Class : IX Subject : Mathematics Assignment 13: Probability

1. One card is drawn from a well shuffled deck of 52 cards. Find the probability that the number on it is a prime number.
2. Given below are the seats won by different political parties in the polling outcome of a state assembly elections:-

Political party	A	B	C	D	E	F
Seats won	75	55	37	29	10	37

Find the probability that any of the political parties chosen has won more than 30 seats. (Ans: 2 / 3)

3. The following table gives distance (in km) that 40 engineers have to travel from their residences to their work places:-

Distance (in km)	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
No of engineers	5	11	11	9	1	1	2

Find the probability that an engineer selected at random lives at a distance of:-
(i) 10 – 15 km (event E1) (ii) more than 35 km (event E2) (iii) less than 10 km (event E3) (iv) upto 35 km (event E4)
(Ans: 11/40, 0, 2/5, 1)

4. Blood groups of 30 students in a class are as follows:

Blood group	O^+	O^-	A^+	A^-	B^+	B^-	AB^+	AB^-
Total	8	2	6	1	10	2	1	0

Find the probability that a student selected at random has a blood group: - (i) O (ii) B + (iii) AB (Ans:- 4/15, 1/3, 1/30)

5. Weekly wages of workers in a factory are as follows:-

Weekly wages (in Rs)	325 - 350	350 - 375	375 - 400	400 - 425	425 – 450
No of workers	0	45	75	60	40

Find the probability that a worker selected at random earns: - (i) Rs 400 or more (ii) Rs 375 or more but less than Rs 425
(iii) Upto Rs 400 (iv) at least Rs 375 (Ans: 2/5, 27/50, 3/5, 7/10)

6. A batsman's score in 80 ODI's is as follows:-

Scores	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 99
No of matches	1	1	8	13	20	22	12	3

What is the probability that the batsman will score (in the next match)
(i) atleast 70 runs (ii) less than 50 runs (iii) 40 to 69 runs (iv) at most 59 runs
(Ans: 37/80 , 1/8, 41/80, 23/80)

7. Three coins are tossed simultaneously 200 times with the following frequencies of different outcomes:

Outcomes	**Frequency**
3 heads	23
2 heads	72
1 head	77
No head	28

Find the probability of getting (i) 3 heads (ii) 2 heads & 1 tail (iii) at least 2 heads (iv) getting more tails than heads

8. The percentage of marks obtained by a student in the monthly unit tests are given below:

Unit test	% of marks obtained
I	58
II	64
III	76

IV	62
V	85

Find the probability that the student gets

(i) a first class i.e. at least 60% marks (iii) a distinction i.e. 75% or above

(ii) marks between 70% and 80% (iv) less than 65% marks

9. Following frequency distribution gives the weights of 38 students of a class

Weight (in kg)	Number of students
31 – 35	9
36 – 40	5
41 – 45	14
46 – 50	3
51 – 55	1
56 – 60	2
61 – 65	2
66 – 70	1
71 – 75	1

Find the probability that weight of a student in the class is:

(i) At most 60 kg (ii) at least 36 kg (iii) not more than 50 kg

10. Define two events each, one having probability 0 and the other having probability of 1.

11.In n trials of a random experiment if an event A occurs m times, event B occurs P times and event C occurs r times, s.t $m+p+r = n$ then find the value of: (i) P (A) (ii) P (B) (iii) P (C) (iv) P (A) + P (B) + P (C) (v) P (not C)

(vi) P (neither A nor C) (VII) P (both B and C)