**SATISH CHANDRA MEMORIAL SCHOOL**

**EXTRA QUESTIONS CH: 7**

1. A bag contains 3 red, 5 black, and 2 white balls. A ball is drawn at random. What is the probability that the ball drawn is not white?

a) $\frac{1}{5}$ b) $\frac{4}{5}$ c) $\frac{3}{10}$ d) $\frac{1}{2}$

2. In a survey of 200 students, 120 like Mathematics while 80 dislike it. If a student is chosen at random, what is the probability that the student dislikes Mathematics?

a) 0.4 b) 0.6 c) 0.8 d) 1.2

3. Which of the following cannot be the probability of an event?

a) 15% b) 0.7 c) $\frac{2}{3}$ d) -1.5

4. What is the probability of drawing a queen from a deck of 52 cards?

a) 1/26 b) 1/52 c) 1/13 d) 3/52

5. The probability of drawing the 10 of a black suit from a deck of 52 cards is:

(a) 1/52 b) 1/26 c) 1/13 d) 2/13

Select the correct answer from the options (a), (b), (c), and (d) given below.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

(c) Assertion (A) is true, but Reason (R) is false.

(d) Assertion (A) is false, but Reason (R) is true.

6. Assertion (A): The probability of getting an even number in a single throw of a fair die is $\frac{1}{3}$.

Reason (R): For a fair die. the outcomes {2, 4, 6} are the only possible outcomes.

7. Assertion (A): If P(E) = 0.35, then P(not E) = 0.65.

Reason (R): For any event E, the sum of the probability of an event and its complement is always 1.

8. Assertion (A): The empirical probability of an event can be greater than 1 if the experiment is repeated a large number of times.

Reason (R): Empirical probability is calculated as the ratio of the number of outcomes favourable to the event to the total number of trials.

9. Two coins are tossed simultaneously 200 times. The outcomes are recorded as follows: 2 Heads-58; 1 Head-82; 0 Heads-60.

i)Find the probability of getting at least 1 head.

ii) Find the probability of getting exactly 1 tail.

10. A die is thrown 1000 times with the following frequencies:

| **Outcome** | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| **Frequency** | 179 | 150 | 157 | 149 | 175 | 190 |

Find the probability of getting (a) a prime number (b) neither prime nor even number.

11. Over the past 200 working days, the number of defective parts produced by a machine is given below:

| **Defective parts** | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| **Days** | 50 | 32 | 22 | 18 | 12 | 11 | 55 |

Determine the probability that tomorrow's output will have

a) more than 4 defective parts. b) 3 to 6 defective parts. c) 0 defective parts.

12. A bag contains 3 red, 2 blue and 4 green pens. Two pens are drawn without replacement. What is the probability that both are of (i) same colour (ii) different colours?

13. A spinner has three equal sectors numbered 1, 2, and 3. The spinner is spun twice. Represent all possible outcomes using a two-way frequency table. Find the probability that the product of the two spins is an even number.

14. A family plans to have two children. Assuming that the birth of a boy (B) or a girl (G) is equally likely, represent the sample space using a tree diagram. Find the probability that both children are girls.

15. A company selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in a family. The data is as follows:

| Monthly Income (₹) | 0 Vehicles | 1 Vehicle | 2 Vehicles | Above 2 |
|---|---|---|---|---|
| Less than 21000 | 10 | 160 | 25 | 0 |
| 21000–30000 | 0 | 305 | 27 | 2 |
| 30000–39000 | 1 | 535 | 29 | 1 |
| 39000–50000 | 2 | 469 | 59 | 25 |
| 50000 or more | 1 | 579 | 82 | 88 |

Suppose a family is chosen. Find the probability that the family chosen is:

(i) Earning ₹30000-39000 per month and owning exactly 2 vehicles.

(ii) Earning ₹50000 or more per month and owning exactly 1 vehicle.

(iii) Earning less than ₹21000 per month and does not own any vehicle.

(iv) Earning ₹39000-50000 and owning more than 2 vehicles.

(v) Owning not more than 1 vehicle.