

MCA (SEM-IV)
JAVA PROGRAMMING
(DEC- 2019)

[Total Marks :100]

N.B (1) Question No.1 is compulsory.

(2) Answer any four questions from Question Nos. 2 to 7.

(3) Figures to the right indicate full marks.

1. (a) Explain the role of Classes, Interfaces, and Packages in java. (10)
 (b) Explain life cycle of an applet with suitable example. (10)

2. (a) Explain the concept of method overriding and use of super keyword. (10)
 (b) Explain the need of exception handling in Java? Write a program to handle user define exception "Marks out of bound". The Exception is fired if marks is >100. (10)

3. (a) What is an Abstract class and Abstract method? Explain with example. (10)
 (b) How event handling is implemented in java. Write a program to demonstrate ItemEvent (10)

4. (a) Explain the Resultset types and Resultset hierarchy. (10)
 (b) Define Swing. Explain swing components as JFrame and JButton. (10)

5. (a) Explain the different types of drivers in JDBC. (10)
 (b) What is Thread? Explain thread synchronization with example. (10)

6. (a) What is serialization and deserialization? Write a program to implement it in java. (10)
 (b) Write a program to demonstrate any five methods of string class. (10)

7. Write short note (**any four**) (20)
 - (a) Java and C++
 - (b) Input Stream Classes
 - (c) this keyword
 - (d) Thread life cycle
 - (e) Constructor overloading

MCA (SEM-IV)
OBJECT ORIENTED MODELING
& DESIGN USING UML
(DEC- 2019)

(3 Hours)

[Total marks: 100]

- N.B. (1) Question 1 is compulsory.
 (2) Attempt any four from remaining six.
 (3) Assumption made should be clearly stated.

1. (a) Create an activity diagram describing the process of a coffee vending machine to buy a coffee. Consider the case of ready vending machine to serve coffee by inserting specific type of coin in to the vending machine. 10
- (b) Discuss the extension mechanism in detail. 10
2. (a) Draw a use case diagram for employee leave application and approval system. List all the assumptions taken into consideration for the system scope. Write use case description. 10
- (b) You are appointed as consultant for intranet development of your college web site. Draw component diagram 10
3. (a) What is importance of modeling? Explain Booch methodology. 10
- (b) What is collaboration diagram? Explain with suitable example. 10
4. (a) Explain interaction diagrams with suitable example. 10
- (b) Draw the state transition diagram for above description of telephone line. 10
 A simple digital watch has a display and 2 buttons to set it, the A button and the B button. The watch has 2 modes of operations, display time and set time. In the display time mode, hours and minutes are displayed. The set time has 2 sub modes set hours and set minutes. The A button is used to select modes. Each time it is pressed, the mode advance in sequence, display, set hours, set minutes etc. Within the sub modes the B button is used to advance the hours or minutes once each time it is pressed. Buttons must be released before they can generate other event. Prepare a state diagram of watch.
5. (a) Explain the concept of time constraints and duration. 10
- (b) Differentiate between 10
 - i) Aggregation and composition
 - ii) Include and extends
6. (a) Discuss how cohesion and coupling affect the flexibility of static modeling of a system. 10
- (b) Write short notes. 10
 - i) Swimlane in activity diagram
 - ii) Composite states and History states
7. (a) Why UML is the best tool for object oriented development? 10
- (b) What criteria can one employ to partition classes 10

MCA (SEM-IV)
NETWORK SECURITY
(DEC-2019)

Hours)

[Total marks: 100]

- N.B. (1) Question 1 is compulsory.
(2) Attempt any four from remaining six.
(3) Assumption made should be clearly stated.

1. (a) Explain Diffie Hellman Exchange algorithm. What is man in the middle attack? **10**
(b) Explain various techniques of user authentication. **10**
2. (a) Explain working of RSA algorithm for public key cryptography using example. **10**
(b) What are the various types of Malware? Explain in detail **10**
3. (a) What is the purpose of S-boxes in DES? Comment on weak and semi weak keys. **10**
(b) Explain the working of IPSec. **10**
4. (a) Explain Secure Electronic Transaction in detail. **10**
(b) What is Intrusion detection system? Explain different types of IDS. **10**
5. (a) Differentiate between **10**
 - i) Symmetric key cryptography and asymmetric key cryptography
 - ii) MD5 and SHA1
(b) Explain working of Kerberos. Differentiate between Kerberos V4 and V5. **10**
6. (a) Explain various security attacks and security services. **10**
(b) What is Firewall? Explain the types of Firewall. **10**
7. Write short note on any FOUR. **20**
 - i) Certificate Revocation
 - ii) Digital Signature
 - iii) KDC
 - iv) Vernam Cipher(One time pad)
 - v) Electronic code book

MCA (SEM-IV)
ADVANCE DATABASE TECHNIQUE
(DEC- 2019)

(3 Hours)

[Total Marks: 100]

- N.B. :**
- 1) Question No.1 is **compulsory**.
 - 2) Attempt any **four** from the remaining **six** questions.
 - 3) Use of calculator is allowed.

