Probability

1. During the lockdown period,many families got bored of watching TV all the time.Out of these families, one family of 6 members decided to play a card game.17 cards numbered 1,2,3,4,..,17 are put in a box and mixed thoroughly.One card is drawn by one member at random and other family members bet for the chances of drawing the number either prime,odd or even etc.

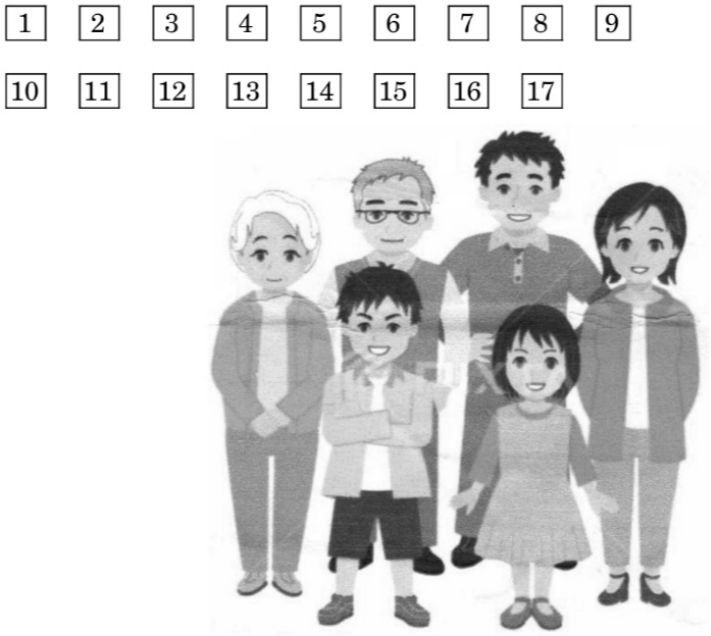

Figure 1: Figure

Based on the above,answer the following questions:

(i) The first member of the family draws a card at random and another member bets that it is an even prime number.What is the probability of his winning the bet?

(A) $\frac{2}{17}$
(B) $\frac{3}{17}$
(C) $\frac{1}{17}$
(D) $\frac{4}{17}$

(ii) The second member of the family draws a card at random and some other member bets that it is an even number. What is the probability of his winning the bet ?

(A) $\frac{7}{17}$
(B) $\frac{8}{17}$
(C) $\frac{9}{17}$
(D) $\frac{10}{17}$

(iii) What is the probability that the number on the card drawn at random is divisible by 5 ?

(A) $\frac{5}{17}$
(B) $\frac{4}{17}$
(C) $\frac{3}{17}$
(D) $\frac{2}{17}$

(iv) What is the probability that the number on the card drawn at random is a multiple of 3 ?

(A) $\frac{5}{17}$
(B) $\frac{6}{17}$
(C) $\frac{7}{17}$
(D) $\frac{8}{17}$

2. (a) Two different coins are tossed simultaneously. Write all the possible outcomes.

   (b) A die is thrown once. Write the probability of getting a number less than 7.

3. If the probability of occurrence of event E,Pr (E)=0.99, what is the probability of non-occurrence of the event E,Pr $(notE)$?

4. (a) A bag contains 5 white balls and 7 red balls.A ball is drawn at random from the bag.What is the probability that it is either a white or a red ball?

   (b) Two coins are tossed together once.What is the probability of getting at least one head?

5. Cards marked with numbers 1,2,3,4, ..., 100 are placed in a bag and mixed together throughly. A card is randomly drawn from the bag.Find the probability that the numbers on the card is

   (i) an even number,

   (ii) a 2-digit number,

   (iii) a perfect square.

6. (a) How many outcomes are possible when three dice are thrown together?

(b) if $\Pr(E)$=0.015, then find $\Pr(notE)$.

7. During summer break, Harish wanted to play with his friends but it was too hot outside, so he decided to play some indoor game with his friends. He collects 20 identical Icards and writes the numbers 1 to 20 on them (one number on one card). He puts them in a box. He and his friends make a bet for the chances of drawing various cards out of the box. Ench was given a chance to tell the probability of picking one card out of the box.

   Based on the above,answer the following questions:

   (i) The probability that the number on the card drawn is an odd prime number,is

   (A) $\frac{3}{5}$
   (B) $\frac{2}{5}$
   (C) $\frac{9}{20}$
   (D) $\frac{7}{20}$

   (ii) The probability that the number on the card drawn is a composite number is

   (A) $\frac{11}{20}$
   (B) $\frac{3}{5}$
   (C) $\frac{4}{5}$
   (D) $\frac{1}{2}$

   (iii) The probability that the number on the card drawn is a multiple of 3,6 and 9 is

   (A) $\frac{1}{20}$
   (B) $\frac{1}{20}$
   (C) $\frac{3}{20}$
   (D) 0

   (iv) The probability that the number on the card drawn is a multiple of 3 and 7is

   (A) $\frac{3}{10}$
   (B) $\frac{1}{10}$
   (C) 0
   (D) $\frac{2}{5}$

   (v) If all cards having odd numbers written on them are removed from the box and then one card is drawn from the remaining cards, the probability of getting a card having a prime number is

   (A) $\frac{1}{20}$
   (B) $\frac{1}{10}$
   (C) 0

(D) $\frac{1}{5}$

8. (a) In a single throw of a pair of dice,find the probability that both dice have the same number.

   (b) A card is drawn from a well-shuffled pack of 52 cards.Find the probability that it is not an ace.