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MAR_APR 2025 SUMMER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Metrology and Quality Control

Sub. Code: 81525/81802

Day and Date: MAY ,19-05-2025 **Total Marks: 70**

Time: 02:30 PM To 05:00 PM

Instructions:
1. **All questions are compulsory**
2. **Assume suitable data wherever necessary and mention it boldly**
3. **Figures to the right indicate full marks**
4. **Use of Scientific calculator is allowed**

Q1) Solve any two **[12]**

a. Explain different types of error in measurement? **[6]**

b. What is the importance of limits system in mass production? **[6]**

c. Slip gauge set with 87 pieces as under is available. **[6]**

Range (mm)	Steps (mm)	No.of blocks
1.001 to 1009	0.001	09
1.01 to 1.49	0.01	49
0.5 to 9.5	0.5	19
10 to 90	10	09
1.005	-	01

Build up the following dimensions with minimum number of slip gauge i) 29.758mm ii) 46.635mm

Q2) Solve any two **[12]**

a. Explain construction & working principle of dial indicator with neat labeled diagram? **[6]**

b. Give the application details of sine bar? **[6]**

c. Explain construction & working principle of solex pneumatic comparator? **[6]**

Q3) Solve any two **[12]**

a. Explain the construction & working of opticle interferometer ? **[6]**

b. Explain principle of Interferometry & application for checking flatness.? **[6]**

c. Explain with neat sketch Tomlison surface meter? **[6]**

Q4) Solve any two **[12]**

a. Enlist & explain errors in gears? **[6]**

b. Explain with neat sketch thread angle measurement by optical profile projector? **[6]**

c. Explain Backlash ,give its importance in designing of gear? **[6]**

Q5) Solve any two **[10]**

a. Explain concept of quality? **[5]**

b. Discuss the cost of quality? **[5]**

c. Explain Any two QC Tools? **[5]**

Q6) Solve any two **[12]**

a. Write a note on ND curve? **[6]**

b. List the desirable consideration for selecting a sample? **[6]**

c. The following are the $\bar{x}$ & R value of 4 subgroup of reading **[6]**
$\bar{x}$ =10.2,12.1,10.8,10.5 R=1.1,1.3,0.9,0.8
The specification limits for the components are 0.7±0.2Establish the control limits for $\bar{x}$ & R Chart will the product able to meet its specification .
Given Data- A2FOR $\bar{X}$ Chart =0.58,
D4 For R chart =2.11,
D3 For R chart3 =0.0

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (1154) B.Tech. CBCS (81525) Metrology and Quality Control Part 3 SEM 6
2] (101) Bachelor of Engineering (81802) Metrology and Quality Control Part 3 SEM 6