

2021

STATISTICS — HONOURS — PRACTICAL

Paper : DSE-B-1P

(Operations Research)

Full Marks : 30

The figures in the margin indicate full marks.

1. The advertising alternatives for a company include television, newspaper and radio advertisements. The cost for each medium with its audience coverage is given below.

	Television	Newspaper	Radio
Cost per advertisement (\$)	2000	600	300
Audience per advertisement	100,000	40,000	18,000

The local newspaper limits the number of advertisements from a single company to ten. Moreover, in order to balance the advertising among the three types of media, no more than half of the total number of advertisements should occur on the radio. And at least 10% should occur on television. The weekly advertising budget is \$ 18,200. How many advertisements should be run in each of the three types of media to maximize the total audience? 14

2. Solve the assignment problem shown in the table below. The matrix entries are processing time of each man in hours. 7

Job →	I	II	III	IV	V
1	20	15	18	20	25
2	18	20	12	14	15
3	21	23	25	27	25
4	17	18	21	23	20
5	18	18	16	19	20

3. Solve the 3×3 game with the following payoff matrix to player A— 9

		B		
		I	II	III
A	I	-4	6	3
	II	-3	-3	4
	III	2	-3	4
