



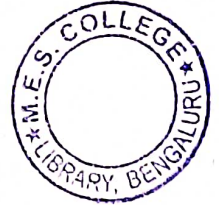
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Reg. No.

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I Semester B.Sc. And UG All Courses Degree Examination, May/June - 2022

STATISTICS
Statistical Methods
(CBCS - NEP Scheme)
Paper : OE-1



Time : 2½ Hours

Maximum Marks : 60

Instructions to Candidates:

1. Answer any eight questions from section - A and any three questions from Section - B.
2. Scientific calculators are allowed.

SECTION - A

I. Answer any Eight questions from the following.

(8×3=24)

1. What is secondary data? Mention their main sources.
2. Distinguish between sample survey and census survey.
3. Prepare a blank table to show the population according to sex and marital status for 2020 and 2021.
4. Define geometric mean and harmonic mean.
5. State the classical definition of probability.
6. Define probability mass function and expectation of a random variable.
7. Mention the features of normal distribution.
8. Define t - distribution and state its applications.
9. Define :
 - i) Type - I error.
 - ii) Type - II error.
 - iii) Critical region.
10. Write the test procedure for testing single mean.

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SECTION - B

(3×12=36)

II. Answer any Three questions from the following.

11. a) What is primary data? Explain the methods of collecting the primary data. (4+8)
- b) Represent the following data regarding expenditure of two families by component bar diagram.

Item	Food	House Rent	Fuel	Education	Others
Family A	1800	900	350	350	200
Family B	1800	1800	600	600	300

12. a) For the following distribution on Height of trees in the garden, find mean, median and mode. (6+6)

Height in cms 'X' :	10	15	20	25	30
No. of trees 'f' :	5	7	40	12	6

- b) Calculate standard deviation for the following data on number of children in 134 families.

No. of Children 'X' :	0	1	2	3	4	5	6
No. of families f :	18	22	35	25	20	12	2

13. a) What is correlation? Explain different types of correlation. (4+8)
- b) The following data relates to the age of husbands and wives.

Age of husband (Years)	25	28	30	32	35	36	38	39	42	45
Age of wife (Years)	20	26	29	30	25	18	26	35	35	46

Obtain the two regression equations and determine the most likely age of husband when wife's age is 25 years. Also determine the most likely age of the wife when husband's age is 30 years.

14. a) A, B and C hit a target with probabilities 0.6, 0.5 and 0.4 respectively. If they hit at the target independently, find the probability that (6+6)
- i) None of them hit the target.
- ii) The target is hit.
- b) In a family of 4 children, find the probability of that
- i) 2 children are males
- ii) Atleast 2 are male children. Give that birth of a male child and birth of a female child are equally likely.



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15. a) From the following data, test at 1% level of significance whether the sample means differ significantly. ($-Z_{\alpha/2} = -2.58$, $Z_{\alpha/2} = 2.58$). (6+6)

	I sample	II sample
Size	200	300
Mean	219.3	220.1
Variance	3	2

- b) A Normal variate has standard deviation 2.6, Twenty sample observations of the variate have standard deviation 2. Test at 1% level of significance that population standard deviation is less than 2.6. [$\chi^2_{19 d.f} = 10.12$ table value at 1% level of significance).
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