

MASTER OF COMPUTER APPLICATIONS (CBCS - 2020 COURSE)
M.C.A. Sem-III :SUMMER- 2022
SUBJECT : SOFTWARE DESIGN PATTERNS

Day : Saturday
Date : 4/6/2022

S-22737-2022

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

- 1) Q.4 from Section – I is **COMPULSORY**.
 - 2) Answer any **TWO** questions from Q.1, 2, 3 in Section – I.
 - 3) Answer any **TWO** questions from Q.5, 6, 7 in Section – II.
 - 4) All question carry **EQUAL** marks.
 - 5) Answers to both the sections should be written in the **SAME** answer book.
 - 6) Draw neat and labelled diagrams **WHEREVER** necessary.
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SECTION – I

- Q.1** a) Describe importance of Design Patterns.
b) Draw structure of Builder design pattern and describe role of each participant.
- Q.2** a) State J2EE design patterns used in business layer and explain any one of them.
b) State the intent of Abstract Factory pattern. Draw the structure of it and describe role of each participants.
- Q.3** a) Explain the usage of Template Method design pattern.
b) State and describe applications of Interpreter design pattern.
- Q.4** Write short notes on the following (Attempt any **THREE**)
a) Singleton
b) Façade
c) Front Controller
d) Mediator

SECTION – II

- Q.5** a) Describe the usage of Adapter design pattern with its structure and role of each participant.
b) When to use Factory Method design pattern? Justify your answer.
- Q.6** a) In logistic system whenever there is movement of an object it is need to be informed to its subscriber. Which design pattern you choose and why?
b) Investigate when to use Proxy Design pattern? Illustrate your choice with example?
- Q.7** a) When behaviour of object is depending on the state of the object; which design pattern you choose. Describe structure and role of each participant in it.
b) State the intent of Flyweight design pattern and describe applications of Flyweight.

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2020 COURSE)
M.C.A. Sem-III :SUMMER- 2022
SUBJECT : ARTIFICIAL INTELLIGENCE

Day : Monday
Date : 6/6/2022

S-22738-2022

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N. B. :

- 1) **Q. No. 4 is COMPULSORY** attempt **ANY TWO** questions from **Q. No. 1, 2, 3** from Section – I.
- 2) Attempt **ANY TWO** questions from Section – II.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q. 1** a) What is Artificial Intelligence? What are disadvantages of Artificial Intelligence? (06)
- b) Differentiate between procedural and declarative knowledge. (06)
- Q. 2** Describe the following in detail (12)
- a) Hill climbing
- b) Breadth-first search
- c) Depth-first search
- Q. 3** a) What are the desirable properties of knowledge representation? (06)
- b) Explain semantic network with suitable example. (06)
- Q. 4** Write short notes on **ANY THREE** of the following: (12)
- a) Heuristic Search Technique
- b) Problem State Space
- c) Scripts
- d) Unsupervised learning

SECTION – II

- Q. 5** a) What are the data types of Numpy. (06)
- b) Explain commands to create a single Dimensional array in Numpy. (06)
- Q. 6** a) Explain commands to access elements of an array. (06)
- b) Explain arithmetic operations on an array. (06)
- Q. 7** Explain operations on Numpy array with example. (12)

MASTER OF COMPUTER APPLICATIONS (CBCS - 2020 COURSE)
M.C.A. Sem-III :SUMMER- 2022
SUBJECT : INFORMATION SECURITY

Day : Wednesday
Date : 8/6/2022

S-22739-2022

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

- 1) **Q.No. 4** from Section-I is **COMPULSORY**.
 - 2) Attempt **ANY TWO** questions from Q.No. 1 to Q. No. 3 in Section – I.
 - 3) Attempt **ANY TWO** questions from Q.No. 5 to Q. No. 7 in Section – II.
 - 4) Figures to the **RIGHT** indicate **FULL** marks.
 - 5) Answers to both the sections should be written in **SAME** answer book.
 - 6) Draw a labeled diagram **WHEREVER** necessary.
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SECTION – I

- Q.1** Answer the following : (12)
a) What is Information Security? How organizations manage information?
b) Explain different types of Network Operating Systems.
- Q.2** Answer the following : (12)
a) Classify Information Security threats. Explain physical threats in detail.
b) Compare public key cryptography with private key cryptography.
- Q.3** Explain the following : (12)
a) Explain the role of hash function in Information Security.
b) Explain challenge-response authentication process with appropriate example.
- Q.4** Write short notes on **ANY THREE** of the following : (12)
a) Cyber space
b) DoS attack
c) Digital signature
d) Message Authentication Code
e) Privacy Policy

SECTION – II

- Q.5** Answer the following : (12)
a) Justify how Information Security management is based on Information Security policy.
b) Classify different Information Assets. Explain the process of Risk Analysis in Information Security.
- Q.6** Answer the following : (12)
a) What are different types of regulations followed by organizations to ensure Information Security?
b) What is Information Technology Act? Explain different cyber laws.
- Q.7** Explain the following : (12)
a) Suppose you are an Information Security Officer for an online retail company. List down the various vulnerabilities in the web-portal and suggest solution.
b) Suggest list of measures to protect information from unauthorized users.
