Register Number:……..

**B.TECH., DEGREE EXAMINATIONS: APRIL/MAY 2014**

(Regulation 2009)

Seventh Semester

**FASHION TECHNOLOGY**

FTY118: Industrial Engineering In Apparel Industry

**Time: Three Hours** **Maximum Marks: 100**

**Answer ALL Questions:-**

**PART A (10x1=10 Marks)**

1. Which of the following is a controllable factor associated with productivity of an apparel firm.

   A) Production location B) Production system C) Age of factory D) Market orientation

2. Calculate the operator productivity of a garment unit producing 4000 T-Shirts/ shift by engaging 200 workers.

   A) 20 Shirts/shift B) 25 Shirts/shift C) 30 Shirts/shift D) 40 Shirts/shift

3. Identify the **INCORRECT** statement with regard to work study.

   A) It is a means of raising the productivity of a plant

   B) It is systematic.

   C) It is not the most accurate means yet evolved of setting standards of performance.

   D) It is relatively cheap and easy to apply.

4. Identify the recommended minimum lighting level (lux) required for sewing dark coloured fabrics

   A) 150 B) 300 C) 700 D) 1500

5. Match the following

   a) Outline process chart - i) Man/Machine/Material

   b) Two handed process chart - ii) Path of movement of hand

   c) Cyclegraph - iii) Repetitive operations

   d) Flow process chart - iv) Operation & Inspection

   A) a-iv;b-iii;c-ii;d-i B) a-iv;b-iii;c-i;d-ii C) a-i;b-iii;c-ii;d-iv D) a-i;b-iv;c-ii;d-iii

6. Identify the CORRECT statements with respect to the principles of motion economy.

   i) The two hands should begin and complete their movements at the same time

   ii) Tools and materials should be pre positioned to reduce searching.



   iii) Drop deliveries or ejectors should be used wherever possible.

   iv) The motions of the arms should not be symmetrical and opposite.

   A) i,ii & iii only B) ii,iii & iv only C) i,iii & iv only D) i,ii & iv only

7. Identify the odd one out among the following

   A) Time study B) PMTS C) String diagram D) Standard data

8. In the time study of a sewing operation carried out in a single needle lock stitch machine, identify the allowances category of bobbin thread change element.

   A) Contingency Allowance B) Special Allowance

   C) Machine Delay Allowance D) Policy Allowance

9. Which of the following method study chart is preferable for simultaneously recording the activities of a computer controlled spreading machine and the machine operator using a common time scale?

   A) String diagram B) Travel chart

   C) Two handed process chart D) Multiple activity chart

10. Identify the correct primary factors among the following in evaluating any production system for garment manufacture.

    A) Processing time, Transportation time, Temporary storage time & Inspection time

    B) Processing time, Transportation time, Permanent storage time & Inspection time

    C) Processing time, Transportation time & Inspection time

    D) Processing time, Temporary storage time & Inspection time

**PART B (10 x 2 = 20 Marks)**

11. List the role of industrial engineers in apparel industry.
12. Differentiate between basic work content and added work content.
13. Why is work study valuable for apparel industry?
14. Classify material handling equipments.
15. List any four method study diagrams used to indicate movement.
16. State the purpose of micro motion analysis.
17. Compare time study and PMTS techniques.
18. What is performance rating in time study?
19. Mention the application of work study techniques in packing.

20. List the various manufacturing systems used in garment production.

**PART C (5 x 14 = 70 Marks)**

21. a) Explain the reduction of work content due to product and process with examples from apparel industry.

**(OR)**

b) Explain the causes for low productivity in apparel industry and give suggestions for productivity improvement.

22. a) Explain the effects of working conditions and the working environment on productivity with examples from apparel manufacture.

**(OR)**

b) Furnish an overview on the specialized material handling equipments used in apparel industry.

23. a) Explain the application of outline process chart and flow diagram with an example in each case from apparel manufacture.

**(OR)**

b) Explain the application of two handed process chart and SIMO chart with an example in each case from sewing operations.

24. a) Explain the time study equipments, forms and list out the procedure involved in conducting a time study using stop watch.

**(OR)**

b) (i) Explain how to set time standards for work with machineries by citing an example from apparel manufacture. (7)

(ii) Calculate the total standard allowable minutes (SAM) value for the following operation cycle carried out in a single needle lock stitch machine. (7)

| **S.No** | **Element description** | **Average basic time/ occurrence** | **Occurrence/ operation cycle** |
|---|---|---|---|
| | | **(minutes)** | |
| 1 | Pick up and position parts | 0.28 | 1 |
| 2 | Sew first seam | 0.52 | 1 |
| 3. | Reposition and sew second seam | 0.34 | 1 |
| 4. | Bundle handling | 0.79 | 1/100 |

**Note:** Personal & Fatigue allowance – 18%; Machine Delay Allowance – 8%

25. a) Explain the application of work study techniques in cutting and stitching areas in garment industry.

**(OR)**

b) Critically analyse the merits and demerits of different manufacturing systems used in the garment production.

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