AU – 2646

Fifth Semester B. E. (Mechanical Engineering) Examination

PRODUCTION TECHNOLOGY

Paper – 5 ME 01

(USC – 10849)

P. Pages : 3

Time : Three Hours]   [Max. Marks : 80

Note : (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer book must be used for Section A and B in Pharmacy and Cosmetic Tech.
(2) Answer **Three** questions from Section A and **Three** questions from Section B.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data wherever necessary.
(5) Illustrate your answer wherever necessary with the help of neat sketches.

SECTION A

1. (a) Explain the concept of TQM in detail.   7

   (b) Distinguish between cost of quality and value of quality.   7

OR

2. (a) Define the terms 'Quality'. "Quality control" and "Statistical Quality control".
                                                                      7

   (b) Discuss various measures of central tendency and dispersion of statistical data.   7

3. (a) A sub–group of 5 items each are taken from a manufacturing process at a regular interval. A certain quality characteristic is measured and $\bar{X}$ and R values computed. After 25 sub–groups it is found that $\Sigma\bar{x}$ = 357.50 and ΣR = 8.80. If the inspection limits are 14.40 ± 0.40; and if the process is in statistical control, what conclusion can you draw about the ability of the process to produce items within specifications ? Find control limits for $\bar{X}$ chart.   7

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(b) Draw and discuss various control chart patterns. 6

OR

4. (a) Explain what is precision and accuracy. 6

(b) Draw operating characteric (oc) curve and explain what is producer's risk and consumer's risk. 7

5. (a) Discuss the principles of motion economy. 6

(b) Enlist various recording techniques used in method study. Explain any one. 7

OR

6. (a) What are therbligs ? Enlist any five therbligs with their symbols. 6

(b) What is time study ? How it is performed ? 7

SECTION B

7. (a) Describe the following terms with the help of neat diagram :

    (a) Zero line.

    (b) Tolerence.

    (c) Deviation.

    (d) Basic size.

    (e) Limits of size. 7

(b) What is gauge maker's tolerance ? Why is it required ? Explain. 7

OR

8. (a) Explain concept of interchangeability and selective assembly. 7

(b) Sketch and explain three basic types of fits. 7

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9. (a) What are comparators ? Sketch and explain Solen type pneumatic comparator. 7

   (b) What is sinebar ? Explain how sine bar is used in angular measurement. 6

OR

10. (a) Explain terminology of screw thread with the help of sketch and enlist various techniques of screw thread measurement. 7

    (b) Explain optical bevel protractor with the help of sketch. 6

11. (a) Enlist various instruments used for surface roughness measurement and explain any one in detail. 7

    (b) Explain the working of Parkinson gear testor. 6

OR

12. (a) Sketch and explain working of mechanical roughness indicator 'MECHRIN'. 7

    (b) What are optical flats ? How flatness errors are checked with the help of optical flats ? 6

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