MATHS

BOOKS - NTA MOCK TESTS

PROBABILITY TEST

Multiple Choice Questions

1. If A & B ae two independent events then the value of $P(A \cup B) . P(A' \cap B')$ satisfies

(where C is an event defined that exactly one of A & B occurs).

A. $P(A \cup B). P(A' \cap B') \leq p(C)$

B. $P(A \cup B). P(A'' \cap B') \leq P(B)$

C. $P(A \cup B). P(A' \cap B) \leq P(A)$

D. None of these

Answer: A

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2. One Indian and four American men and their wives are to be seated randomly around a circular table. Then the conditional probability that Indian manis seated adjacted to his wife given each American man is seated adjacent to his wife

A. $\dfrac{1}{5}$

B. $\dfrac{1}{3}$

C. $\dfrac{2}{5}$

D. $\dfrac{1}{2}$

Answer: C

3. Let E^c denote the complement of an event E. Let E,F, G be pairwise independent events with $P(G) > 0$ and $P(E \cap F \cap G) = 0$. Then $P(E^c \cap F^c)G)$ equals

A. $P(E) - P(F^c)$

B. $P(E^c) - P(F)$

C. $P(E^c) + P(F^c)$

D. $P(E^c) - P(F^c)$

Answer: B

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4. There identical dice are rolled. The probability that the same number will appear on each of them is

A. $\dfrac{3}{28}$

B. $\dfrac{1}{18}$

C. $\dfrac{1}{36}$

D. $\dfrac{1}{6}$

Answer: C

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5. Four fair dice D_1, D_2, D_3 & D_4 each having six faces numbered 1,2,3,4,5 & 6 are rolled simultaneously. The probability that D_4 shows a number appearing on one of D_1, D_2 & D_3 is

A. $\dfrac{91}{216}$

B. $\dfrac{108}{216}$

C. $\dfrac{125}{216}$

D. $\dfrac{127}{216}$

Answer: A

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6. A car manufactuing company has two plants. Plant P manufactues 70% of cars and plant Q 30%. At plant P, 80% of the cars are

rated as of standard quality and at pant Q, 90% of the cars are rated as of standard quality. A car is chosen at random and is found to be of standard quality.The change that it ha scome from plant P is .

A. $\dfrac{56}{83}$

B. $\dfrac{52}{83}$

C. $\dfrac{50}{83}$

D. $\dfrac{55}{83}$

Answer: A

7. Four persons independently solve a certain problem correctly with probabilities $\dfrac{1}{2}, \dfrac{3}{4}, \dfrac{1}{4}, \dfrac{1}{8}$. Then the probability that the problem is solved correctly hy at least one of them is

A. $\dfrac{235}{256}$

B. $\dfrac{21}{256}$

C. $\dfrac{3}{256}$

D. $\dfrac{253}{256}$

Answer: A

8. There are 4 white and 3 black balls in a box. In another box there are 3 white and 4 black balls. An unbiased dice is rolled. If it shows a number less than or equal to 3 then a ball is drawn from the first box but if it shows a number more than 3 then a ball is drawn from the first box but if it shows a number more than 3 then a ball is drawn from the second

box. I the ball dawn is black then the probability that the ball was drawn from the first box is

A. $\dfrac{1}{2}$

B. $\dfrac{6}{7}$

C. $\dfrac{4}{7}$

D. $\dfrac{3}{7}$

Answer: D

9. An unbiased die is rolled until a number greater than 4 appears. The probability that an even number o trials are needed is

A. $\dfrac{1}{2}$

B. $\dfrac{2}{5}$

C. $\dfrac{1}{5}$

D. $\dfrac{2}{3}$

Answer: B

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10. The probability that A speaks truth is $\dfrac{4}{5}$ while this probability for B is $\dfrac{3}{4}$. The probability that they contradict each other when asked to speak on a fact, is

A. $\dfrac{3}{20}$

B. $\dfrac{1}{5}$

C. $\dfrac{7}{20}$

D. $\dfrac{4}{5}$

Answer: C

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11. A and B each toss three coins. The probability that both get the same number of heads, is

A. $\dfrac{1}{9}$

B. $\dfrac{3}{16}$

C. $\dfrac{5}{16}$

D. $\dfrac{3}{8}$

Answer: C

12. A letter is aken out at random from ASSISTANT and another is taken out from STATISTICS. The probability that they are the same letters, is

A. $\dfrac{1}{45}$

B. $\dfrac{19}{90}$

C. $\dfrac{13}{90}$

D. None of these

Answer: B

13. The probability that a teacher will give an unannounced test during any class meetig is $\frac{1}{5}$. If a student is absent twice, then the probability that he wil miss atleast one test is

A. $\dfrac{7}{25}$

B. $\dfrac{9}{25}$

C. $\dfrac{16}{25}$

D. $\dfrac{24}{25}$

Answer: B

14. Suppose X has a binomial distribution $B\left(6, \dfrac{1}{2}\right)$ then which of the outcome is most likely?

A. X=0 and X=6

B. X=3

C. X=0

D. X=6

Answer: B

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15. A complete cycle of a traffic light takes $60s$. During each cycle the light is green for 25 s, yelow for 5s and red for 30s. At a randomly chosen time, the probability that the light will not be green is

