

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 the jigs? 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.
