B.TECH. SEM -V PRODUCTION 2014 COURSE (CBCS) :
SUMMER - 2018
SUBJECT: METROLOGY AND QUALITY CONTROL

Day: Wednesday **Time:** 10.00 AM TO 01.00 PM
Date: 23/05/2018 **S-2018-2372** **Max. Marks: 60**

N.B:

1) All questions are **COMUPLSORY.**
2) Figures to the right indicate **FULL** marks.
3) Use of non-programmable **CALCULATOR** is allowed.
4) Draw neat and labeled diagram **WHEREVER** necessary.

Q.1 **a)** Discuss with neat sketch the principle of interferometer. **(06)**

b) Explain with neat sketch the slip gauges. **(04)**

OR

Q.1 **a)** Discuss the concept of interchangeability and accuracy. **(05)**

b) Explain with example the various linear measurement standards. **(05)**

Q.2 **a)** Give the classification of gauges. Explain with neat sketch the plug and ring gauge? **(06)**

b) Explain the types of fits with appropriate figures. **(04)**

OR

Q.2 Design and make a drawing og general purpose 'Go' and No-Go' plug gauge for inspecting a hole of 30D8. Data with used Notation. **(10)**

i) i microns = $0.45\sqrt[3]{D}+0.001D$ (D in mm)
ii) The fundamental deviation for hole D = $16D^{0.44}$
iii) The value of tolerance for IT 8 =25 i
iv) Diameter step = 18 to 30 mm.

Q.3 **a)** Explain with neat sketch the gear tooth Vernier? **(06)**

b) Explain with neat sketch the meaning of RMS and CLA values. **(04)**

OR

Q.3 For M16x2 mm external threads calculate the best size wire diameter and the difference between size under wires and effective diameter. **(10)**

Q.4 A sample of 50 pieces is drawn from the production of the last two hours from a single spindle automatic screw machine and each item is checked by Go and No Go gauge for several possible sources of defectives the number of defective items found in 25 such sucessive sample were **(10)**

Subgroup No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of defective	1	2	5	6	3	5	2	1	1	0	0	1

Subgroup No.	13	14	15	16	17	18	19	20	21	22	23	24	25
No. of defective	0	1	0	2	1	0	0	1	1	0	0	1	0

P.T.O.

Determine the control limits for a appropriate chart and state whether the process is in control.

OR

Q.4 **a)** Discuss the quality approach of Deming and Juran. **(06)**

b) Explain in detail the concept of quality policy? **(04)**

Q.5 Explain in detail the six sigma procedure? **(10)**

OR

Q.5 Discuss in detail the concept of Kaizen. **(10)**

Q.6 Discuss the various clauses of ISO 9000 series. **(10)**

OR

Q.6 Explain the benefit of environment management system. **(10)**

* * * * *