

(4)

3. (a) Discuss the relationship among mean, median and mode. Which one is the best average and why? $5+6=11$

Or

- (b) From the data given below, find missing frequency when arithmetic mean is 28. Also find median of the series : $6+5=11$

Profits per shop (in ₹)	0-10	10-20	20-30	30-40	40-50	50-60
No. of shops	12	18	27	?	17	6

4. (a) (i) Explain the addition theorem of probability using Venn diagrams in case of mutually exclusive events and events not mutually exclusive.
- (ii) If one card is drawn from a well-shuffled pack of card, what is the probability of getting either a king or a queen? $7+4=11$

Or

- (b) There are 3 economists, 4 engineers, 2 statisticians and 1 doctor. A committee of 4 members from them is selected.

(5)

Find the probability that the committee has—

- (i) one of each kind;
(ii) at least one economist;
(iii) a doctor as a member and three others. $3+4+4=11$

5. (a) Briefly discuss the concept of mathematical expectation. The probability that a man fishing at a particular place will catch 1, 2, 3, 4 fish are 0.4, 0.3, 0.2 and 0.1 respectively. What is the expected number of fish caught? $8+5=11$

Or

- (b) (i) Mention the properties of normal distribution.
(ii) Prove that Poisson distribution is a limiting case of binomial distribution. $4+7=11$

6. (a) What are the main steps involved in a sample survey? Discuss the different sources of errors in such surveys. Discuss briefly how these errors can be controlled. $4+4+4=12$