

**TELANGANA UNIVERSITY**  
**S.S.R. DEGREE COLLEGE, NIZAMABAD (C.C:5029)**  
**V SEMESTER INTERNAL ASSESSMENT II EXAMINATIONS**  
**STATISTICS (APPLIED STATISTICS) QUESTION BANK (BSC (MSCS))**

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1. UCL of R-chart \_\_\_\_\_ [b]  
 a.  $D_3\bar{R}$                                       b.  $D_4\bar{R}$                                       c.  $D_3$                                       d.  $D_4$
2. CL of R-chart \_\_\_\_\_ [c]  
 a.  $D_3\bar{R}$                                       b.  $D_4\bar{R}$                                       c.  $\bar{R}$                                       d.  $D_3$
3. UCL of S-chart \_\_\_\_\_ [c]  
 a.  $B_3\bar{R}$                                       b.  $B_4\bar{R}$                                       c.  $B_4\bar{S}$                                       d.  $B_3\bar{S}$
4. LCL of S-chart \_\_\_\_\_ [d]  
 a.  $B_3\bar{R}$                                       b.  $B_4\bar{R}$                                       c.  $B_4\bar{S}$                                       d.  $B_3\bar{S}$
5. CL of d-chart \_\_\_\_\_ [b]  
 a.  $\bar{P}$                                       b.  $n\bar{P}$                                       c.  $ni\bar{P}$                                       d. None
6. CL of C-chart \_\_\_\_\_ [b]  
 a.  $C$                                       b.  $\bar{C}$                                       c.  $2\bar{C}$                                       d. None
7. LCL of C-chart \_\_\_\_\_ [c]  
 a.  $\bar{C} + 3\sqrt{\bar{C}}$                                       b.  $\bar{C} \pm 3\sqrt{\bar{C}}$                                       c.  $\bar{C} - 3\sqrt{\bar{C}}$                                       d. None
8. UCL of C-chart \_\_\_\_\_ [a]  
 a.  $\bar{C} + 3\sqrt{\bar{C}}$                                       b.  $\bar{C} \pm 3\sqrt{\bar{C}}$                                       c.  $\bar{C} - 3\sqrt{\bar{C}}$                                       d. None
9. LCL of R-chart \_\_\_\_\_ [c]  
 a.  $B_3\bar{R}$                                       b.  $B_4\bar{R}$                                       c.  $D_3\bar{R}$                                       d.  $D_4\bar{R}$
10. If,  $E > 1$ , then efficiency is \_\_\_\_\_ design II [a]  
 a. More than                                      b. Less than                                      c. Equal                                      d. None
11. How many components in time series \_\_\_\_\_ [b]  
 a. 3                                      b. 4                                      c. 5                                      d. 6
12. The variations which are occur in a span of less than a year are called \_\_\_\_\_ variations. [b]  
 a. Trend                                      b. Seasonal                                      c. Cyclic                                      d. None
13. How many mathematical models in time series \_\_\_\_\_ [a]  
 a. 3                                      b. 4                                      c. 5                                      d. 6
14. Modified exponential curve,  $y_t =$  \_\_\_\_\_ [c]  
 a.  $a + bt$                                       b.  $a + bc$                                       c.  $a + bc^t$                                       d. None
15. Power curve,  $y_t =$  \_\_\_\_\_ [a]  
 a.  $at^b$                                       b.  $ab^t$                                       c.  $a+bt$                                       d. None
16. \_\_\_\_\_ curve cannot be determined by the principle of least squares [c]  
 a. Exponential                                      b. Power                                      c. Logistic                                      d. None
17. Long term variations are again classified into \_\_\_\_\_ [a]  
 a. 4                                      b. 3                                      c. 2                                      d. 5
18. Where \_\_\_\_\_ are classified into weather and manmade [b]  
 a. secular                                      b. seasonal                                      c. periodic                                      d. None
19. Naturally occurred variations are called \_\_\_\_\_ [a]  
 a. Irregular                                      b. Secular                                      c. Periodic                                      d. None
20. Seasonal and cyclic variations are also called \_\_\_\_\_ [a]  
 a. Short term                                      b. Secular                                      c. Cyclic                                      d. None

II. Fill in the blanks.

1. Range,  $R_i = \text{Max}(X_{ij}) - \text{Min}(X_{ij})$
2. CL of  $\bar{X}$  - chart  $\bar{X}$
3. UCL of  $\bar{X}$  - chart  $\bar{X} + A_2\bar{R}$
4. LCL of  $\bar{X}$  - chart  $\bar{X} - A_2\bar{R}$

5. CL of P-chart  $\bar{P}$
6. LCL of P-chart  $\bar{P} - A\sqrt{\bar{p}\bar{q}}$
7. UCL of P-chart  $\bar{P} + A\sqrt{\bar{p}\bar{q}}$
8. UCL of np-chart  $n\bar{P} + 3\sqrt{n\bar{p}\bar{q}}$
9. LCL of d-chart  $n\bar{P} - 3\sqrt{n\bar{p}\bar{q}}$
10. Control chart for number of defects per unit is C-Chart
11. Additive model in time series  $y_t = T_t + S_t + C_t + I_t$
12. Multiplicative model in time series  $y_t = T_t \times S_t \times C_t \times I_t$
13. Exponential curve,  $y_t = ab^t$
14. Gompertz curve,  $y_t = ab^{ct}$
15. In ratio to trend method, trend eliminated values of IQR = Original data/Trend values x 100
16. Mixed model in time series,  $y_t = T_t C_t + S_t I_t$
17. Logistic curve,  $y_t = K/(1+\exp(a+bt))$
18. Straight line curve,  $y_t = a+bt$
19. Link relative, L.R = current month value/previous month value x 100
20. Second degree parabola,  $y_t = a + bt + ct^2$

### III. Short Answer questions.

1. Define assignable causes?

Ans: An unacceptable process performance the variations due to defective raw materials, machines are often called assignable causes.

2. Write any two uses of SQC?

Ans: 1) Reducing the cost 2) More efficiency

3. What are the variable control charts?

Ans:  $\bar{X}$ , R,  $\sigma$  - charts are called variable charts

4. What are the attribute control charts?

Ans: P, np and C charts.

5. Write interpretation for any control chart?

Ans: If all the points fall within the UCL and LCL, then the process is under control otherwise, out of control.

6. Define time series analysis ?

Ans: Arranging the data into chronological order.

7. What are the components of time series?

Ans: 1) Secular trend

2) Seasonal variations

3) Cyclic variations

4) Irregular variations

8. Define long term variations?

Ans: The value of the variable either increasing or decreasing during the long period of time.

9. Define seasonal variations?

Ans: Periodic variation affecting the values of variable less than a year is known as seasonal variations.

10. What is the use of time series?

Ans: To predict or forecast the future values by using past data.