- Q.1 Write short note on the following (any four) 20
- 1) Search engine
 - 2) Two phase commit
 - 3) Clustering
 - 4) Data quality
 - 5) Polyinstantiation
- Q.2 A) What is Association rule mining? Explain the applications of association rule mining with example. 10
- B) Explain OLAP operations with suitable examples. 10
- Q.3 A) What is KDD process? Explain it with neat diagram. 10
- B) Explain Bell-LaPadula Model. What type of security is implemented by it? 10
- Q.4 A) Explain the concept of fragmentation and replication in distributed system with suitable example. 10
- B) How ORDBMS is different from RDBMS? What are the challenges in implementation of ORDBMS? 10
- Q.5 A) How do warehousing, OLAP and mining complement each other? Explain extraction, transformation and loading process in data warehousing. 10
- B) What is metadata? Explain types of metadata. 10
- Q.6 A) Explain the architectures of parallel database system with neat diagram. 10
- B) What is K-means clustering? Explain it with suitable example. 10
- Q.7 Differentiate between the following (**any four**) 20
- 1) Semi join and Bloom join
 - 2) Star Schema and Snowflake Schema
 - 3) OLTP and Data Warehouse
 - 4) ROLAP and MOLAP
 - 5) Data Mart and Data Warehouse

(3 Hours)**(Total Marks : 100)**

- Note :**
- 1. Question NO. 1 is compulsory.**
 - 2. Attempt any four from remaining six.**
 - 3. All question carry equal 20 marks.**

- Q1 a) Explain the Customer Life Cycle. Discuss the relevance of an effective CRM strategy in mainting a customer. **(10)**
- b) What is power user beta test? Explain its impact on CRM. **(10)**
- Q2 a) Explain the CRM Technology components in details. **(10)**
- b) What is SFA? Why is it necessary in CRM? **(10)**
- Q3 a) What is Campaign Management? Give the flow diagram of a campaign which is created by marketing automation tool. **(10)**
- b) Discuss the various phases involved in implementing a CRM Tool in an organisation. **(10)**
- Q4 a) Explain the process of lead management and response management. **(10)**
- b) Explain the role of ASP? What are the advantages and disadvantages of implementing ASP. **(10)**
- Q5 a) Explain the various factors to be considered while implementing CRM solution in Grocessary and Electronics shopping mall. **(10)**
- b) Explain automated intelligent call routing. **(10)**
- Q6 a) Explain in details opt in,opt out,cross selling and up selling. **(10)**
- b) Discuss various issue involved in designing an effective marketing campaign for an online e-commerce websites. **(10)**
- Q7. Write Short note on following **(any four) :** **(20)**
- Kick off meeting.
 - Automatic call distribution.
 - CRM and eCRM.
 - G-SPOT.
 - Mobile – CRM (mCRM)
 - Business analytics tools

MCA (SEM-IV)
SOFTWARE PROJECT MANAGEMENT
(DEC-2019)

3 hours)

[Total Marks: 100]

Note: (1) Question No.1 is Compulsory.

(2) Attempt any four out of the remaining questions.

- Q1. a) What is a project? What are its main attributes? Explain triple constraint in details? 10
 b) What are the main processes in Communication Management? 10
- Q2. a) What are different type of contract? Explain in detail. 10
 b) What is project management framework? Explain with suitable diagram. 10
- Q3. a) What are Conflicts? Explain different type of conflicts. 10
 b) Explain Project life cycle. 10
- Q4. a) Explain performance reporting and different ways of it. 10
 b) Explain Project Risk Management & its planning process. 10
- Q5. a) What are the processes involved in project procurement management? 10
 b) What is outsourcing? List different reason for out outsourcing. 10
- Q6. a) Explain common sources of risk of Information technology Projects. 10
 b) What do you mean by system view of project? Explain in details with three sphere model for managing system. 10
- Q7. Write short note on (any four) 20
 a) Explain schedule tools: Gantt charts, CPM
 b) Risk Breakdown Structure
 c) Tangible costs
 d) Suggestions for Identifying Risks
 e) Project Audit

MCA (SEM-IV)**- ELECTIVE -****ARTIFICIAL INTELLIGENCE****(DEC- 2019)****(3HOURS)****[TOTAL MARKS: 100]****N.B: (1) Q.1 is compulsory.****(2) Answer any four questions from Q2 to Q7****(3) Figures to the right indicate marks.****(4) Assume any additional information, but justify the same**

