EXERCISE # 1

Q.1 1000 families with 2 children were selected randomly, and the following data were recorded :

Number of boys in a family	0	1	2
Number of families	140	560	300

If a family is chosen at random, find the probability that it has (i) No boy (ii) one boy (iii) 2 boys (iv) at least one boy (v) at most one boy.

Q.2 The percentage of marks obtained by a student in the monthly unit tests are given below :

Unit test	I	II	III	IV	V
Percentage of marks obtained	58	64	76	62	85

Find the probability that the student gets :

(i) a first class i.e. at least 60% marks
(ii) marks between 70% and 80%
(iii) a distinction i.e. 75% or above
(iv) less than 65% maks.

Q.3 Three coins are tossed simultaneously 100 times with the following frequencies of different outcomes :

Outcome :	No head	One head	Two heads	Three heads
Frequency :	14	38	36	12

If the three coins are simultaneously tossed again, comput the probability of -

(i) 2 heads coming up
(ii) 3 heads coming up
(iii) at least one head coming up
(iv) getting more heads than tails
(v) getting more tails than heads

Q.4 1500 families with 2 children were selected randomly and the followning data were recorded:

Number of girls in a family :	0	1	2
Number of families :	211	814	475

If a family is chosen at random, compute the probability that it has -

(i) No girl
(ii) 1 girl
(iii) 2 girls
(iv) at most one girl
(v) more girls than boys

Q.5 It is known that a box of 600 electric bulbs contains 12 defective bulbs. One bulb is taken out at random from this box. What is the probability that it is non-defective bulb ?

Q.6 A number is chosen at random among the first 100 natural numbers. Find the probability that the number chosen being a multiple of 5.

Q.7 In a cricket match, a batsman hits a boundary 6 times out of 30 balls he plays. Find the probability that on a ball played : **[NCERT]**

(i) he hits boundary
(ii) he does not hit a boundary

Q.8 17 cards numbered 1, 2, 3, ..., 16, 17 are put in a box and mixed throughly. One person drawn a card from the box. Find the probability that the number on the card is -

(i) odd
(ii) a prime
(iii) divisible by 3
(iv) not divisible by 3 and 2 both

Q.9 A company selected 2400 families at random and survey them to determine a relationship between income level and the number of vehicles in home. The informaton gathered is listed in the table below : **[NCERT]**

Monthly income : (in Rs)	Vehicles per family			
	0	1	2	Above 2
Less than 7000	10	180	25	0
7000-10000	0	270	27	2
10000-13000	1	609	29	1
13000-16000	2	409	29	25
16000 or more	1	580	82	88

If a family is chosen, find the probability that the family is :

(i) earning ₹ 10000-13000 per month and owning exactly 2 vehicles.

(ii) earning 16000 or more per month and owning exactly 1 vehicle.

(iii) earning less than 7000 per month and does not own any vehicle.

(iv) earning 13000-16000 per month and owning more than 2 vehicle.

(v) owning not more than 1 vehicle

(vi) owning at least one vehicle.

Q.10 The blood groups of 30 students of class IX are recorded as follows :

A	B	O	O	AB	O	A	O	B	A	O	B	A	O	O
A	AB	O	A	A	O	O	AB	B	A	O	B	A	B	O

A student is selected at random from the class from blood donation. Find the probability that the blood group of the student chosen is

(i) A (ii) B (iii) AB (iv) O

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

Number of defective parts	Days
0	50
1	32
2	22
3	18
4	12
5	12
6	10
7	10
8	10
9	8
10	6
11	6
12	2
13	2

Determine the probability that tomorrow's output will have

(i) no defective part

(ii) atleast one defective part

(iii) not more than 5 defective parts

(iv) more than 13 defective parts.

Q.12 Three coins are tossed simultaneously 100 times with the following frequencies of different outcomes.

Outcome	No head	One head	Two heads	Three heads
Frequency	20	40	33	07

Find the probability of getting (i) No head (ii) Two heads.

Q.13 A bag contains 6 black, 7 red and 2 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is

(i) red (ii) black or white (iii) no black

Q.14 A die is thrown 400 times, the frequency of the outcomes of the events 1, 2, 3, 4, 5 and 6 are noted in the table given below :

Outcome	1	2	3	4	5	6
Frequency	75	60	65	70	68	62

Find the probability of occurrence of

(i) an odd number

(ii) a prime number

Q.15 A coin is tossed 1000 times, if the probabiltiy of getting a tail is 3/8, how many times head is obtained ?

ANSWER KEY

1. (i) 0.14, (ii) 0.56, (iii) 0.3, (iv) 0.86, (v) 0.7 **2.** (i) 0.8, (ii) 0.2, (iii) 0.4, (iv) 0.4

3. (i) 0.36, (ii) 0.12, (iii) 0.86, (iv) 0.48, (v) 0.52

4. (i) 0.1406, (ii) 0.5426, (iii) 0.3166, (iv) 0.6833, (v) 0.3166

5. 49/50 **6.** 1/5 **7.** (i) 0.2, (ii) 0.8

8. (i) 9/17, (ii) 7/17, (iii) 5/17, (iv) 15/17

9. (i) 29/2400, (ii) 29/120, (iii) 1/240, (iv) 1/96, (v) 1031/1200, (vi) 589/600

10. (i) 0.3, (ii) 0.2, (iii) 0.1, (iv) 0.4 **11.** (i) 1/4, (ii) 3/4, (iii) 0.73 (iv) 0 **12.** (i) 1/5, (ii) 33/100

13. (i) 7/15, (ii) 8/15, (iii) 3/5 **14.** (i) 13/25, (ii) 193/400 **15.** 625