Model Question paper

Probability 2

11th Standard

Maths

Reg.No. : | | | | | | |

I. Answer all the questions.

II. Use blue pen only.

Time : 02:00:00 Hrs

Total Marks : 55

Part - A

5 x 1 = 5

1) A and B are two events such that P(A) ≠ 0, P(B) ≠ 0. If A and B are mutually exclusive, then.....

(a) P(A ∩ B) = P(A) P(B) (b) P(A ∩ B) ≠ P(A). P(B) (c) P(A/B) = P(A) (d) P(B/A) = P(A)

2) A problem is given to 3 students A, B and C whose chances of solving it are $\frac{1}{3}, \frac{2}{5}$ and $\frac{1}{4}$ then probability to solve is .....

(a) 4/5 (b) 3/10 (c) 7/10 (d) 1/30

3) Given P(A) = 0.50, P(B) = 0.40 and P(A ∩ B) = 0.20 then P(A/$\bar{B}$)

(a) 0.50 (b) 0.40 (c) 0.70 (d) 0.10

4) An urn contains 10 white and 10 black balls. While another urn contains 5 white and 10 black balls. One urn is chosen at random and a ball is drawn from it. The probability that it is white, is.....

(a) $\frac{5}{11}$ (b) $\frac{5}{12}$ (c) $\frac{3}{7}$ (d) $\frac{4}{7}$

5) Probability of an impossible event is

(a) 1 (b) 0 (c) 2 (d) Φ

Part - B

5 x 2 = 10

6) In a box containing 10 bulbs, 2 are defective. What is the probability that among 5 bulbs chosen at random, none is defective.

7) Bag A contains 5 white, 6 black balls and bag B contains 4 white,5 black balls. One bag is selected at random and one ball is drawn from it. Find the probability that it is white.

8) There are two identical boxes containing respectively 5 white and 3 red balls, 4 white and 6 red balls. A box is chosen at random and a ball is drawn from it find the probability that the ball is white?

9) In a factory, Machine-I produces 45% of the output and Machine-II produces 55% of the output. On the average 10% items produced by I and 5% of the items produced by II are defective. An item is drawn at random from a day's output. Find the probability that it is a defective item.

10) Three urns are given each containing red and white chips as given below.Urn I : 6 red 4 white ; Urn II : 3 red 5 white ; Urn III : 4 red 6 white An urn is chosen at random and a chip is drawn from the urn.If the chip is white find the probability that it is from urn II.

Part - C

5 x 3 = 15

11) If A and B are mutually exclusive events P(A)=0.28, P(B)=0.44, find $(A \cap \bar{B})$

12) Given P(A)=0.5,P(B)=0.6 and $(A \cap B)$=0.24.. $P(A \cap \bar{B})$

13) The probability that a new ship will get an award for its design is 0.25, the probability that it will get an award for the effective use of materials is 0.35, and that it will get both awards is 0.15. What is the probability, that

(i)it will get at least one of the two awards

(ii) it will get only one of the awards

14) The probability of the impossible event is zero i.e. $P(\Phi) = 0$

15) If A and B are any two events and $\bar{B}$ is the complimentary event of B $P(A \cap \bar{\bar{B}}) = P(A) - P(A \cap B)$

Part - D

5 x 5 = 25

16) If A and B are two independent events such that P(A ∪ B) = 0.6, P(A) = 0.2 find P(B)

17) If an experiment has exactly the three possible mutually exclusive outcomes A, B and C, check in each case whether the assignment of probability is permissible

P(A) = 0.5 , P(B) = 0.6 , P(C) = − 0.1

18) A factory has two machines I and II. Machine I produces 30% of items of the output and Machine II produces 70% of the items. Further 3% of items produced by Machine I are defective and 4% produced by Machine II are defective. If an item is drawn at random, find the probability that it is a defective item.

19) A husband and wife appear in an interview for two vacancies in the same post. The probability of husbands' selection is 1/6 and that of wife's selection is 1/5. What is the probability that

20) Two thirds of students in a class are boys and rest girls. It is known that the probability of a girl getting a first class is 0.75 and that of a boys is 0.70. Find the probability that a student chosen at random will get first class marks.

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