NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

SECOND SEMESTER EXAMINATIONS – MAY 2011

TXT 4237 – INTRODUCTION TO GARMENT MANUFACTURE

TIME: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

1. Answer **ALL** questions in Section A and **ANY TWO** questions in Section B. Each question in Section A carries **10 marks** and Section B **25 marks**
2. The first fifteen minutes should be spent reading the question paper and making notes.
3. Do not open your answer sheet until told to do so.
4. Marks will be awarded for skill in appreciating the scope of questions, clarity of argument and conciseness of presentation as well as for the knowledge displayed by the candidate.

SECTION A

QUESTION 1

Categorise the types of sleeves in garment analysis and give appropriate examples. **(10)**

QUESTION 2

Verify the relationship between design, pattern and cost. **(10)**

QUESTION 3

Describe the duties of a marker planner and marker maker. **(10)**

QUESTION 4

Identify and discuss three methods of duplicating a marker plan. **(10)**

QUESTION 5

Provide solutions to any three cloth spreading problems **(10)**

SECTION B

QUESTION 6

Convey the characteristics of progressive bundle system in garment manufacture. **(25)**

QUESTION 7

Analyse the use of computer technology in garment design. **(25)**

QUESTION 8

Discuss fabric constraints in cutting technology. **(25)**

QUESTION 9

Giving examples, critically examine any three design elements and three principles in garment design. **(25)**

END OF EXAMINATION QUESTION PAPER

Introduction To Clothing Manufacture

Course code: TXT 4237

MARKING SCHEME

SECTION A

Answer all questions in section A.

Each question carries 10 marks.

Total-50 marks

Question 1	**mark**
Set-in sleeves	1
-resemble a tube hanging from the armhole	1
-fit the body fairly closely but allow room for movement .	2
- have a shaped cap (the part above the biscep)	1
- are cut larger than the armhole,	1
- they are eased to the armhole	1
-may have extra fullness in the cap controlled by gathers or pleats	2
Kimono sleeves	1
-are cut one with bodies	1
-sleeves are not sewn together thereby minimizing labour costs	2
-simplest to construct	1
-material utilization is high especially in long sleeves	1
-may have centre front or back seam so as to reduce pattern piece size and material cost.	2
-the underarm curve may be prone to strain.	1
- a triangular or diamond shaped gusset of bias cut fabric to increase roominess.	

in comfort. 2

-the gusset allows the wearer to reach further without straining underarm seam. 2

Raglan sleeves 1

-are characterised by a diagonal seam, which runs from the underarm to the neckline of the garment 2

-the diagonal seam attaches the tapered sleeve panel to the body of the garment 2

- they provide greater comfort 1

-they are more reaching room 1

-mostly used in active sportswear and for people in wheelchairs and crutches Who require great range and freedom of arm movemet. 3

-Suitable for elderly people with limited mobility 1

(Any 10 points from above)

Question 2

Most simple designs that have big pattern pieces, are easy to mark and have mimnimal labour cost. 4

-examples include wrap over skirt and kimono sleeved garment. 2

-in a kimono sleeved garment, sleeves are cut the bodice 1

-slevees are not sewn together thereby minimizing labour costs 1

-material utilization is high especially in long sleeves. 1

-pattern pieces are big thereby resulting high material usage 2

On the other hand, designs with small pattern pieces are complex to make and lobour cost are high. 4

- Examples include a tailored jacket 1
- The design has a number of seams and process. 2
- Different garment parts are attached individually, and lastly to the shell (main body) 2
- There are numerous pattern pieces 1

- thereby depending on an efficient marker to reduce fabric cost 1
- labour costs are very high because of its detail. 2

(Any 10 points from above)

Question 3

- the planner first positions the larger pattern pieces within a confined width of fabric 2
- views the whole marker at a glance 1
- discovers the edges that fit together most neatly 2
- analysises the pattern pieces in relation to the gaps 1
- fits the smaller pattern pieces in the negative spaces 1
- conceptualise the marker as a whole by placing smaller pieces side by side to fill up the the width of the fabric. 3
- experiments by placing a number of patterns into a different placements 2
- closes the marker making process by achieving the lowest rating. 2

(each point above plus explanation carries a mark allocated)

(Any 10 points from above)

Question 4

a) carbon duplicating 1

- a double sided carbon paper is used 1
- or a "no carbon required " paper or NCR- type 1
- minimum of six and maximum of eight copies can be made 1
- double sided carbon can be used with asymmetrical pattern pieces 1

