4. a) What is Critical Activity ? 1

b) Briefly explain PERT and CPM. 3

c) Mean and S.D. of a project duration are 300 and 100 days respectively. Find the probability for (a) Completing the project within 417 days (b) Not completing within 417 days. 5

5. a) What is Linear Programming ? 1

b) What are the basic assumptions of Linear Programming Problems. 3

c) Draw the network diagram to the following activities. 5

Activity	Time Duration
1 – 2	2
1 – 3	4
1 – 4	3
2 – 5	1
3 – 5	6
4 – 6	5
5 – 6	7

6. a) What is sampling distribution ? 1

b) Difference between two tailed tests and one tailed tests. 3

c) A problem in statistics is given to three students, namely A, B and C, whether the chances of solving it are $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{5}$, what is the probability that the problem is solved ? 5

(4×9=36)

SECTION – B

7. a) Results of a common test given to a number of students belonging to four schools, are given below. Make a analysis of variance of the data.

Schools			
A	B	C	D
16	24	36	26
20	22	24	18
24	18	32	24
16	28	12	32
14	8	16	30

OR

b) It is known from the past experience that in a certain plant there are on the average of 4 industrial accidents per month. Find the probability that in a given year there will be less than 4 accidents. Assume Poisson distribution. **12**

8. a) Solve the L.P.P.

Max. $Z = 2x_1 + 3x_2$

Subject to

$x_1 + x_2 \leq 30$

$x_2 \geq 3$

$0 \leq x_2 \leq 12$

$x_1 - x_2 \leq 0$

$0 \leq x_1 \leq 20.$

OR

b) What is Operation Research ? What are the applications of Operation Research. **12**

(2×12=24)