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Question No. 1:

Suppose a fair die is thrown twice, then

(1) the probability that the sum of numbers of two dice is leas than or equal to 4 is;

(A) 0.1667
(B) 0.6667
(C) 0.8333
(D) 0.1389

(2) the probability that at least one of the die shows 4 is;

(A) 0.6667
(B) 0.3056
(C) 0.8333
(D) 0.1389

(3) the probability that the sum of two dice is 4 one of them shows 1;

(A) 0.0556
(B) 0.6667
(C) 0.8333
(D) 0.1389

(4) the event A={the sum of two dice is 4} and the event B={exactly one die shows 2}, then $P(B|A)$ equal to,

(A) 0.8333
(B) 0.6667
(C) 0.3333
(D) 0.1389

(5) the event A={the sum of two dice is 4} and the event B={exactly one die shows 2} are,

(A) Independent
(B) Dependent
(C) Disjoint
(D) None of these.

Question No. 2:

A man wants to paint his house in 3 colors. He can choose out of 6 colors. Then,

(6) the number of color settings he can make is,

(A) 216
(B) 20
(C) 120
(D) 10

(7) If he selected one color, then the number of color settings he can make is,

(A) 216
(B) 20
(C) 120
(D) 10

Question No. 3:

A random sample of 200 adults is classified according to sex and their level of education in the following table:

Education	***Male***	***Female***
Elementary	28	50
Secondary	38	45
College	22	17

If a person is selected at random from this group, then:

(8) the probability that he is a male is:

(A) 0.3182
(B) 0.44
(C) 0.66
(D) 88

(9) The probability that the person is male given that the person has a secondary education is:

(A) 0.4318
(B) 0.19
(C) 0.66
(D) 0.4578

(10) The probability that the person does not have a college degree given that the person is a female is:

(A) 0.8482
(B) 0.1518
(C) 0.475
(D) 0.085

Question No. 4:

Two brothers, Ed and Jim, are the owners and operators of a small restaurant. Ed and Jim alternate between the jobs of cooking and dish washing, so that at any time, the probability that Ed is washing the dishes is

0.50. Jim, the younger of the two brothers, is a bit clumsy. When Jim is washing the dishes, the probability that Jim breaks a dish he is washing is 0.40. Ed, on the other hand, is very careful and the probability that Ed breaks a dish he is washing is only 0.10.

(11) The probability that a dish will be broken is

(A) 0.667
(B) 0.25
(C) 0.8
(D) 0.5

(12) There is a broken dish in the kitchen of the restaurant. The probability that it was washed by Jim is;

(A) 0.667
(B) 0.25
(C) 0.8
(D) 0.5

(13) Suppose Ed and Jim want the probability of a broken dish to equal 0.20. then, the probability that Ed washes the dishes is,

(A) 0.667
(B) 0.25
(C) 0.8
(D) 0.5

Question No. 5:

(14)Two engines operate independently, if the probability that an engine will start is 0.4, and the probability that other engine will start is 0.6, then the probability that both will start is:

(A) 1
(B) 0.24
(C) 0.2
(D) 0.5

(15) If $P(B)=0.3$ and $P(A|B)=0.4$, then $P(A\cap B)$ equal to;

(A) 0.67
(B) 0.12
(C) 0.75
(D) 0.3

Question No. 6:

A random variable X takes the values 0, 1, 2. Assume that $E(X)=\frac{3}{2}$ and $\sigma=\frac{1}{2}$, then

(16) $E(X^2)=$

(A) 1/4
(B) 10/4
(C) 9/4
(D) 2

(17) $E(2X+3)=$

(A) 6
(B) 5
(C) 3
(D) 1/2

(18) $E(5X^2-2X)=$

(A) 50/4
(B) 19/2
(C) 41/3
(D) 1/3

(19) $Var(X+1)=$

(A) 1/4
(B) 3/4
(C) 1/4
(D) 5/2

(20) $Var(2-3X)=$

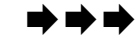
(A) 9/4
(B) 10/4
(C) 9/4
(D) 10/3

(21) $P(X=0)=$

(A) 1/4
(B) 1/2
(C) 1/3
(D) 0

(22) $P(0<X<2)=$

(A) 1/4
(B) 1/3
(C) 1/2
(D) 0



(23) $E(X \le 1) =$

(A) 1/4
(B) 5/4
(C) <u>1/2</u>
(D) 1/3

<u>Question No. 7:</u>

Let X be a continuous random variable with probability density function is given by

$$f(x)\begin{cases} c(1-x), & 0 < x < 1, \\ 0, & otherwise \end{cases}$$

(24) The values of c is

(A) 1/4
(B) <u>2</u>
(C) 1/2
(D) 1

(25) $E(X) =$

(A) 1/4
(B) <u>1/3</u>
(C) 9/4
(D) 1/2

(26) $Var(X) = \sigma^2 =$

(A) <u>1/18</u>
(B) 1/9
(C) 1/27
(D) 1/3

(27) $P(X = 0) =$

(A) 1
(B) <u>0</u>
(C) 1/2
(D) 1/6

(28) $P(1/5 < X < 1) =$

(A) 1/24
(B) 10/24
(C) 15/25
(D) <u>16/25</u>

(29) $P(|X - \mu| < 2\sigma) =$

(A) 0.76
(B) <u>0.96</u>
(C) 0.90
(D) 0.82

(30) By using Chebyshev's theorem, then $P(|X - \mu| < 2\sigma) =$

(A) $\le 1/4$
(B) $\ge 10/4$
(C) $\le 3/4$
(D) <u>$\ge 3/4$</u>

THE END