Estd.1982

Note:-
1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Q.1 A letter is chosen from the letters in the word 'ENTERTAINMENT'. The probability of choosing **(1)** a consonant is _____

A) $\frac{5}{8}$ B) $\frac{8}{13}$

C) $\frac{13}{8}$ D) $\frac{2}{13}$

n(S) = 13
Let A be an event of choosing consonant.
There are 8 consonants
n(A) = 8
$$p(A) = \frac{n(A)}{n(S)} = \frac{8}{13}$$
Ans : B

Q.2 The probability of getting 7 in rolling a fair dice is _____ **(1)**

A) 1 B) 0

C) 6 D) 8

Getting 7 in rolling a fair dice is not possible since it is numbered from 1 to 6.
Probability of an impossible event is zero.
Ans : B

Q.3 A two-digit number is formed with the digits 3, 5 and 7(repeatitions of digits is not allowed) **(1)** The probabiltity that the number 80 formed is greater than 57 is ___

A) $\frac{1}{5}$ B) $\frac{1}{2}$

C) $\frac{2}{6}$ D) $\frac{2}{4}$

Two-digit numbers are formed with digit 3, 5, 7
S = {35, 37, 53, 57, 73, 75}
n(S) = 6
Let A be the event of getting which is greater than 57 is
A = { 73, 75}
n(A) = 2
$$P(A) = \frac{n(A)}{n(S)} = \frac{2}{6}$$
Ans : C

Q.4 The probability of choosing a vowel from the set of English alphabets is _____ **(1)**

A) $\frac{3}{26}$ B) $\frac{5}{26}$

C) $\frac{2}{26}$ D) $\frac{2}{13}$

Let S be the total number of English alphabets which are 26.
n(S) = 26
Let A be the event of choosing a vowel which are 5.
n(A) = 5
$$P(A) = \frac{n(A)}{n(S)} = \frac{5}{26}$$
Ans : B

Q.5 There are 20 boys and 15 girls in a class of 35 student. A student is chosen at random. The probability od choosing a boy is _____ **(1)**

A) $\frac{4}{7}$ B) $\frac{7}{4}$

C) $\frac{5}{4}$ D) $\frac{4}{5}$

Let S be the total number of student in class.
n(S) = 35
Let A be the event of selecting a boy.
n(A) = 20
$$P(A) = \frac{n(A)}{n(S)} = \frac{20}{35} = \frac{4}{7}$$
Ans : A

Q.6 The probability of getting a black king from a pack of 52 cards is _____ **(1)**

A) $\frac{4}{13}$ B) $\frac{13}{52}$

C) $\frac{2}{52}$ D) $\frac{1}{5}$

Let S be the sample space. Total number of cards 52.
n(S) = 52
Let A be the event of getting a black king which are 2
n(A) = 2
$$P(A) = \frac{n(A)}{n(S)} = \frac{2}{52}$$

Ans : C

Q.7 There are 7 rotten apples in a basket containing 35 apples. the probability of getting good apple is _____ **(1)**

A) $\frac{7}{28}$ B) $\frac{21}{35}$

C) $\frac{35}{28}$ D) $\frac{28}{35}$

Number of apples = 35
Number of roten apples = 7
Number of good apples = 35 - 7 = 28
Let S be the event of number of and A be the event of selecting a good apple.
n(S) = 35, n(A) = 28
$$P(A) = \frac{n(A)}{n(S)} = \frac{28}{35}$$
Ans : D

Q.8 An integer is chosen from the first twenty natural number. The probabilty of getting a prime number _____ **(1)**

A) $\frac{8}{20}$ B) $\frac{9}{20}$

C) $\frac{15}{20}$ D) $\frac{10}{20}$

Let A be the event of getting a prime number.

