PRACTICE PAPER

ICSE CLASS 10 – MATHEMATICS

Chapter 25 : Probability

(Statistics : Classical Probability)

Maximum Marks: 40 Time allowed: One and a half hours

1. *Answers to this Paper must be written on the paper provided separately.*
2. *You will not be allowed to write during the first 10 minutes. This time is to be spent in reading the question paper.*
3. ***The time given at the head of this Paper is the time allowed for writing the answers.***
4. *Attempt **all** questions from **Section A** and **any two** questions from **Section B**.*
5. ***All working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer.***
6. ***Omission of essential working will result in loss of marks.***
7. *The intended marks for questions or parts of questions are given in brackets [ ].*
8. *Give probabilities as fractions in their simplest form. Figures are for reference and are not drawn to scale. Take $\pi = 22/7$ wherever needed.*

Question 1

Choose the correct answers to the questions from the given options. [8]

(Do not copy the question, write the correct answers only.)

(i) A card is drawn at random from a well-shuffled pack of 52 cards. The probability that it is a king of red colour is:

(a) 1/13
(b) 1/26
(c) 1/52
(d) 1/4

(ii) If the probability of an event E is 0.37, the probability of 'not E' is:

(a) 0.37
(b) 0.73
(c) 0.63
(d) 1.37

(iii) Two dice are thrown together. The probability that the sum of the numbers is 8 is:

(a) 5/36
(b) 1/6
(c) 1/9
(d) 7/36

(iv) Which of the following cannot be the probability of an event?

(a) 0.05
(b) 17/20
(c) 0
(d) 1.2

(v) Three coins are tossed together. The probability of getting exactly one tail is:

(a) 1/8
(b) 1/2
(c) 3/8
(d) 7/8

(vi) A bag contains 4 white balls and some black balls. If the probability of drawing a white ball is 1/3, the number of black balls is:

(a) 6
(b) 8
(c) 12
(d) 4

(vii) **Assertion (A):** When a die is thrown, the probability of getting a number less than 7 is 1.

Reason (R): An event which is certain to happen has probability 1.

(a) (A) is true and (R) is false.
(b) (A) is false and (R) is true.
(c) Both (A) and (R) are true, and (R) is the correct explanation for (A).
(d) Both (A) and (R) are true, but (R) is not the correct explanation for (A).

(viii) **Assertion (A):** If P(E) = 0.35, then P(not E) = 0.35.

Reason (R): For any event E, P(E) + P(not E) = 1.

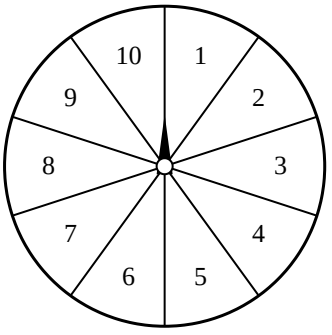
(a) (A) is true and (R) is false.
(b) (A) is false and (R) is true.
(c) Both (A) and (R) are true, and (R) is the correct explanation for (A).
(d) Both (A) and (R) are true, but (R) is not the correct explanation for (A).

Question 2

(i) Three coins are tossed together. Find the probability of getting (a) exactly two heads (b) at least one tail. [4]

(ii) A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability that it is (a) a king or a heart (b) neither a face card nor a spade. [4]

(iii) A spinner has 10 equal sectors numbered 1 to 10 (see figure). The pointer is spun and comes to rest on one sector; all sectors are equally likely. Find the probability that it rests on (a) a multiple of 3 (b) a prime number. [4]



SECTION B (20 Marks)

*(Attempt **any two** questions from this Section.)*

Question 3

Two dice are thrown together. The table shows the sum of the numbers on the two dice for every possible outcome; the first column shows the number on the first die and the first row the number on the second die (see figure).

	1	**2**	**3**	**4**	**5**	**6**
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

(i) Find the probability that the sum is a multiple of 4. [3]

(ii) Find the probability that the sum is a prime number. [3]

(iii) Find the probability that the sum is (a) greater than 9 (b) less than 5 or greater than 10. [4]

Question 4

The figure shows the calendar of a month of 31 days. A date is chosen at random from this month.

CALENDAR

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

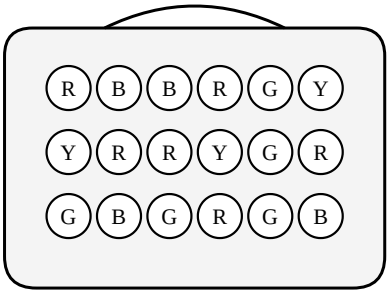
(i) Find the probability that the date falls on a Friday. [3]

(ii) Find the probability that the date falls on a Saturday or a Sunday. [3]

(iii) Find the probability that the date is (a) a prime number (b) a Monday and a multiple of 3. [4]

Question 5

The figure shows the balls in a bag. The balls are identical except for their colours: R (red), B (blue), G (green) and Y (yellow). A ball is drawn at random from the bag.



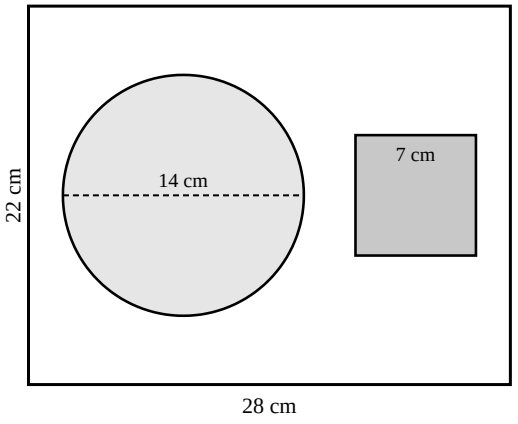
(i) Find the probability that the ball drawn is blue. [3]

(ii) Find the probability that the ball drawn is neither red nor blue. [3]

(iii) How many more yellow balls must be added to the bag so that the probability of drawing a yellow ball becomes 1/4? [4]

Question 6

A rectangular board is 28 cm long and 22 cm wide. A circle of diameter 14 cm and a square of side 7 cm are marked on it, as shown in the figure. A small bead is dropped on the board and lands on the board only. Take π = 22/7.



(i) Find the probability that the bead lands inside the circle. [3]

(ii) Find the probability that the bead lands inside the square. [3]

(iii) Find the probability that the bead lands (a) inside the circle or the square (b) outside both. [4]

— End of Question Paper —