

TELANGANA UNIVERSITY
S.S.R. DEGREE COLLEGE[AUTONOMOUS], NIZAMABAD (C.C:5029)
I SEMESTER INTERNAL ASSESSMENT II EXAMINATIONS
STATISTICS QUESTION BANK

I. Choose the correct Answer.

1. How many types in random variables [a]
a. 2 b. 3 c. 4 d. None
2. Let x be a discrete random variable , then $\sum p(x_i) = \text{-----}$ [b]
a. ± 2 b. 1 c. ± 3 d. None
3. mean of discrete random variable [c]
a) $\sum x$ b) $\sum x^2$ c) $\sum x p(x)$ d) none
4. marginal probability function of x is denoted by [b]
a) p b) $p(x)$ c) $p(x,y)$ d) none
5. mathematical expectation is denoted by----- [c]
a) e b) E c) $E(x)$ d) none
6. $E(c) = \text{-----}$ [a]
a) c b) 0 c) 1 d) none
7. $E(ax) = \text{-----}$ [b]
a) $E(x)$ b) $a E(x)$ c) 0 d) none
8. MGF denoted by----- [b]
a) $m(t)$ b) $M_x(t)$ c) M d) none
9. CGF is denoted by ----- [c]
a) k b) $k(t)$ c) $K_x(t)$ d) none
10. $V(ax) = \text{-----}$ [c]
a) $v(x)$ b) $a v(x)$ c) $a^2 v(x)$ d) none
11. $\sum P(x_i) = \text{-----}$ [a]
a) 1 b) 0 c) 2 d) none
12. if x, y are independent random variables ,then $\text{cov}(x,y) = \text{-----}$ [b]
a) 1 b) 0 c) 2 d) none
13. Marginal pdf of x is defined as $f(x) = \text{-----}$ [d]
a) $\int f(x,y)$ b) $\int f(x) dx$ c) $\int f(x,y) dx$ d) $\int f(x,y) dy$
14. . Marginal pdf of y is defined as $f(y) = \text{-----}$ [c]
a) $\int f(x,y)$ b) $\int f(x) dx$ c) $\int f(x,y) dx$ d) $\int f(x,y) dy$
15. conditional probability of $p(x|y) = \text{-----}$ [c]
a) $P(x,y)$ b) $P(x,y)/P(x)$ c) $P(x,y)/ P(y)$ d) none
16. conditional probability of $p(y|x) = \text{-----}$ [b]
a) $P(x,y)$ b) $P(x,y)/P(x)$ c) $P(x,y)/ P(y)$ d) none
17. joint pmf is denoted by----- [b]
a) $P(x,y)$ b) $P(x)$ c) $P(y)$ d) none
18. joint pdf is denoted by ----- [b]
a) $P(x,y)$ b) $f(x,y)$ c) $f(x)$ d) $f(y)$
19. . conditional probability of $f(x|y) = \text{-----}$ [c]
a) $P(x,y)$ b) $f(x,y)/P(x)$ c) $f(x,y)/ P(y)$ d) none

20. . conditional probability of $f(y|x)$ =-----

[b]

a) $f(x,y)$ b) $f(x,y)/f(x)$ c) $f(x,y)/f(y)$ d) none

II. Fill in the blanks

1. variance of discrete random variable $\sum X^2 P(x) - (\text{mean})^2$

2. For a continuous random variable, $\int f(x) dx = 1$

3. Distribution function , $F(x) = P(X < x)$

4. Mean of continuous random variable $\int x f(x) dx$

5. $P(x) = a, 3a, 4a, 5a, 6a$ then ,value of $a =$ -----

6. In mathematical expectation , variance formula = $E[x^2] - \{E[x]\}^2$

7. $E(x+y) = E[x] + E[y]$

8. $E(xy) = E[x] E[y]$

9. $E(ax+b) = aE[x]+b$

10. $\text{Cov}(x,y) = E[xy] - E[x] E[y]$

11. MGF , $M_x(t) = E[e^{tx}]$

12. CHF, $\phi_x(t) = E[e^{itx}]$

13. PGF , $P_x(s) = E[s^x]$

14. CGF , $KX(t) = \log\{ M_x(t)\}$

15. In mathematical Expectation, $\text{var}(x) = E[x^2] - \{E[x]\}^2$

16. $\text{var}(c) = 0$

17. $\text{Var}(ax) = a^2 V(x)$

18. $\text{Cov}(x+a, y) =$

19. $\text{Cov}(x+a, y+b) = \text{Cov}(x,y)$

20. In bivariate random variables , Marginal density of x is $f(x) = \int f(x,y) dy$

III. Descriptive questions .

1. Define Random variable ? And Explain discrete , continuous random variables with examples .
2. Define Distribution function , state and its four properties ?
3. Define bi variate random variables , joint, marginal and conditional distributions ?
4. Define moment generating function ? And state its properties ?
5. State and prove Cauchy-Schwartz's inequality ?