F–9472	Sub. Code
	7MCI2C2

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Computer Science and Information Technology

JAVA PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Why is Java known as platform independent language?

2. How are constants and variables important in developing programs?

3. Find the value of 100% (–4).

4. Write the syntax of switch statement and give an example.

5. When do we declare a member of a class static?

6. Differentiate between vector and array.

7. Write the use of Applet Tag.

8. Distinguish between local applet and remote applet.

9. What is the aim of JDBC?

10. What are the types of enterprise beans?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the features of Java Language.

Or

(b) What is WWW? What is the contribution of Java to the WWW?

12. (a) What are the different types of if statements available in Java? Illustrate with an example.

Or

(b) Write a Java program to find the sum of the digits of a given integer.

13. (a) What is a constructor? What are its special properties?

Or

(b) Compare and contrast overriding and overloading a method.

14. (a) How many arguments can be passed to an applet using <PARAM> tags? Explain.

Or

(b) Write an applet that displays the date and time.

15. (a) Explain the architecture of RMI.

Or

(b) Write any two SQL statements with examples.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What are the data types supported by Java? Explain with examples.

17. What are the different categories of operators supported by Java? Explain with examples.

18. Write a Java program that creates an abstract class called dimension creates two subclasses, rectangle and triangle. Include, appropriate methods for both the subclasses that calculate and display the area of the rectangle and triangle.

19. Write an applet to draw the human face.

20. Explain about the Servlet life cycle.

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F–9473	Sub. Code
	7MCI2C3

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Computer Science and Information Technology

COMPUTER NETWORKS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the goals of computer network?

2. Differentiate between broadcast and point-to-point links.

3. Distinguish between analog and digital signals.

4. What are the disadvantages of optical fiber?

5. Compare pure ALOHA and Slotted ALOHA.

6. What is the purpose of Hamming code?

7. What is the function of a router?

8. What is RPC?

9. What is the use of E-mail?

10. What is FTP?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the six different types of services? Describe.

Or

(b) Compare LAN, WAN and MAN.

12. (a) Compare analog and digital transmission.

Or

(b) What is ISDN? Explain about the ISDN system architecture.

13. (a) Explain in detail about the Error Detection and Correction codes.

Or

(b) Write down the design issues of Data Link Layer.

14. (a) Discuss any one adaptive routing algorithm.

Or

(b) What are the duties of the Transport layer? Explain.

15. (a) Describe the design issues of presentation layer.

Or

(b) What are the two fundamental cryptographic principles? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What are the seven layers of ISO OSI reference model? Discuss.

17. What are the Guided media? Explain two of them.

18. Explain the about one bit-sliding window protocol.

19. What is Congestion Control? Discuss the principles of congestion control.

20. Explain the architecture and services of Electronic Mail.

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F–9474

Sub. Code
7MCI2E2

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Computer Science and Information Technology

Elective : RESOURCE MANAGEMENT TECHNIQUE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A $(10 \times 2 = 20)$

Answer **all** questions.

1. What are the three components of Linear Programming Problem?

2. Define: Slack and Surplus variables in Linear Programming Problem.

3. What is Operations Research?

4. What are the two categories of replacement problems?

5. Define: Pure strategy and Mixed strategy.

6. Define: Two-person zero-sum Game.

7. Differentiate between CPM and PERT.

8. Define: Total float and Free float.

9. What is transportation problem?

10. Define the terms related to transportation problem.

(a) Feasible solution (b) Basic feasible solution

Section B $(5 \times 5 = 25)$

Answer **all** questions choosing either (a) or (b).

11. (a) Write down the procedure steps in the solution of a linear programming problem by graphical method.

Or

(b) A firm manufactures two type of products A and B and sells them at a profit of Rs.2 on type A and Rs.3 on type B. Each product is processed on two machines G and H. Type A requires one minute of processing time on G and two minutes on H. Type B requires one minute on G and one minute on H. The machine G is available for not more than 6 hour 40 minutes while machine H is available for 10 hours during any working day. Formulate the problem as a linear programming problem.

12. (a) Explain the nature of Operations Research and its limitations.

Or

(b) The cost of a machine Rs.6100 and its scrap value is only Rs.100. The maintenance costs are found from experience to be:

Year	1	2	3	4	5	6	7	8
Maintenance cost in Rs.	100	250	400	600	900	1250	1600	2000

When should machine be replaced?

13. (a) What is saddle point? Explain the maximin-minimax principle.

Or

(b) Solve the game whose pay-off matrix is given below:

$$\begin{bmatrix} -2 & 0 & 0 & 5 & 3 \\ 3 & 2 & 1 & 2 & 2 \\ -4 & -3 & 0 & -2 & 6 \\ 5 & 3 & -4 & 2 & -6 \end{bmatrix}$$

14. (a) Write the down the rules for network construction.

Or

(b) Construct a network for the project whose activities and precedence relationships are as given below:

Activities :	A	B	C	D	E	F	G	H	I
Immediate Predecessor:	-	A	A	-	D	B,C,E	F	D	G,H

15. (a) Explain the Least Cost method to find the initial solution of transportation prob1em.

Or

(b) Determine an initial basic feasible solution to the following transportation problem using north-west corner rule.

	A	B	C	D	Supply
E	13	11	15	20	2000
F	17	14	12	13	6000
G	18	18	15	12	7000
Demand	3000	3000	4000	5000	

Section C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Solve the following LPP by graphical method:

Max Z= $5x_1 + 3x_2$

Subject to the constraints

$3x_1 + 5x_2 <= 15$

$5x_1 + 2x_2 <= 10$ and

$x_1, x_2 >= 0$

17. Discuss various classification schemes of models.

18. Consider the payoff matrix Player A as shown below and solve it optimally using graphical method.

Player B

Player B	1	2	3	4	5
1	3	6	8	4	4
2	-7	4	2	10	2

19. A project schedule has the following characteristics.

Activity:	1-2	1-3	2-4	3-4	3-5	4-9
Time (days):	4	1	1	1	6	5
Activity:	5-6	5-7	6-8	7-8	8-10	9-10
Time (days):	4	8	1	2	5	7

From the above information, you are required to:

(a) construct a network diagram (b) Determine the critical path and total project duration.

20. Obtain an initial feasible solution to the following Transportation Problem using the Vogel's Approximation method.

	D_1	D_2	D_3	D_4	Supply
O1	3	3	4	1	100
O2	4	2	4	2	125
O3	1	5	3	2	75
Demand	120	80	75	25	300