A. $\dfrac{1}{3}$

B. $\dfrac{1}{4}$

C. $\dfrac{4}{17}$

D. $\dfrac{7}{12}$

Answer: D

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16. Probability of a 3 digit number having all the digits same is

A. $\dfrac{1}{100}$

B. $\dfrac{3}{100}$

C. $\dfrac{7}{100}$

D. None of these

Answer: A

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17. The probability that the 6th day of a randomly chosen month of any year is a Sunday is

A. $\dfrac{1}{12}$

B. $\dfrac{1}{17}$

C. $\dfrac{1}{7}$

D. None of these

Answer: D

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18. A box contains 9 tickets numbered 1 to 9 inclusive. If 3 tickets are drawn from the box without replacement. The pobability that they

ar altenatively either {odd, even, odd} or {even,odd, even} is

A. $\dfrac{5}{17}$

B. $\dfrac{7}{14}$

C. $\dfrac{5}{16}$

D. $\dfrac{5}{18}$

Answer: D

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19. A random variable X has the probability distribution .

X	P(X)
1	0.15
2	0.23
3	0.12
4	0.10
5	0.20
6	0.08
7	0.07
8	0.05

For the events E={X is a prime number } and $F = \{X < 4\}$, then $P(E \cup F)$ is

A. 0.77

B. 0.87

C. 0.35

D. 0.50

Answer: A

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20. Two cards are drawn one by one from a pack of cards. The probability of getting first card an ace and second is a face card is

(before drawing second card first card is not placed again in the pack)

A. $\dfrac{1}{26}$

B. $\dfrac{5}{52}$

C. $\dfrac{4}{221}$

D. $\dfrac{4}{13}$

Answer: C

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21. A box contains tickets numbered 1 to N. n tickets are drawn from the box with repalcement. The probability that the largest number on the tickets is k, is

A. $\left(\dfrac{k}{N}\right)^n$

B. $\left(\dfrac{k-1}{N}\right)^n$

C. 0

D. None of these

Answer: D

22. Three critics review a book Oods in favour of the book are 5:2,4:3 & 3:4 respectively for the three critics. The probability that majority are in favour of the book is

A. $\dfrac{35}{49}$

B. $\dfrac{125}{343}$

C. $\dfrac{164}{343}$

D. $\dfrac{209}{343}$

Answer: D

23. The probability of getting at least one head when we toss 3 unbiased coins is

A. $\dfrac{3}{8}$

B. $\dfrac{5}{8}$

C. $\dfrac{7}{8}$

D. $\dfrac{1}{8}$

Answer: C

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24. Two uniform dice marked 1 to 6 are thrown together The probability that the score on the two dice is at least seven is

A. $\dfrac{5}{12}$

B. $\dfrac{7}{12}$

C. $\dfrac{3}{4}$

D. $\dfrac{1}{2}$

Answer: B

25. Three integers are chosen at random without replacement from the first 20 positive integers. The pobability that their product is odd is

A. $\dfrac{3}{19}$

B. $\dfrac{2}{19}$

C. $\dfrac{1}{19}$

D. $\dfrac{4}{19}$

Answer: B

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26. A computer producing factor has only two plants T_1 and T_2. Plant T_1 produces 20% and plant T_2 produces 80% of the total computers produced. 7% of computers produced in the factory turn out to be defective. It is known that

P(computer turns out to be defective given that it is produced in plant T_1)

=10P (computer turns out to be defective given that it is produced in plant T_2)

Where P(E) denotes the probability of an event E. A computer produced inthe factory is randomly selected and it does not turn out to be defective. Then the probability that it is produced in plant T_2 is

A. $\dfrac{36}{73}$

B. $\dfrac{47}{79}$

C. $\dfrac{78}{93}$

D. $\dfrac{75}{83}$

Answer: C

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27. A candidate takes three tests in succession and the probability of passing the first test is p. The probability of passing each secceeding test is p or $\dfrac{p}{2}$ according as he passes or fails in the preceding one. The candidate is

selected, if he passes atleast two tests. The probability that the candidate is selected is

A. $p^2(2 - p)$

B. $p(2 - p)$

C. $p + p^2 + p^3$

D. $p^2(1 - p)$

Answer: A

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28. If A, B and C are mutually exclusive and exhaustive events of a random experiment such that $P(B) = \dfrac{3}{2}P(A)$ and $P(C) = \dfrac{1}{2}P(B)$, then $P(A \cup C)$ equals to

A. $\dfrac{10}{13}$

B. $\dfrac{3}{13}$

C. $\dfrac{6}{13}$

D. $\dfrac{7}{13}$

Answer: D

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29. If X is a binomial variate with the range $\{0, 1, 2, 3, 4, 5, 6\}$ and $p(X = 2) = 4p(X = 4)$ then the paramete p of X is

A. $\dfrac{1}{2}$

B. $\dfrac{1}{3}$

C. $\dfrac{1}{4}$

D. $\dfrac{1}{6}$

Answer: B

30. If two different numbes are taken from the set {0,1,2,3,........,10}, then the probability that their sum as well as absolute difference are both multiple of 4, is:

A. $\dfrac{6}{55}$

B. $\dfrac{12}{55}$

C. $\dfrac{14}{45}$

D. $\dfrac{7}{55}$

Answer: A

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