- | | | | |
|------------|----|--|-----------|
| Q.1 | a) | What is artificial intelligence? Explain different models of intelligence. | 10 |
| | b) | Define and Compare Trees and Graphs with proper example. | 10 |
| Q.2 | a) | What is production system? Explain production system characteristics. | 10 |
| | b) | Explain the concept of ISA hierarchy with the help of example. | 10 |
| Q.3 | a) | Explain natural language processing with an example. | 10 |
| | b) | Explain the concept of crossover and mutation over schemata. | 10 |
| Q.4 | a) | Explain Bayesian network with proper diagram. | 10 |
| | b) | Explain K armed bandit problem. | 10 |
| Q.5 | a) | With a suitable diagram explain Knowledge Data Discovery Process. | 10 |
| | b) | Explain different approaches to knowledge representation. | 10 |
| Q.6 | a) | Explain resolution in predicate logic. | 10 |
| | b) | Explain A* and Hill Climbing Algorithm. | 10 |
| Q.7 | | Write short notes on any four : | 20 |
| | a) | Applications of Artificial Intelligence | |
| | b) | Semantic Network | |
| | c) | Comparison between Rules and principles | |
| | d) | Forward and backward reasoning | |
| | e) | AO* algorithm | |
| | f) | Predicate Logic | |

(Time: 3 Hours)**[Total Marks: 100]**

- N.B.:** (1) Question No. 1 is **Compulsory**.
(2) Attempt any **four** questions from the remaining **six** questions.
(3) Answers to **sub-questions** should be **grouped** and written **together**.
(4) Draw the **diagrams** wherever **required**.

- Q.1 (a) What is E-Business? Explain various factors affecting E-Business success. 10
(b) Explain various legal issues involved in operating E-Business. 10
- Q.2 (a) Explain the elements of E-Business plan in detail. What are the various legal forms of organization? 10
(b) What is Marketing? Explain various marketing tools in detail. 10
- Q.3 (a) Discuss various E-Business models with appropriate illustrations. 10
(b) What is EDI? Explain EDI standards in detail. 10
- Q.4 (a) What is brand? How do you build your E-Business's brand? 10
(b) Describe the personal traits required to become a successful entrepreneur. Also explain Entrepreneurial Process in detail. 10
- Q.5 (a) Explain Asymmetric key cryptosystems in detail. 10
(b) Discuss various electronic payment methods in detail. 10
- Q.6 (a) Discuss different types of website structures. How they are organized? 10
(b) What are various security issues in E-Business? List and explain various network and website security risks in detail. 10
- Q.7 Write short notes on any **four**:-- 20
(a) CRM
(b) Internet threats to children
(c) Secure socket layer
(d) Data mining
(e) Affiliate program

MCA (SEM-IV)
- ELECTIVE -
EMBEDDED SYSTEM
(DEC- 2019)

Q.P. Code :31053

[Time: Three Hours]

[Marks:100]

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
 2. Attempt any four from the remaining.
 3. All questions carry equal marks.
 4. Answer to sub question should be answered together.

- | | | |
|-----|--|----------|
| Q.1 | a) Explain interrupt services routine in detail.
b) Explain instruction level parallelism. | 10
10 |
| Q.2 | a) Explain in detail the architecture of kernel.
b) Explain in detail RS 232 communication with connector configuration. | 10
10 |
| Q.3 | a) What are the emulators and explain emulation techniques.
b) What is the semaphores and explain semaphore management function calls. | 10
10 |
| Q.4 | a) What is real time system? Explain hard and soft real time systems?
b) Write a program for serial communication to interconnect two PC's through null modem cables. | 10
10 |
| Q.5 | a) Describe the architecture of IEEE 1394.
b) Explain the difference between CISC and RISC. | 10
10 |
| Q.6 | a) Describe the architecture of Embedded NT.
b) Explain different types of memory in embedded system. | 10
10 |
| Q.7 | Write short notes on (any four)
a) QNX Neutrino
b) Watchdog timer
c) OnCE
d) PCI bus
e) UART | 20 |

(3 Hours)

[Total Marks : 100]

N.B. : 1) Question No.1 is **compulsory**.
2) Attempt any **four** from the remaining **six** questions.

1. (a) What are the commonly used map projections? (10)
(b) Explain in detail about Geospatial Data. (10)
2. (a) Discuss the Geographic Coordinate System with the applications. (10)
(b) Describe the technical issues related to the Geographic Data. (10)
3. (a) What is the Raster Geographic Data Representation? Explain with the example. (10)
(b) Discuss the relationship between data representation and data analysis in GIS. (10)
4. (a) What is Data Exploration? Discuss the attribute data query. (10)
(b) Discuss the vector data analysis, overlay and buffering. (10)
5. (a) How object oriented geographic data is represented. (10)
(b) Discuss the applications of vector data analysis. (10)
6. (a) What is Geo-coding and dynamic segmentation? (10)
(b) What are the components of GIS? (10)
7. Write Short Notes on **any four**: - (20)
 - a) Plane Coordinate System
 - b) Geometric Transformation
 - c) Types of MAP
 - d) Cartography
 - e) Distance Measure Operations