

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech(APM)/SEM-7/APM-702/2011-12

2011

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 × 1 = 10

- i) Whole garment production system needs labour of
- a) highly skill b) unskilled
- c) trainee d) semi-skill.
- ii) Products are reasonably of stable demand so layout should be
- a) process layout
- b) product layout
- c) group layout
- d) none of these.



iii) One of the techniques of work measurement is

- a) time study
- b) motion study
- c) method study
- d) none of these.

iv) Normal time is also known as

- a) basic time
- b) observed time
- c) standared time
- d) additional time.

v) Work sampling is not suitable for

- a) short cycle job
- b) group working
- c) less trainee personnel
- d) none of these.



vi) Progressive bundle production system required labour of

- a) highly skill
- b) semi-skill
- c) unskilled
- d) labour of all leves.

vii) Machine performing similar operation is placed in one section in

- a) process layout
- b) group layout
- c) product layout
- d) all types of layout.

viii) Process layout is suitable for

- a) small production
- b) huge production
- c) new production
- d) none of these.



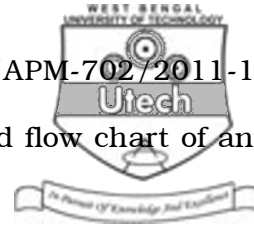
- ix) Principle of motion economy is
- a) to reduce fatigue
 - b) to reduce tool used
 - c) to increase machine speed
 - d) none of these.
- x) Ergonomics is employed for
- a) time study
 - b) motion study
 - c) health care
 - d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. What are the causes of low productivity in apparel industry ? What can be the action plan for improvement ?
3. What are the scopes of cost reduction in process by industrial engineering techniques ?



4. Discuss about operation process chart and flow chart of any garment making process.
5. What is operation analysis ? State the objects of it.
6. What is work study ? How is work study used for process improvement ?
7. What is learning curve ? Why is it 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) Discuss what is motion economy. State in detail about the principle of motion economy.
b) Explain major health and safety problem associated with poor Ergonomic design.
c) What is the purpose of Facility Design ? $2 + 3 + 5 + 5$
9. a) Discuss about the Value Engineering.
b) What is the job plan for V.E. ?
c) What are the steps to be taken for stopwatch procedure of time study ? $5 + 5 + 5$



10. a) What are the four key words of B.P.R. principle ?
 b) What are the steps to be taken in planning a plant layout ?
 c) Discuss about product analysis. 5 + 5 + 5
11. a) What are the factors governing the Plant Location ?
 b) Discuss about the balancing production line. What are the various ways to attain line balance ?
 c) What are the guides for Work Area Planning ?
5 + 7 + 3
12. a) What is Observed Time, Basic Time and Slandered Time ?
 b) What are the allowances given to calculate the standard time ? Give detail about the allowance.
 c) In a Garment industry breakdown of a job for making a shirt is as follows along with observed time, the performance rating & relaxation allowance :

Element	Observed Time (minutes)	Performance Rating %	Relaxation allowance %
Collar preparation	10·5	85	11
Cuff & Sleeve preparation	8·0	90	13
Front Preparation	4·5	85	11
Back Preparation	2·5	90	12
Assembly	14·6	80	10

Calculate standard time for the element of the job and total job. 3 + 4 + 8



13. Discuss any *three* of the following stating the application :

- a) EOQ model for stores and inventory control
 - b) Linear programming principles
 - c) Machine scheduling
 - d) PERT-CPM technique
 - e) Time study and motion study for ergonomic analysis
 - f) Analysis of break-even point.
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