

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER 2013****Subject Code: 172502****Date: 24-05-2013****Subject Name: Productivity Improvement Methods****Time: 02.30 pm - 05.00 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) Explain the term Productivity. How does it differ from Production? Give 07
examples to justify your answer.
- (b) What is meant by (i) Basic work content and (ii) Excess work content? How 07
does the work content added by poor design of the Product? Explain with the
aid of suitable example.

- Q.2** (a) State the benefits of increasing Productivity to: 07
(i) Management (ii) Workers (iii) Society
- (b) There are two industries manufacturing two types of Plugs. The standard 07
time per piece is 1.5 minutes. The output of the two industries is 300 and 200
respectively per shift of 8 hours.
- (1) What is the Productivity of each per shift of 8 hours?
- (2) What is the Production of each per week (6 days) on the basis of
double shifts?

OR

- (b) The following data is available for a machine in a manufacturing unit. 07
- Number of hours worked per day : 8
Working days per month : 25
Number of operators : 1
Standard time per unit of production: Machine time: 22 min., Operator
time: 08 min., Total time/unit: 30 min.
- (1) If plant is operated at 75% efficiency and the operator is working at 100%
efficiency, what is the output per month?
- (2) If the machine Productivity is increased by 10% over the existing level,
what is the output per month?

- Q.3** (a) Working environment plays an important role in raising the productivity - 07
Evaluate the statement.
- (b) Explain the effect of humidity and temperature on the performance of 07
operator.

OR

- Q.3** (a) What is meant by 'Ergonomics' ? State how it can be useful in industry. 07
- (b) Define Business Process Reengineering (BPR). State the objectives of 07
Business Process reengineering.

- Q.4** (a) Explain in brief the following factor to be considered in selection of job for 07
work simplification.
'Economic or Cost effective consideration'
- (b) Define each of the following activities which might appear in a flow process 07
chart
(1) Operation (2) Inspection (3) Transportation (4) Storage (5) Delay

OR

- Q.4** (a) Explain in brief the principles of motion economy applied in 'use of human body' **07**
- (b) A machinist has to attend two machines. The actual time taken by both machines are as follows: **07**
- * Stopping the machine and unloading 3 min.
 - * Machining time (Automatic feed) 8 min.
 - * Loading the job on machine 2 min.
 - * Inspection of the completed job 5 min.
- Prepare man – machine chart yielding the highest efficiency.
- Q.5** (a) Define various types of elements and give one example of each type. **07**
- (b) The continuous time readings in centiminutes, rating, and allowances for four elements of an operation are as follows: **07**

Element → Observation ↓	1	2	3	4
1	8	13	26	29
2	37	42	55	58
3	68	74	88	91
4	98	103	16	19
5	27	32	46	49
6	57	63	76	79
Average Rating	110%	120%	105%	120%
Allowances	15%	20%	15%	20%

Calculate:

- (1) Standard time for each element and for the work cycle.
- (2) Determine the number of workers required if 10000 pieces of the above job are required for shift of 8 hours.

OR

- Q.5** (a) Explain in brief synthesis technique of work measurement **07**
- (b) What is meant by incentives? What do you understand by negative incentive plans? Explain with example. **07**
