



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

**CS/B.TECH/APM/SEM-7/APM-702/2012-13**

**2012**

**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) Machine performing similar operation is placed in
    - a) Process layout
    - b) Group layout
    - c) Product layout
    - d) none of these.
  - ii) Principle of motion economy is
    - a) to reduce tool used
    - b) to reduce fatigue
    - c) to increase m/cs
    - d) none of these.
  - iii) For product of stable demand layout should be
    - a) Group layout
    - b) Product layout
    - c) Process layout
    - d) none of these.
  - iv) One of the techniques of work measurement is
    - a) Motion study
    - b) Method study
    - c) Time study
    - d) Snap study.



- v) Layout problem arises from
- a) new labour
  - b) new product
  - c) new place
  - d) management change.
- vi) Whole garment system needs labour of
- a) highly skilled
  - b) trainee
  - c) unskilled
  - d) semi-skilled.
- vii) Learning curve follows
- a) U-shaped
  - b) zig zag
  - c) S-shaped
  - d) L-shaped.
- viii) Basic work content means
- a) total work content
  - b) excess work content
  - c) added work content
  - d) work content in.
- ix) First step of operational analysis is
- a) Time study
  - b) Motion study
  - c) Method study
  - d) Critical analysis.
- x) Which one is an operational facility ?
- a) Raw material
  - b) Equipment
  - c) Manpower
  - d) Quality management.

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following  $3 \times 5 = 15$

2. Discuss in brief the salient features of BPR.
3. What is productivity ? What are the causes of low productivity measurement in apparel industry ? State the remedies.



4. What is work study ? What does it aim for ? Why is it important for an organization ?
5. What are the steps to be taken in planning a plant layout ?
6. Identify the several basic machine handling systems. Write brief notes for each category stating their use with example.
7. What is learning curve ? Why it is needed ? Learning curve has two segments. Discuss.

**GROUP - C**

**( Long Answer Type Questions )**

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

8. a) What are the steps to be taken for stop watch procedure in time study ?  
b) Discuss about value engineering. What are the job plan for value engineering ?  
c) Discuss about motion economy. State the principle of motion economy.  $5 + 5 + 5$
9. a) Why the location of plant is of great concern to management ? What are the factors governing plant location ?  
b) Discuss about the balancing production line. What are the various ways to attain line balance ?  
c) What are the guidelines for work area planning ?  
 $5 + 5 + 5$
10. a) Discuss about the basic work content and added work content. How is work content added by ?  
b) What are the basic procedures of method study ?  
c) Discuss about the product analysis.  $5 + 5 + 5$



11. a) Discuss the flow chart processes of sewing and finishing for a regular garment production unit.
- b) Discuss about the Whole garment system & Progressive bundle system. State their advantage & disadvantage.

6 + 9

12. a) What is performance rating ? What are the allowance are given ? How observed time is related to performance rating ?
- b) A time study is conducted on a job in sewing operation consisting of three elements. Stop watch reading of first five cycle using cumulative timing method are given below :

Element	Stopwatch readings in hundredth of a minute				
	1	2	3	4	5
A	70	73	139	205	210
B	25	88	160	222	288
C	64	128	193	257	320

Rating factor were estimated at 80%, 95%, 100% respectively. Allowance for personal need, rest amount to 15%. Calculate standard time of the job.

6 + 9

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