

PROBABILITY

Q1. Can the experimental probability of an event be a negative number? Justify your answer.

Q2. In a single throw of two dice, what is the probability of getting a sum of 9.

Q3. In a survey of 364 children, 91 liked to eat potato chips. If a child is selected at random, find the probability that he/she does not like to eat potato chips.

Q4. A die was rolled 100 times and the no. of times 6 came up was noted. If the experimental probability calculated from this information is  $\frac{2}{5}$ , then how many times 6 came up?

Q5. Two dice are thrown 500 times. Each time the sum of two numbers appearing is recorded.

| Sum       | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
|-----------|----|----|----|----|----|----|----|----|----|----|----|
| Frequency | 14 | 30 | 42 | 55 | 72 | 75 | 70 | 53 | 46 | 28 | 15 |

If the dice are thrown once more, what is the probability of getting a sum

(i) more than 10 (ii) less than or equal to 5

(iii) between 8 and 12?

Q6. A recent survey found that the ages of workers in a factory are distributed as follows:

| Age (in years)    | 20-29 | 30-39 | 40-49 | 50-59 | 60 and above |
|-------------------|-------|-------|-------|-------|--------------|
| Number of workers | 38    | 27    | 86    | 46    | 3            |

If a person is selected at random, find the probability that the person is

(i) 40 years or more (ii) under 40 years

(iii) under 60 but over 39 years

Q7. The percentage of marks obtained by student in monthly unit tests are

| Test                | I  | II | III | IV | V  | VI |
|---------------------|----|----|-----|----|----|----|
| Percentage of marks | 52 | 60 | 65  | 75 | 80 | 72 |

Find the probability that in the next test he gets  
(i) more than 70% marks (ii) at least 60% marks.

Q8. A company selected 4000 households at random and surveyed to find out relationship between income level and number of television sets in a home.

| Monthly income<br>(in ₹) | No. of televisions / household |      |     |         |
|--------------------------|--------------------------------|------|-----|---------|
|                          | 0                              | 1    | 2   | Above 2 |
| < 10000                  | 20                             | 80   | 10  | 0       |
| 10000 - 14999            | 10                             | 240  | 60  | 0       |
| 15000 - 19999            | 0                              | 380  | 120 | 30      |
| 20000 - 24999            | 0                              | 520  | 370 | 80      |
| 25000 and above          | 0                              | 1100 | 760 | 220     |

Find the probability:

- of a household earning ₹ 10000 - ₹ 14999 per year and having exactly one television
- of a household earning ₹ 25000 and more per year and owning 2 televisions.
- of a household not having any television.

Q9. Given below is the frequency distribution of wages (in ₹) of 30 workers in a certain factory:

| Wages (in ₹)   | 110-130 | 130-150 | 150-170 | 170-190 | 190-210 | 210-230 | 230-250 |
|----------------|---------|---------|---------|---------|---------|---------|---------|
| No. of workers | 3       | 4       | 5       | 6       | 5       | 4       | 3       |

A worker is selected at random. Find the probability that his wages are:

- less than ₹ 150
- at least ₹ 210
- more than or equal to ₹ 150 but less than ₹ 210