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THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF TEXTILE AND APPAREL TECHNOLOGY
POST GRADUATE DIPLOMA IN TECHNOLOGY
(APPAREL PRODUCTION AND MANAGEMENT)
FINAL EXAMINATION – 2016/2017
TTX7131- APPAREL MANUFACTURING TECHNOLOGY
DURATION: THREE HOURS

Date: 12th November 2017

Time: 0930-1230Hours

Total number of questions = 07

Answer only 5 questions.

Marks for each question are indicated at the end of the question.

- Q1. (a)** Draw a fashion cycle for a product and mark the phases on the diagram. Describe the variations in product cost, profit, sales-volume and popularity of the product during each phase of the fashion cycle. (08 marks)
- (b) (i) Briefly explain why product development is a cyclic activity and describe why it is important to continuously develop a particular product. (08 marks)
- (ii) Briefly explain why efficient supply chain management is important for Sri Lankan apparel industry. (04 marks)
- Q2. (a)** Differentiate the terms “Sourcing” and “Effective Sourcing”? Explain the importance of applying effective sourcing for developing the Sri Lankan Apparel industry. (06 marks)
- (b) A garment factory has received seven different orders. The details of the received orders are given in Table 1. Production planning manager has assigned you to prepare a production plan for the sewing section to complete these seven orders. The factory has a weekly capacity of 120,000 SMV and there are 60 operators organized into 3 lines. The factory works only 5 day per week.
- (i) Draw a Gantt chart to indicate the delivery of the seven orders in time.

- (ii) Determine the available capacity (total available load in SMV) of the plant at the end of the third week, in order to accept several new orders. (14 marks)

Order	A	B	C	D	E	F	G
No. of garments	8000	7000	4000	25,000	10,000	10,000	8000
SMV/garment	3	8	10	8	8	4	5
Week due	1	2	1	3	3	1	2

Table 1

- Q3. (a)** Briefly explain the influencing factors on the quality of a stitch and quality of a seam. (10 marks)

- (b) Write short notes on following special techniques used in assembling apparels.

(i) High frequency welding

(ii) Ultra sonic welding

(iii) Hot element welding

(iv) Hot air welding

(v) Laser welding

(10 marks)

- Q4. (a)** Briefly explain any three (03) common fusing problems may occur in garment production with their possible causes. (6 marks)

- (b) Write a short note on garment moulding technique with considering the reasons for applying, its functions and the temperature variation with in time period of moulding.

(6 marks)

- (c) Compare conventional bundle garment manufacturing system with unit production system and modular production system. (8 marks)

- Q5. (a)** Giving reasons, explain how the following factors influence on the variations in needle temperature.

i. Sewing speed

ii. Needle tip form

iii. Number of plies in the seam

iv. Finishes applied on to fabric

(12 marks)

(b) Needle heating can be minimized using several techniques. Briefly explain any four (04) of them.

(08 marks)

Q6. (a) Briefly explain why needle penetration force is important to be considered in sewing".

(05 marks)

(b) Needle penetration force will vary at the various places of the needle during stitching as given below.

i. Once the needle point touches the fabric, the penetration force gets the highest value

ii. Scarf of the needle gave a lower needle penetration force than the needle eye

iii. Needle penetration force given by needle shaft is lesser than that of the needle eye

Explain the possible reasons for each of these .

(09 marks)

(c) Explain how the needle penetration force varies as per the following factors and give the reasons for each of these variations.

i. Number of plies sewn

ii. Ends/cm and picks/cm of a woven fabric (fabric cover factor)

(06 marks)

Q7. (a) What do you understand by "Smart textiles and clothing" and compare it with conventional textiles and clothing.

(6 marks)

(b) (i) Briefly explain the three (03) types of materials used in manufacturing of smart textiles and clothing.

(6 marks)

(ii) Briefly explain the potential applications of "Wearable mother boards".

(04 marks)

(c) Briefly explain the working principle of phase changing materials (PCM) used for insulating textile structures.

(04 marks)