

12. (a) Discuss the contribution of Deming's and Juran's in quality management. (16)

Or

- (b) Explain quality circle in detail. (16)

13. (a) (i) Determine the control limits for \bar{X} and R charts if $\Sigma\bar{X} = 357.50$, $\Sigma R = 9.90$, number of subgroups = 20. It is given that $A_2 = 0.18$, $D_3 = 0.41$, $D_4 = 1.59$ and $d_2 = 3.735$. Also find the process capability (8)
- (ii) Briefly describe the methodology of constructing and using control charts. (8)

Or

- (b) Explain Total productive maintenance and Business process re-engineering in detail. (16)

14. (a) Explain seven tools of quality and Seven new management tools. (16)

Or

- (b) Write step by step procedure for implementing a FMEA of a product. (16)

15. (a) (i) Explain the role of leadership in detail. (8)
- (ii) Explain types and stages of quality audit in detail. (8)

Or

- (b) Explain quality council in detail. (16)