**01/04/2020 ATHAVALE CLASSES**

 **Statistics & Matrices\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1) For

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X = x |  - 2  | -1  |  1 |  2 |
| P(X =x) |  0.5 |  - 0.1  |  0.6  |  0  |

a) f is not a p.m.f b) f is a p.m.f. c) d)

2) For p.m.f. a) b) c) d)

3) The probability distribution of X is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X |  0 |  1 |  2 |  3 |  4 |
| P(X=x) |  K |  2k |  4k |  2k |  k |

Then k = a) 0.7 b) 0.4 c) 0.3 d) 0.1

4) The probability distribution of a discrete r.v. X is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X |  0 |  1 |  2 |  3 |  4 |
| P(X=x) |  0.1 | 0.2 | 0.3 | 0.15 | 0.25 |

 Then P (1 < X < 4) = a) 0.50 b) 0.10 c) 0.40 d) 0.45

5) The p.m.f. of a r.v. is  then

a) b)c) d)

6) The probability distribution of X is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Xi | 1 | 2 | 3 | 4 | 5 |
| Pi | 0.1 | 0.2 | 0.3 | 0.2 | 0.2 |

Then c.d.f. of X is

a) b)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X = x | 1 | 2 | 3 | 4 | 5 |
|  F(x)  | 0.1 | 0.3 | 0.6 | 0.8 | 1 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X = x | 5 | 4 | 3 | 2 | 1 |
| F(x)  | 0.1 | 0.3 | 0.6 | 0.8 | 1 |

c) d)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X =x | 1 | 2 | 3 | 4 | 5 |
|  F(x)  | 0.1 | 06 | 0.3 | 0.8 | 1 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X = x | 1 | 2 | 3 | 4 | 5 |
| F(x)  | 0.1 | 0.3 | 0.8 | 0.6 | 1 |

7) The c.d.f. of a discrete r.v. X is

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X = x | -3 | -1 | 0 | 1 | 3 | 5 | 7 | 9 |
| F (x) | 0.1 | 0.3 | 0.5 | 0.65 | 0.75 | 0.85 | 0.90 | 1 |

Then  = a) 0.3333 b) 0.25 c) 0.55 d) 0.35

8) A fair coin is tossed 3 times. A person receives ₹ X2 if he gets X number of heads in all. His expected gain is a) 9 b) 3 c) 8 d) 2

9) The p.d.f. of a r.v. X is=where a) b) c) d)

10) The p.d.f. of a continuous r.v. X is 

a) b) c) d)

11) Mean and variance of a binomial distribution are 4 and 2 respectively. Then probability of 2 successes is a)  b)  c)  d) 

12) If X → B (n = 4, p) and P (X = 0) =then P(X = 4) a) b)  c)  d) 

13) If X→ B (n = 20, p = 0.1), then : P (x ≥ 1) = a) (0.1)20 b) 1 – (0.1)20 c) 1- (0.9)20 d) (0.9)20

14) The life in hours of a radio tube is a c.r.v. X with p.d.f. Then the probability that a tube will last less than 200 hours if it is known that the tube is still functioning after 150 hours of service is …. a) b) c) d) none of these

15) If the p.d.f. of a c.r.v. X is then:=…a) b) c) d)

16) If the p.d.f. of a c.r.v. X is then:=……. a) b)  c)  d) none of these

17) If the p.d.f. of a c.r.v. X is then:= a)0.2 b)0.3 c) 0.4 d) 0.5

18) The time (X) one has to wait for a bus at a downtown bus – stop has the following p.d.f.: 

 If A:then the values ofandare a)  b) c)  d) None of these

19) A d.r.v. X has the probability distribution

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

If  is a prime number,= … a) 0.50 b) 0.77 c) 0.35 d) 0.87

20) If a) b) c) d)

21) If  and then he matrix B = a) b)  c)  d) 

22) Construct a 3 x 2 matrix whose elements are given by 

a)  b)  c)  d) 

23) If 

a) b) c) d) 

24) If satisfies the equation =

 a) b) c) d)

25) If the matrixis a skew-symmetric matrix, the values of a, b and c are

a) – 2, 0, – 3 b) – 2, 0, 3 c) 2, 0, – 3 d) 2, 0, 3

26) If then a)

b) c)   d) 

27) If then adj A =

a)  b)  c)  d) 

28) If then which statement is true.

a) AAT = I b) BBT = I c) AB ≠ BA d) (AB)T = I

29) If Kis an orthogonal matrix then K = … a) 1 b)  c)  d) -1

30) If matrix A = (aij)m x n is said to be a square matrix if…

a) m = n b) m ≤ n c) m ≥ n d) m < n

31) If order of A + B is n x n, then the order of AB is

a) n x n b) n x m c) m x n d) m x m

32) (adj.AT) – (adj.A)T = ….. a) 2 |A| b) 2 |A| I c) zero matrix d) unit matrix

33) If and , then a) AB and BA both exist b) AB exists but not BA c) BA exists but not AB d) Both AB and BA do not exist

34) If , then

a) a = 1, b = 1 b) a = cos 2ɵ, b = sin 2ɵ c) a = sin 2ɵ, b = cos 2ɵ d) a= 2, b= 2

35) If for suitable matrices A,B; AB = A and BA = B; then A2 =….. a) I b) A c) B d) 0