



Reg. No. :

Name :

First Semester M.Com. Degree (Reg./Suppl./Imp.)
Examination, October 2017
(2014 Admission Onwards)
COM1C02 : QUANTITATIVE TECHNIQUES AND OPERATION
RESEARCH

Time : 3 Hours

Max. Marks : 60

- Instructions :** 1) Answer **any 4** bunches of questions from **6** bunches of questions in Section – A.
- 2) Answer **any one** question **each** from the **2** sets of questions in Section B.

SECTION – A

1. a) What is Random variable ? 1
- b) Explain the characteristics of Operation Research. 3
- c) Test whether Son's eye colour and Father's eye colour are associated. 5

	Father's eye colour	Son's eye colour	Total
Not light	230	148	378
Light	151	471	622
Total	381	619	1000

2. a) What is level of significance ? 1
- b) A speaks truth in 70% cases and B in 85% cases. In what percentage of cases are they likely to contradict each other in stating the same fact ? 3
- c) Briefly explain the features of normal distribution. 5
3. a) What is sample point ? 1
- b) What are the difference between surplus variables and slack variables ? 3
- c) It is claimed that a random sample of 100 tyres with a mean life of 15269 km is drawn from a population of tyres which has a mean life of 15200 km and S.D. of 1248 km. Test the validity of the claim. 5



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.

$$\text{Max. } Z = 2x_1 + 3x_2$$

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

(2x12=24)
