

(FOR THE CANDIDATES ADMITTED  
DURING THE ACADEMIC YEAR 2022-21 ONLY)

SUBJECT CODE **22 UCT 2A2**

REG.NO.

**N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI**

**END-OF-SEMESTER EXAMINATIONS : MAY – 2023**

**B.Sc.– COMPUTER TECHNOLOGY**

**MAXIMUM MARKS: 50**

**II SEMESTER**

**TIME : 3 HOURS**

**PART – III**

**ALLIED II: MATHEMATICS - II : OPERATIONS RESEARCH**

**SECTION – A**

**(10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS.**

1. An LPP has \_\_\_\_\_.
  - a) One optimal solution
  - b) Two optimal solutions
  - c) Three optimal solutions
  - d) None of these
2. Transportation problem is a special case of \_\_\_\_\_.
  - a) LPP
  - b) Assignment problem
  - c) Both (a) and (b)
  - d) Neither (a) nor (b)
3. The cost associated with the setting up of machinery before the production is \_\_\_\_\_.
  - a) Holding cost
  - b) Setup cost
  - c) Shortage cost
  - d) Lead time
4. In production planning and control, sequencing problem can be solved by using \_\_\_\_\_.
  - a) Gantt chart
  - b) only Delphi method
  - c) Both Break even point and Delphi method
  - d) only Break even point
5. An/a .....represents the start or completion of some activity
  - a) Network
  - b) Task
  - c) CPM
  - d) Event

**ANSWER THE FOLLOWING IN ONE OR TWO SENTENCES.**

**(K2)**

6. State the components of LPP
7. Write the RIM condition for a transportation problem.
8. Write the types of inventory.
9. How to convert n- jobs on 3- machines sequencing problem into n- jobs on 2 – machines problem?
10. Write the formula for finding expected time in PERT.

**SECTION – B (5 X 3 = 15 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.**

**(K3)**

11. a) Write the procedure for forming an LPP model.  
**(OR)**  
b) Explain the mathematical formulation of LPP
12. a) Write the steps for finding an initial basic feasible solution of a transportation problem by North – West corner rule.  
**(OR)**  
b) Write the steps for solving an assignment problem by Hungarian method.
13. a) Explain with an example for the term ‘setup cost’.  
**(OR)**  
b) State any three probabilistic inventory models.
14. a) Write a short note on sequencing problem.  
**(OR)**  
b) Explain the procedures for processing of n- jobs through two machines.
15. a) Write various time estimates in PERT.  
**(OR)**  
b) Explain Total float.

**SECTION – B (5 X 5 = 25 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.**

**(K4/K5)**

16. a) Solve the following LPP by graphical method.

$$\text{Maximize } Z = 2x + 3y$$

Subject to

$$x + y \leq 400; 2x + y \leq 600$$

$$\text{and } x, y \geq 0$$

**(OR)**

- b) Solve the following LPP by simplex method.

$$\text{Maximize } Z = 2x + 3y$$

Subject to

$$x + y \leq 400; 2x + y \leq 600$$

$$\text{and } x, y \geq 0$$



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20. a) A small project consisting of eight activities has the following characteristics

Activities:		A	B	C	D	E	F	G	H
Preceding activity:		-	-	A	A	A	BC	D	EFG
a	:	2	10	8	10	7	9	3	5
m	:	4	12	9	15	7.5	9	3.5	5
b	:	12	26	10	20	11	9	7	5

Draw the project network diagram and find the critical path and its duration.

(OR)

b) Draw the network diagram and determine the critical path for the following project.

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

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