

Second Semester M. E. (PTM) Examination

**PRODUCTIVITY AND QUALITY MANAGEMENT**

2 SPTM 2

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) Design the 'general' type 'Go' and 'Not-Go' gauges for component having 25H/f8 fit.

Given :

(i)  $i(\text{microns}) = 0.45 \sqrt[3]{D} + 0.001 D$  (D in mm)

(ii) the upper deviation for f shaft =  $-5.5 D^{0.41}$

(iii) 25 mm falls in the diameter step of 18 and 30.

Take wear allowance as 10% of the gauge tolerance. Also determine :

- (i) type of fit;
- (ii) allowance for the above fit.

9

- (b) State Taylor's principle in design of limit gauges.

5

2. (a) What is meant by roughness and waviness of machined surfaces ? Describe an instrument for measuring surface finish.

7

- (b) Describe the limit gauging system for threads which will take into account all the elements of the thread. 6
3. (a) How 'Taylsurf' machine work ? Explain in detail. 7  
(b) Explain how a thread caliper gauge serves the purpose of checking the screw thread in shop production. 6
4. (a) Write brief note about coordinate measuring machine equipped with a laser probe. 7  
(b) Explain geometrical dimensioning and tolerancing in brief. 6
5. (a) Describe with sketch the working principles and the applications of "Solex Pneumatic Gauge". 8  
(b) Write briefly on the optical methods of gear inspection. 5

### SECTION B

6. (a) What is TPM ? How it is implemented ? 7  
(b) State 'Kanban' rules. 6
7. (a) What is parameter design in the Taguchi system ? 7  
(b) Managing through 'Kaizen' results in improvement by zero investment ? Discuss. 6
8. (a) What are the various Poka Yoke tools used in Poka Yoke technique ? Explain any one with examples. 7  
(b) State the difference between attribute control chart and variable control chart. Give examples. 7

9. (a) Explain total factor and partial factor productivity in detail. 7  
(b) What is QFD ? Can a firm carry out a QFD analysis in designing a service product ? 6
10. (a) Briefly describe the various quality costs. Which cost-should a company concentrate most on ? Give reasons. 7  
(b) Compare  $\bar{x}$  and  $\sigma$  charts with a P-chart. 6



