D6BBA2002   (PAGES 2)   Reg.No.............................

Name: ....

SIXTH SEMESTER UG DEGREE EXAMINATION, APRIL 2023

(Regular/Improvement/Supplementary)

BBA

GBBA6B13T: MANAGEMENT SCIENCE

Time: 2 ½ Hours   Maximum Marks: 80

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 25 Marks)

1. What is OR?
2. List any four applications of OR in modern business management.
3. Define Linear Programming Problem.
4. What are decision variable?
5. Define Constraints.
6. What is Dummy activity?
7. Write down the rules for constructing network diagram.
8. Define Independent Float.
9. What is Pessimistic Time Estimate?
10. Define decision theory.
11. What is EOL?
12. Define state of nature.
13. What are Payoff and Regret Table?
14. Define transportation problem.
15. Enlist the methods to find the Initial basic feasible solution of transportation problem.

SECTION B: Answer the following questions. Each carries *five* marks.
(Ceiling 35 Marks)

16. What are the limitations of graphical method of solving a LLP?

17. Draw a network diagram for the following activities.

Activity code	A	B	C	D	E	F	G	H	I	J	K
Predecessor activity	-	A	A	A	B	C	C	C, D	E, F	G, H	I, J

18. Explain Managerial applications of Network Techniques.

19. Discuss the steps involved in Critical Path Method:

20. Write a note on Harwicz alpha Criterion.

21. Explain different Time estimates in PERT.

(PTO)

22. Find an initial basic feasible solution of the following problem using north west corner rule.

	D_1	D_2	D_3	D_4	Supply
O_1	5	3	6	2	19
O_2	4	7	9	1	37
O_3	3	4	7	5	34
Demand	16	18	31	25	

23. Explain the steps of North West Corner Rule.

SECTION C: Answer any 2 question. Each carries *ten* marks.

24. Briefly explain different characteristics of OR.
25. Solve the following linear programming problems by graphical method.
    Maximize $Z = 6x_1 + 8x_2$ subject to constraints $30x_1 + 20x_2 \leq 300$; $5x_1 + 10x_2 \leq 110$; and $x_1, x_2 \geq 0$.
26. A small project is composed of nine activities whose time estimates are listed in the following table:

Activity	t_0	t_m	t_p
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

a) Draw the project network
b) Find the length and the variance of each activity.
c) Find Critical path and Project duration.

27. Consider the following Payoff matrix.

States of nature	A1	A2	A3
S1	90	25	20
S2	10	35	20
S3	10	30	35

Compute EVPI from the Pay off table given. P(S1)=0.5,P(S2)=0.7 and P(S3)=0.6

(2 x 10 = 20 Marks)