A = { 2, 3, 5, 7, 11, 13, 17, 19)

n(A) = 8

$$P(A) = \frac{n(A)}{n(S)} = \frac{8}{20}$$

Ans : A

Q.9 Which number cannot represent a probabilty? **(1)**

A) $\frac{2}{3}$ B) 1.5

C) 15 % D) 0.7

Ans : B

Q.10 If n(A) = 2, $p(A) = \frac{1}{5}$,, then n(S) = ? **(1)**

A) 10 B) $\frac{5}{2}$

C) $\frac{2}{5}$ D) $\frac{1}{3}$

$$P(A) = \frac{n(A)}{n(S)}$$
$$\frac{1}{5} = \frac{2}{n(S)}$$
$$\therefore \quad n(S) = 2 \times 5 = 10$$

Ans : A

Q.11 There are 40 cards in a bag. Each bears a number from 1 to 40. One card is drawn at random. **(1)** What is the probability that the card bears a number which is a multiple of 5 ?

A) $\frac{1}{5}$ B) $\frac{3}{5}$

C) $\frac{4}{5}$ D) $\frac{1}{3}$

n(S) = 40

A = { 5, 10, 15, 20, 25, 30, 35, 40}

n(A) = 8

$$\therefore \quad P(A) = \frac{n(A)}{n(S)} = \frac{8}{40} = \frac{1}{5}$$

Ans : A

Q.12 What is the probability of the event that a number chosen from 1 to 100 is a prime number? **(1)**

A) $\frac{1}{5}$ B) $\frac{6}{25}$

C) $\frac{1}{4}$ D) $\frac{13}{50}$

A = There are 25 prime number.

n(A) = 25

Sample space n(S) = 100

$$P(A) = \frac{n(A)}{n(S)} = \frac{25}{100} = \frac{1}{4}$$

Ans : C

Q.13 A die is rolled. What is the probability that the number appearing on upper face is less than 3 **(1)** ?

A) $\frac{1}{6}$ B) $\frac{1}{3}$

C) $\frac{1}{2}$ D) 0

Sample space = {1, 2, 3, 4, 5, 6}

∴   n(S) = 6

A = No. appearing on upper face is < 3

∴   A = {1, 2}

∴ n(A) = 2

∴ $P(A) = \frac{n(A)}{n(S)} = \frac{2}{6} = \frac{1}{3}$

Ans : B

Q.14   If A is an event of a sample space S then P(A) = _____   **(1)**

A) $\frac{n(A)}{n(S)}$ B) $\frac{1}{n(S)}$

C) $\frac{n(S)}{n(A)}$ D) $\frac{1}{n(A)}$

Ans : A

Q.15   Probability of an impossible event is _____   **(1)**

A) $\frac{1}{2}$ B) 1

C) 0   D) –1

Impossible event is an event that is non existing. There is no possibility that it can happen. Hence the probability of
occurrence is 0.

Ans : C

Q.16   Probability of a uncertain event is _____   **(1)**

A) –1   B) 0

C) $\frac{1}{2}$ D) 1

Ans : B

Q.17   A subset of a sample space is called _____   **(1)**

A) an event   B) outcome

C) Probability   D) random experiment

Ans : A

Q.18   When an unbiased dice is thrown n(S) is _____   **(1)**

A) 2   B) 4

C) 6   D) 8

Unbiased dice is thrown.

Sample space = {1, 2, 3, 4, 5, 6}

∴   n(A) = 6

Ans : C

Q.19   A die is thrown. If A is the event of getting a score on the upper surface which is divisible by 5   **(1)**
then A is _____

A) a certain event   B) an impossible event

C) an elementary event   D) mutually exclusive event.

Ans : C

Q.20 A bag contains 3 red balls, 4 blue balls and 5 green balls. What is the probability that a ball **(1)**
picked up at random is not a blue ball?

A) $\frac{1}{4}$ B) $\frac{1}{3}$

C) $\frac{2}{3}$ D) $\frac{3}{4}$

Sample space = $\{R_1, R_2, R_3, B_1, B_2, B_3, B_4, G_1, G_2, G_3, G_4, G_5\}$

$\therefore$ n(S) = 12

A is the event that ball picked up random
is not a blue ball.

