

B.Tech. SEM -V Production 2014 Course (CBCS) : SUMMER - 2019
SUBJECT : METROLOGY AND QUALITY CONTROL

Day : Monday
Date : 13/05/2019

Time : 10.00 AM TO 01.00 PM
Max. Marks : 60

S-2019-2692

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 3) Assume suitable data, if necessary.

Q. 1 Discuss the procedure to measure the unknown angle (on one side) of a component by using sine bar. (10)

OR

Q. 1 Discuss the concepts of accuracy and precision with neat sketch and also the errors in measurements. (10)

Q. 2 State the Taylor's principle for the design of limit gauges. Explain with neat sketch the plug gauge. (10)

OR

Q. 2 Design a general purpose GO and NO GO plug gauge for inspecting of 25 d₈ Data with usual rotations: (10)

- i) $i = 0.45 \sqrt[3]{D} + 0.001D$ (where D is in mm)
- ii) Fundamental derivation for the hole $D = 16 D^{0.44}$
- iii) The value of tolerance for $IT_8 = 25i$

Q. 3 Explain with neat sketch the procedure to measure the screw thread parameter by using floating carriage micrometer. (10)

OR

Q. 3 a) Discuss with neat sketch the surface texture of a component. (05)

b) Explain with neat sketch the Tomlinson surface meter. (05)

Q. 4 a) Explain with neat sketch the operating characteristics curve. (05)

b) Discuss with neat sketch the different sampling plans for inspection. (05)

OR

Q. 4 Discuss with neat sketch the \bar{X} and R chart used in statistical quality control. (10)

Q. 5 Discuss with neat sketch (10)

- i) MTBF
- ii) MTTR

OR

P. T. O.

Q. 5 Explain with neat sketch the cause and effect diagram. **(10)**

Q. 6 a) Explain in detail the environmental management concept. **(05)**

b) Give the requirements of ISO 14001 **(05)**

OR

Q. 6 Discuss in detail the clauses of ISO 9000 series and also discuss their interpretations and documentation required for the same. **(10)**

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