CTE-401

M. Sc. (Fourth Semester) Examination, 2020

(CBCS Course)

MATHEMATICS

(Operation Research)

Maximum Marks : 60

Note: *Attempt all questions. All questions carry equal marks.*

1. Solve L.P.P. by graphical method :

Max $z = 50x_1 + 18x_2$

subject to : $2x_1 + x_2 \leq 100$

$x_1 + x_2 \leq 80$

and $x_1, x_2 \geq 0$

2. A departmental head has four subordinates, and four task to be performed. The subordinate differ in efficiency, and the task differ in their intrinsic difficulty. His estimate of the time each man would take to perform each task, is given in the matrix below :

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

How should be task be allocated, one to a men so as to minimize the total men hours?

3. Determine which of the following two person zero sum games and strictily determinable and pair. Give optimum strategies for each player in the case as strictly determinable game.

$$\begin{array}{c} \\ \text{Player A} \end{array} \begin{array}{c} \text{Player B} \\ \begin{bmatrix} 5 & 0 \\ 0 & 2 \end{bmatrix} \end{array}$$

4. Discuss the usefulness of OR in dicision making process and the role of computers in this field.

5. A firm is considering replacement of a machine, whose cost price is Rs. 12,200 and the scrap value, Rs. 200, the running cost (maintenance and operating) costs in rupees are found form experience to be as follows :

Year	1	2	3	4	5	6	7	8
Running Cost	200	500	800	1200	1800	2500	3200	4000

When should be machine be replaced?