

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014

Subject Code: 161907**Date: 22-05-2014****Subject Name: Industrial Engineering****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** State the advantages of S.Q.C. What are attribute and variable quality characteristics. **07**
(b) Following are the readings of diameters taken for pins manufactured on the lathe **07**

machine. Draw $\bar{X}$ bar and R chart (take $A_2 = 0.729$, $D_4 = 2.282$, $D_3 = 0$)

1	2	3	4	5	6	7	8	9	10
14.8	14.9	14.8	15.0	14.6	16.1	15.2	14.8	14.9	14.9
15.1	14.6	14.9	16.2	15.1	14.7	15.1	15.4	15.9	16.3
15.0	15.2	15.2	14.9	15.3	14.9	15.3	15.2	15.5	14.8
14.9	15.1	15.3	14.7	14.8	15.1	15.1	14.9	14.5	15.3

- Q.2 (a)** Explain following terms: (1) Quality assurance (2) T.Q.M. **07**
(b) Following are the observations of bulb manufacturing co. for the 12 days. **07**
 Draw the P chart

Days	1	2	3	4	5	6	7	8	9	10	11	12
No. of inspected bulbs	59	102	48	130	78	65	80	96	110	145	68	86
No. of defective bulbs	4	12	6	18	8	7	6	1	3	37	8	5

OR

- (b)** Explain operating characteristics curves for acceptance sampling. **07**

- Q.3 (a)** What is method study? Explain in brief various charts and diagrams utilized in method study. **07**
(b) What is therbligs? State the importance of micro motion study. **07**

OR

- Q.3 (a)** Differentiate between cumulative timing and fly back timing. **07**
 How standard time is calculated ?
(b) State the relationship between productivity and work study. Explain various tools for increasing productivity. **07**

- Q.4 (a)** What are factories act? What are major provisions for safety and health? **07**
(b) Define wages and explain in detail various types of incentives. **07**

OR

- Q.4 (a)** State various sources of industrial finance. State various government incentives to entrepreneurs. **07**
(b) State various methods of job evaluation. Discuss in brief. **07**

- Q.5 (a)** Write in brief on: (1) Work flow diagram (2) Machine data cards **07**
(b) What is line of balance?. Discuss in detail assembly line balancing taking suitable example. **07**

OR

- Q.5 (a)** Write the functions included under the activity of production planning. **07**
(b) Discuss the following sales forecasting: **07**
 (1) Exponential smoothing (2) Method of weighted moving average.
