

College of Engineering, Pune-411005.
(An Autonomous Institute of Government of Maharashtra)
Department of Production Engineering and Workshop
END-SEMESTER EXAMINATION

Class : T. Y. B. Tech. Production S/W
Subject : INDUSTRIAL ENGINEERING (PE-305)

Year : 2013– 2014
Time : 3 Hours
Max. Marks: 100

Instructions:

1. Solve *all* questions.
2. Figures to the right indicate full marks.
3. Draw neat self-explanatory sketches wherever required.
4. Use of pocket calculators is allowed.

- Q.1 a) Define 'Management'. Classify Management and list down their merits and demerits. 6
b) Discuss Henri Fayal's contribution to 'Industrial Management'. 6
c) Discuss types of 'Ownerships' in details. Explain 'Partnership Deed'. 6
- Q.2 a) Discuss types of 'Organizations' in details. 6
b) Define 'Productivity'. Explain how the Productivity of resources can be increased. 6
c) Two industries manufacturing two types of Plugs. The standard time per piece is 1.5 min. The output of 2 industries is 300 and 200 respectively per shift of 8 hours. 6
 a) What is the productivity of each per shift of 8 Hours?
 b) What is the production of each per week (6 days) on the basis of double shift?
- Q.3 a) Define 'Standard Time'. Explain process of calculating the same. 8
b) Work sampling study was conducted for 200 hours in a manufacturing facility. The total numbers of readings recorded were 2500. No working activity could be noticed for 500 readings. The ratio between manual and machine elements was 2:1. Average rating factor was estimated as 1.2 and the total numbers of parts produced during the study period were 6000. Rest and personal allowance is 12%. Estimate 'Standard Time'. 8
- Q.4 a) Explain '360 degree appraisal system' used by Personal (Human Resource) department. 8
b) Using '50-50 Hasley Plan' and 'Rowan Plan' calculate wages of the operator for following data: 8
 1) Hourly wage rate= Rs.30/-
 2) Standard time to complete the job= 8 Hours.

3) Actual time taken to complete the job= 6 Hours.

- Q.5 a) What is meant by 'analytical estimating'? State its advantages and drawbacks. 8
b) Explain role of 'Ergonomics' and its objectives. 8

- Q.6 a) Explain types of 'Process charts'. Also describe 'Symbols' used in process charts. 8
b) Using a suitable process chart, plot the following activities for 'material' movement.

Raw material (conrod) stored in stores, moved to machine shop (machine-1) located at a distance of 12m. by trolley. After machining at machine-1, it is moved to machine-2 by conveyor located at a distance 2m. from machine-1. After machining at machine-2, it is moved to grinding machine by conveyor located at a distance of 1m. from machine-2, where conrod needs to wait for 5 min., then it is ground. After grinding, it is taken to the inspection station (using conveyor) located at a distance of 2.5m. from grinding machine. After inspection, wait for a trolley for 5 min., then conrod goes to the assembly stores located at 20m. by trolley. 8
