

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)

M.C.A. Sem-III : WINTER : 2024

SUBJECT: SOFTWARE DESIGN PATTERNS

Day : Saturday
Date : 07/12/2024

W-26136-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.:

- 1) Attempt ANY FIVE questions from Section – I and ANY TWO questions from Section – II.
- 2) Answers to both the section should be written in SAME answer book.
- 3) Figures to the right indicate FULL marks.

SECTION – I

- Q.1 Compare and contrast design patterns with architectural patterns, highlighting their differences and similarities. [12]
- Q.2 Discuss the consequences of choosing a particular creational pattern on the flexibility and extensibility of the codebase. [12]
- Q.3 Implement the Façade pattern in Java and demonstrate its usage in simplifying a complex subsystem. [12]
- Q.4 Discuss the Command pattern, including its applicability and potential consequences. Provide a comparative analysis with the Strategy pattern. [12]
- Q.5 Describe the Observer pattern and its advantages in establishing one-to-many dependencies. Provide a real-world example of its applications. [12]
- Q.6 Compare and contrast the JEE patterns with traditional design patterns, highlighting their specific use cases and advantages. [12]
- Q.7 Write short notes on ANY THREE of the following: [12]
- a) Drawbacks of design pattern
 - b) Difference between Adapter Class and Adapter Object
 - c) Behavioral design pattern
 - d) Selection of design pattern
 - e) Decorator design pattern

SECTION – II

- Q.8 Explain Hotel booking system. List various design pattern which can be used in this system. Draw a class diagram and show the design patterns used in this system. [20]
- Q.9 a) Explain structure of factory design pattern with its implementation in java. [10]
- b) Compare Interpreter and Iterator design pattern. [10]
- Q.10 Explain chain of responsibility design pattern with its class diagram and implementation in java. [20]

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-III : WINTER : 2024
SUBJECT: INFORMATION SECURITY

Day : Tuesday
Date : 10/12/2024

W-26138-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.

- 1) Attempt any **FIVE** questions from section – I. Each questions carries 12 marks.
- 2) Attempt any **TWO** questions from section – II. Each questions carries 20 marks.
- 3) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

- Q.1** What are the various sources of Information? Discuss various Business application of Information in detail. (12)
- Q.2** What is Network Security, and explain why it is important? (12)
- Q.3** Discuss various functions of Information Security Officer in detail. (12)
- Q.4** What is Vulnerabilities? Discuss, how to avoid Vulnerabilities. (12)
- Q.5** Illustrate Encryption and Decryption process of Hybrid Encryption. (12)
- Q.6** Write short notes on ANY TWO. (12)
- a) PGP (Pretty Good Privacy)
 - b) Eavesdropping
 - c) Social Engineering
 - d) DoS attack

SECTION - II

- Q.7** a) What is Risk Management? Describe Operational risk and Supply chain risk in details. (10)
- b) Why Information Security is needed for MIS? Discuss different Information Security Policies. (10)
- Q.8** a) What is an online fraud? Discuss different safety tips for online business to avoid fraud. (10)
- b) What is the Information Technology Act (IT Act)? What are the main objectives of the IT Act? (10)
- Q.9** Today we are using online mode for different transactions, thus every enterprise need to protect their information against Cyber – attack. As an Information Officer, how you can prevent Cyber – attacks to avoid data losses. (20)

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-III : WINTER : 2024
SUBJECT: ARTIFICIAL INTELLIGENCE

Day : Thursday
Date : 12/12/2024

W-26137-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.

- 1) Attempt ANY FIVE questions from Section-I each question carries 12 marks.
- 2) Attempt ANY TWO questions from Section-II each question carries 20 marks.

SECTION-I

- Q.1 a) Define Artificial Intelligence. Explain various techniques in AI. (06)
b) What is Heuristic search? Explain Depth First search with example. (06)
- Q.2 a) Explain various types of problems faced during knowledge representation. (06)
b) Describe production system in Artificial Intelligence. (06)
- Q.3 a) List and explain differences between forward and backward reasoning. (06)
b) What is First Order Logic? Explain its components. (06)
- Q.4 a) Explain Neural Networks along with its application. (06)
b) Define Natural Language Processing. Explain various steps in NLP. (06)
- Q.5 a) What is Machine Learning? Explain supervised and unsupervised learning. (06)
b) Discuss disadvantages of Hill climbing algorithm. (06)
- Q.6 Write a note on following: (ANY TWO) (12)
a) Bidirectional search
b) Fuzzy Logic
c) Means End Analysis

SECTION-II

- Q.7 Solve the following cryptarithmic (20)
SOME
+ TIME

SPENT
- Q.8 Write a python program to print array elements in reverse order. (20)
- Q.9 Convert the following statements into first order logic. (20)
a) All Foxes run faster than all snails.
b) Not all students like homework.
c) Some girls are intelligent
d) Raman is a professor
e) Only one student failed in History.
f) Every dog owner is an animal lover.
g) Brothers like siblings.
h) All cats like fish.
i) Every employee in the dept. has visited Australia or America.
j) There is at least one person who loves everybody.