UNIVERSITY INSTITUTE OF APPLIED MANAGEMENT SCIENCES
PANJAB UNIVERSITY, CHANDIGARH

MID SEMESTER EXAMINATIONS- MBA (SECTORAL MANAGEMENT) –
4 SEM-MAY, 2021

IMPORTANT INSTRUCTIONS:

1) Please download the Question Paper immediately on receipt of the same.

2) Mark your attendance online After Receiving the Question Paper

3) Select the Relevant Question Paper as per your Sectoral Area of Study/Functional Area

4) Please put Roll No, Subject Code, Page No. and Signatures on all pages of the answer sheet

5) Maximum Number of pages in Answer Sheet are 16.

6) Timing of Examinations are 2.30 p.m. to 4.30 p.m.

7) Attempt Questions as per instruction in the question paper. ALL Questions carry Equal Marks

8)YOU ARE REQUIRED TO ATTEMPT THE ANSWERS IN YOUR OWN HANDWRITING IN BLUE/BLUE BLACK PEN.

9) Preserve the original Answer Sheet. It may be required to be submitted at a later date.

10) The candidate will be required to submit a single PDF file of his/her answer sheet from their registered email address to the NEW GOOGLE FORM link https://forms.gle/r3VniuqcCaQGu7kT8 within 90 minutes from completion of examination till 6.00 p.m. (for Evening Session exam.) on the day of examination.

11) The candidate will be required to submit his/her attendance on the Google Form link https://forms.gle/hnKyfu8sV3VZdXjs9 upto 3.00 p.m. (Evening session exam.) on the day of examination.

MID TERM EXAMINATION OF MBA 4st SEMESTER, MAY 2021
FOR ALL SECTORS

PAPER TITLE: OPERATIONS RESEARCH

PAPER CODE: MBA-4004

MAX. MARKS:15   **TIME: 2 HOURS**

Note: Attempt any 3 questions out of 5.All questions carry equal marks.

1. Explain in brief any 5 of the following (5 * 1 marks)
    a. Unbounded solution
    b. IBFS
    c. Value of the game
    d. Artificial variables
    e. Primal-dual relationship
    f. Pay-off matrix
    g. Big M method
    h. Improvement Index

                                        OR

     Decision making is not easy, It must be done amid ever-changing factors, unclear
     information and conflicting points of view. Explain.(5)

2. Reliance company has a drilling platform in the North sea and plans to set up a high
    speed rescue unit. The rescue unit comprises of 6 personnel , who for reasons of
    flexibility undergo the same comprehensive training programme. The six personnel are
    assessed as to their suitability for various specialist tasks and the marks they received in
    the training programme are given in the following table :

Specialised Task	Trainee No.					
	I	II	II	IV	V	VI
Unit leader	21	5	21	15	15	28
Helicopter pilot	30	11	16	8	16	4
First Aid	28	2	11	16	25	25
Drilling Technology	19	16	17	16	19	8
Fire fighting	26	21	22	28	29	24
Communication	3	21	21	11	26	26

   Based on the marks awarded ,what role should each of the trainee be given in the rescue.
                                        OR

Use Simplex method to maximize

   $Z=50X_1 +60X_2$

   Subject to

$2X_1 + X_2 \leq 300$

$3X_1 + 4X_2 \leq 509$

$4X_1 + 7X_2 \leq 812$

$X_1 \geq 0$

$X_2 \geq 0$

3. a. State clearly the essential features of LPP   (1)
    b. Solve the LPP   (4)

Maximize $Z = 5X_1 + 4X_2$

Subject to $X_1 <= 7$
         $X_1 - X_2 <= 8$
      $X_1, X_2 >= 0$

4. A company has three factories A,Band C which supply to 4 warehouses at P, Q, R and S. The monthly production capacity (tonnes) A,B and C are 120 , 80 and 200 respectively . The monthly requirement (tonnes) for the warehouses P,Q,R,S are 60, 50, 140 and 50 respectively .The transportation cost matrix(Rs/tonne) is given below .

Factories

Warehouse	A	B	C
P	4	3	7
Q	5	8	4
R	2	4	7
S	5	8	4

Using VAM , determine the transportation distribution of product to minimise transportation cost .

OR

Find the optimum Transportation schedule using VAM method and minimum total cost of Transportation

Company	R1	R2	R3	Supply
1	10	7	8	45
2	15	12	9	15
3	7	8	12	40
Demand	25	55	20	

5. a. Write a note on mixed strategy of game theory   (2)

b. Solve the game   (3)

	I	II	II	IV	V
I	1	3	2	3	4
II	3	4	1	5	6
III	6	5	7	6	5
IV	2	0	6	3	1

OR

Explain deterministic models of operation Research.