18. What is CSV file in python? Write a python code to read a csv file using pandas module and print the first and last five lines of a File.

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III Semester B.C.A Degree Examination, December/January - 2025/26
COMPUTER APPLICATIONS
Operating Systems
(NEP Scheme (R))

Time : 2½ Hours **Maximum Marks : 60**

Instructions to Candidates:

Answer all Parts. Answer any four questions from each Part.

PART - A

I. Answer any Four questions. Each question carries 2 marks. **(4×2=8)**

1. List various components of operating system.
2. What are system calls?
3. What do you mean by critical section problem?
4. Write the various file attributes.
5. What is fragmentation? Mention it's types.
6. Write the features of Linux system.

PART - B

II. Answer any Four questions. Each question carries 5 marks. **(4×5=20)**

7. Explain different types of operating system.
8. What is process? Explain process state transition with diagram.
9. Define Deadlock. Explain the necessary conditions for Deadlock.
10. Write the advantages and disadvantages of linked allocation.
11. Define page fault. Explain procedure for handling page fault with diagram.
12. Explain the design principles of windows operating system.

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PART - C

III. Answer any Four questions. Each question carries 8 marks. **(4×8=32)**

13. Explain different operating system services. **(8)**

14. What are schedulers? Explain different types of schedulers with neat diagram. **(8)**

15. Consider the following set of processes with given CPU burst time and arrival time.

PID	Arrival time	Burst time
P1	0	8
P2	1	6
P3	2	5
P4	3	4

Calculate the average waiting time and turn around time using SJF scheduling and RR algorithm with time quantum 2 ms. **(8)**

16. Explain any two disk scheduling algorithms. **(8)**

17. Describe the producer - consumer problem for synchronization. **(8)**

18. a) Explain different directory structure. **(4)**

    b) What is distributed file system? Write the advantages and disadvantages. **(4)**