



Name : .....  
Roll No. : .....  
Invigilator's Signature : .....

**CS/B.TECH (APM)/SEM-7/APM-702/2010-11**

**2010-11**

**INDUSTRIAL ENGINEERING**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following :  $10 \times 1 = 10$ 
  - i) Unit of time study is
    - a) 0.0006 minute
    - b) minute
    - c) 0.01 minute
    - d) 0.001 minute.
  - ii) One of the techniques of work measurement is
    - a) Time study
    - b) Motion study
    - c) Method study
    - d) None of these.
  - iii) Which flow pattern of facilities arrangement is desirable ?
    - a) Straight line
    - b) U-shaped
    - c) Circular
    - d) Zigzag.
  - iv) To arrive at normal time observed time is multiplied by
    - a) Standard time
    - b) Rating factor
    - c) Allowances
    - d) Limit of accuracy.



- v) Learning curve follows
- a) U-shaped
  - b) Zigzag shaped
  - c) S-shaped
  - d) None of these.
- vi) Whole garment production system needs labour of
- a) Highly skill
  - b) Semi-skill
  - c) Unskilled
  - d) Trainee.
- vii) Machine performing similar operation is placed in one section in
- a) Process layout
  - b) Group layout
  - c) Product layout
  - d) All type of layouts
- viii) Layout problem arises from
- a) New labour
  - b) New place
  - c) New product
  - d) Management change.
- ix) Basic Work Content means
- a) Total work content
  - b) Added work content
  - c) Work "contained-in"
  - d) Excess work content.
- x) Process chart classified the activities into classification of
- a) Four
  - b) Six
  - c) Two
  - d) Five.

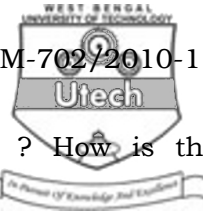
**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.

$$3 \times 5 = 15$$

2. What are the functions of Industrial Engineer ?



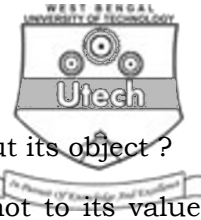
3. What is productivity ? Why is it needed ? How is the productivity related to standard of living ?
4. Discuss in brief the salient characteristic BPR.
5. What is scientific management ? Discuss about the principles of scientific management.
6. What is work study ? What does it aim for ? Why is it important for a organization ?
7. What is learning curve ? Why is it needed ? Learning has two segments. Discuss.

**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

8. a) Explain the Ergonomics principle that can be used while designing an apparel working table.  
b) Explain major health and safety problem associated with poor ergonomic design.  $8 + 7$
9. a) What are the method study and motion study ?  
When time study begins ? What is the unit time study ?  
b) Describe about the basic step involved in method study.  
c) What are consituent of standard time ?  $5 + 5 + 5$
10. a) Discuss in detail about the types of layout problem.  
b) What are the steps to be taken in planning a plant layout ?  
c) Discuss about product analysis.  $5 + 5 + 5$



11. a) What is material handling. Discuss about its object ?  
 b) "It add to the cost of production and not to its value". Explain.  
 c) What are the basic material handling equipments ? Write brief notes for each category stating their usefulness example of the concern equipment. 5 + 5 + 5
12. a) How is rating used to arrive at Normal time ? What is Standard time ?  
 b) What are the allowances given to calculate the standered time ? Describe briefly.  
 c) A garment manufacturing company has progressive bundle system of operation. The system consisted of four element with the following observed time and the performance rating is as follows :

Element	Observed time (minutes)	Performance Rating (%)
A	0.25	85
B	0.12	80
C	0.12	85
D	0.60	90

Assuming rest and personal allowance as 15% and other allowance as 2% of the basic time, calculate standard time per piece. 4 + 4 + 7