A = $\{R_1, R_2, R_3, G_1, G_2, G_3, G_4, G_5\}$

$\therefore$ n(A) = 8

$P(A) = \frac{n(A)}{n(S)} = \frac{8}{12} = \frac{2}{3}$

Ans : C

Q.21 Two dice are rolled simultaneously. A is an event that product of numbers on the uppermost **(1)**
face is 12 then P(A) = ?

A) $\frac{1}{9}$ B) $\frac{1}{3}$

C) $\frac{2}{9}$ D) $\frac{2}{3}$

Sample Space (S) = { (1, 1), (1, 2), (1, 3), (1, 4) (1,5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6),
(3,1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6),
                     (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6),
(6, 1), (6, 2),(6, 3), (6, 4), (6, 5), (6, 6) }

$\therefore$ n(S) = 36

A is the event that product of numbers on the uppermost face is 12

A = {(2, 6), (3, 4), (4, 3), (6, 2)}

$P(A) = \frac{n(A)}{n(S)} = \frac{4}{36} = \frac{1}{9}$

Ans : A

Q.22 An unbiased die is thrown. A is the event that a prime number comes up, then A = ? **(1)**

A) {1, 2, 3, 5}   B) {2, 3, 5}

C) {1, 3, 5}   D) {1, 2, 3}

A die is thrown.

Sample space = { 1, 2, 3, 4, 5, 6}

$\therefore$ n(S) = 6

A is the event getting prime number.

A = {2, 3, 5}

$\therefore$ n(A) = 3

Ans : B

Q.23 2 coins are tossed. A is the event of getting at the most one head then A = ? **(1)**

A) {HH, HT, TH, TT}   B) [HH, HT, TH}

C) {HT, TH, TT}   D) {HT, TH}

Two coin are tossed.
Sample space = { HH, HT, TH, TT}
∴ n(S) = 4
A is event getting atmost one head.
A = {HT, TH, TT}
Ans : C

Q.24 A card is drawn at random from a well-shuffled pack of 52 cards. The probability that the card drawn is a diamond is _____ **(1)**

A) $\frac{1}{52}$ B) $\frac{13}{52}$

C) $\frac{26}{52}$ D) $\frac{39}{52}$

A card is drawn at random from a pack of
well shuffled 52 playing cards.
∴ n(S) = 52
Let A is the event getting diamond.
A = 13 Diamonds cards.   ∴ n(A) = 13
$$P(A) = \frac{n(A)}{n(S)} = \frac{13}{52}$$
Ans : B

Q.25 A card is drawn from a pack of cards. The probability of getting a black card is _____ **(1)**

A) $\frac{1}{52}$ B) $\frac{13}{52}$

C) $\frac{26}{52}$ D) $\frac{39}{52}$

A card is drawn at random from a pack of well shuffled 52 playing cards.
∴ n(S) = 52
Let A is the event getting black cards.
A = 13 club cards + 13 spade cards .
 = 26 black cards
$$P(A) = \frac{n(A)}{n(S)} = \frac{26}{52}$$
Ans : C

Q.26 2 digit numbers are formed from the digits 0, 1, 2, 3, 4 where digits are not repeated. B is the event that the number formed is greater than 40, then n(B) is _____ **(1)**

A) 5   B) 4

C) 3   D) 2

A two digit number is formed from digits
0, 1, 2, 3, 4   [Repetition is not allowed]
Sample space = {10, 12, 13, 14, 20, 21, 23, 24, 30, 31, 32, 34, 40, 41, 42, 43}
∴ n(S) = 16
B is the event that getting number is greater
than 40
B = { 41, 42, 43, }   ∴ n(B) = 3
Ans : C

Q.27 A box contains 20 cards, numbered from 1 to 20. One card is drawn at random. B is the event that the card drawn bears a number which is a perfect square, then n(B) is _____ **(1)**

