SUB.CODE: 18UAM2A3

REG.NO:

DHANALAKSHMI SRINIVASAN COLLEGE OF ARTS & SCIENCE FOR WOMEN (AUTONOMOUS)

(For Candidates admitted from 2020-2021 onwards)

UG DEGREE EXAMINATIONS -APRIL 2021

B.B.A-AVIATION MANAGEMENT

MATHEMATICS FOR MANAGEMENT - II

Time: 3 Hrs **Max.Marks: 75**

PART - A

CHOOSE THE CORRECT ANSWER **(10X1=10)**

1. One of the models of Operations Research

a) Simulation model b) purchase model

c) Models by structure d) implementation model

2. LPP means

a) Linear programming problem b) Line program problem

c) Linear purchase problem d) Line problem programming

3. One method of solving transportation problem

a) Linear course method b) Least cost method

c) Linear corner method d) Method of appreciation

4. Name the method of solving assignment method

a) Method of approximation b) Matrix minima method

c) False position method d) Hungarian assignment method

5. One of the queueing model is ----------

a) Single server model b)First server model c) Random model d) Lost in first model

6. One type of replacement policy

a) Single replacement b) Merger replacement

c) combined replacement d) When the money value does not changes with time

7. Expansion of CPM

a) Clear project method b) Critical path method

c) Centre problem method d) Cure procedure method

8. ---------- is one of the floats

a) Node float b) Duration float c) Independent float d) Network float

9. PERT means that ----------

a) Period enter review total b) Project Evaluation review technique

c) Problem enter review technique d) Proper enter rear technique

10. Three time estimates used in PERT are ----------

a) Option time, passed time, link time b) open time, close time, middle time

c) Front time ,middle time, back time d) Optimistic time , Pessimistic time, most likely time

PART – B (5X7 = 35 Marks)

ANSWER ALL THE QUESTIONS

11. a) Briefly explain about linear programming problem

(OR)

b) Using graphical method find the maximum value of $z = 50x_1+60x_2$

subject to the constraints $2x_1+3x_2 \leq 1500$

$3x_1+2x_2 \leq 1500$

$X_1, X_2 \geq 0$

12. a) Obtain an initial basic feasible solution to the following transportation problem using Matrix minima method

	D1	D2	D3	D4	capacity
O1	1	2	3	4	6
O2	4	3	2	0	8
O3	0	2	2	1	10
Demand	4	6	8	6	

(OR)

b) Solve the following assignment problem

	E	F	G	H
A	18	26	17	11
B	13	28	14	26
C	38	19	18	15
D	19	26	24	10

13. a) Solve the following game using dominance property

		Player B			
		I	II	III	IV
Player A	I	3	2	4	0
	II	3	4	2	4
	III	4	2	4	0
	IV	0	4	0	8

(OR)

b)The cost of the machine is 6100 and its scrap value is Rs.100. The maintenance cost found from experience as follows

Year	:	1	2	3	4	5	6	7	8
Maintenance cost(Rs)	:	100	250	400	600	900	1200	1600	2000

When should the machine be replaced

14. a) Draw a network diagram for the following data

Activity	:	A	B	C	D	E	F	G	H	I	J
Preceding activity	:	none	A	A	B	A	B,E	C	D,F	G	H,I

(OR)

b) Explain about rules of network construction

15. a) The following information is given

Activity	:	1-2	2-3	2-4	3-5	4-6	5-6	5-7	6-7
Pessimistic time	:	3	9	6	8	8	0	5	8
Most likely time	:	3	6	4	6	6	0	4	5
Optimistic time	:	3	3	2	4	4	0	3	3

Draw the network diagram

(OR)

b)A project schedule has the following characteristics

Activity	:	1-2	2-3	2-4	3-5	4-5	4-6
P_o	:	1	1	1	3	2	3
m	:	2	2	3	4	3	5
p_1	:	3	3	5	5	4	7

construct a PERT

PART – C (3*10 = 30 Marks)

ANSWER ANY THREE QUESTIONS

16. Use graphical method to solve the LPP

Maximize $z = 2x_1+4x_2$

Subject to constraints $x_1+2x_2 \leq 5$

$X_1+x_2 \leq 4$, $x_1,x_2 \geq 0$

17. Find the initial basic feasible solution to the following transportation problem using VAM,LCM given the cost matrix

	D1	D2	D3	D4	Supply
S1	20	25	28	31	200
S2	32	28	32	41	180
S3	18	35	24	32	110
Demand	150	40	180	170	

18. Solve the following 2x2 game graphically

		Player B			
		B1	B2	B3	B4
Player A	A1	2	1	0	-2
	A2	1	0	3	2

19. A project has the following time schedule

Activity	Time in weeks
1-2	2
1-3	2

1-4	1
2-5	4
3-6	8
3-7	5
4-6	3
5-8	1
6-9	5
7-8	4
8-9	3

Construct the network

20. A small project is composed of seven activities whose time estimates are given in the following table

Event	Time required (days)		
	t_0	t_m	t_p
1-2	6	6	24
1-3	6	12	18
1-4	12	12	30
2-5	6	6	6
3-5	12	30	48
4-6	12	30	42
5-6	18	30	54

1) Find the expected duration and variance of each activity

2) What is the expected project length? 3) Calculate standard deviation of the project length