A) 3   B) 4

C) 5   D) 6

A box contain 20 tickets.
Sample space = 20
∴   n(S) = 20
B is the event getting perfect square.
B = {1, 4, 9, 16}   ∴ n(B) = 4
Ans : B

Q.28 A die is thrown, the probability of getting a perfect square is _____   **(1)**

A) $\frac{1}{2}$ B) $\frac{1}{3}$

C) 1   D) $\frac{5}{6}$

A die is thrown.
Sample space = {1, 2, 3, 4, 5, 6}
∴   n(S) = 6
A is the event getting perfect square
A = {1, 4}   ∴   n(A) = 2
$$P(A) = \frac{n(A)}{n(S)} = \frac{2}{6} = \frac{1}{3}$$
Ans : B

Q.29 Two coins are tossed then the probability that at least one head turns up is _____   **(1)**

A) 0   B) $\frac{1}{4}$

C) $\frac{3}{4}$ D) 1

Two coins are tossed.
Sample space = {HH, HT, TH, TT}
∴ n(S) = 4
A is the event that atleast one head.
A = { HH, HT, TH}   ∴ n(A) = 3
$$P(A) = \frac{n(A)}{n(S)} = \frac{3}{4}$$
Ans : C

Q.30 A coin is tossed and a die is thrown simultaneously. A is an event of getting a head and an   **(1)**
event number then n(A) is _____

A) 2   B) 3
C) 4   D) 6

Coin and die tossed simultaneously
Sample space = {H_1, H_2, H_3, H_4, H_5, H_6, T_1, T_2, T_3, T_4, T_5, T_6}

∴ n(S) = 12
A is the event getting head & even number.
A = { H_2, H_4, H_6}

∴   n(A) = 3
Ans : B

Q.31 A bag contains 3 red, 3 white and 3 green balls. One ball is drawn at random. E is the event   **(1)**
that the ball drawn is red then n(E) is _____

A) 1   B) 3
C) 6   D) 9

Sample space = {R_1, R_2, R_3, W_1, W_2, W_3, G_1, G_2, G_3}

n(S) = 9

E is the event that ball drawn is red.

E = {R_1, R_2, R_3} ∴ n(E) = 3

Ans : B

Q.32 Two dice are thrown simultaneously. E is the event that sum of numbers on the uppermost **(1)** face is at least 10 then n(E) is _____

A) 2   B) 4

C) 6   D) 8

Two dice are thrown simultaneously

∴ Sample Space (S) = { (1, 1), (1, 2), (1, 3), (1, 4) (1,5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3,1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6),
(4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6) }

∴ n(S) = 36

E is the event that sum of no. on the uppermost
face is atleast 10

E = { (4, 6), (5, 5), (5, 6), (6, 4), (6, 5), (6, 6) }

∴ n(E) = 6

Ans : C

Q.33 3 coins are tossed simultaneously A is the event of getting no head then P(A) is _____ **(1)**

A) $\frac{1}{8}$ B) $\frac{3}{8}$

C) $\frac{5}{8}$ D) $\frac{7}{8}$

Three coins tossed simultaneously

Sample space = {HHH, HHT, HTH, HTT, THH, THT, TTH, TTT}

∴ n(S) = 8

A is the event getting no head

A = {TTT} ∴ n(A) = 1

∴ $P(A) = \frac{n(A)}{n(S)} = \frac{1}{8}$

Ans : A

Q.34 Number of face cards in a pack of cards is _____ **(1)**

A) 106   B) 12

C) 14   D) 16

Face Cards = 4 Kings + 4 Queens + 4 Jacks
= 12

Ans : B

Q.35 When 3 coins are tossed simultaneously the number of elements in the sample space is **(1)** _____

A) 2   B) 4

C) 6   D) 8

When 3 coin tossed simultaneously
Sample space = {HHH, HHT, HTH, HTT, THH, THT, TTH, TTT}
∴ n(S) = 8
Ans : D