- it is a low capital and material costs 1

b) spirit duplicating or hectograph carbon system

- the master marker plan is drawn with a layer of special hectograph paper underneath it. 2
- the master marker planner is transfered in blue line onto the back of this paper above 2
- the master is then used to make one copy at a time in a duplicating machine. 2
- the plain paper is immersed in alcohol and passed with the master plan in between the two rollers, transferring lines onto the copy. 2
- it is a messy process 1
- it is recommended for many copies 1

c) diazo photographic method 1

- the master marker and the light- sensitive paper is developed using ammonia vapour 2
- the master marker and the light- sensitive paper are passed under high intensity ultraviolet light. 2
- the lines and other markings on the master marker prevent exposure of the light-sensitive paper which forms a copy and when developed the line remain visible 2
- it is a clean process 1
- unlimited number of copies with a good definition 2
- requires ample of ventilation 1
- paper us expensive 1

- equipment is comparatively cheap 1

(Any 10 points from above)

Question 5

problem	solution
- shading of cloth pieces	**-**different shades of fabric are separated by a roughed tissue in a bright colour, which can be seen easily at the edge of each cut stack.
-Incorrect ply direction	- for symmetrical pattern pieces, fabric is spread face to face. -for asymmetrical pattern pieces, fabric is spread all ply facing up.
-incorrect ply tension	-agitating, flexing and vibrating the fabric in a regular manner, when dispensing the roll from its placement.
-incorrect ply alignment	-align straight edges of plies nearest to the operator. -plies are centralized and surplus distributed equally on both sides
-fabric faults	-Create a splice -move the fault to a waste area.
static electricity	-use guide bars of the spreading machine -increase humidity in the cutting room so that the charges will be neutralized in the atmosphere
Distortion in the spread	**-**use a layer of glazed paper side facing down, at the bottom of the spread
Fusion of plies during cutting	-anti-fusion paper may be used

Each problem and its solution carries 3 points.

Section B

Question 6

Characteristics of progressive bundle system

-Supervision is high because of the correct movement and bundle of work within a section

(plus explanation) 5

-Labour costs are low because various complex tasks are broken down, into simple task

(plus explanation) 5

-quality control is in-progress and inspected into all garments rather than completed garments.

(plus explanation) 5

-it is conducive for high level of production because of broken down tasks and use of specialized machinery.

(plus explanation) 5

-high through-put time at the beginning and at the end of each section.

(plus explanation) 5

- layout is very important as machines are positioned adjacent to the start of the section which performs the next series of operation .

(plus explanation) 5

(Any 25 points from above)

Question 7

Design (CAD) 1

- new style are developed using colour monitor and pointing devise 2
- new fabric designs are originated, coloured, modified and stored for later use. 2
- designs are either two dimensional or three dimensional. 2
- a wire model in human body can be created . 1
- it can be enlarged, reduced, rotated, compressed stretched. 5

Pattern construction (CAD)

- basic pattern is constructed on the screen 1
- an existing pattern digitized 1
- the basic pattern is graded into full pattern set using predefined rules 1
- all the results can be recalled for later use 1
- it is more cost effective in product development and lay planning 1
- delivery period are shortened 1

Computer aided lay planning (CAM)
1

- a lay plan is devised which makes maximum use of the material 2

-a lay plan is sent directly on-line to a computer controlled cutting device which cuts automatically . 2

computer controlled sewing 1

- this device allows sewing of the seams in trousers. 2

-30 different sewing programs can be stored and recalled at will. 2

Computer aided pressing 1

-garments are lifted on a form finisher eg jackets 2

-15 different programmed, corresponding to different materials, styles, and button placings. 2

(Any 25 points from above)

Question 8

Symmetrical or either way 2

-Fabric designs can be turned round (through 180 degrees) 2

-the appearance of fabric does not change, in terms of colour or motif 2

assymmetrical or one-either-way 2

-when turned round (through 180degrees)does not retain the same appearance especially 2

-when two opposite sides are sewn together. 2

-individual garment pattern pieces must lie in the same direction. 2

-nape or pile which is brushed in one direction 2

-fabrics with surfaces which show the reflection of light. 2

-knitted fabrics where the loops of the wales always point in the same direction 2

One- way only 1

-these are fabrics with heavy surface pile or nap 2

-a fabrics motif or print that can only be recognized and used only one way up 2

-example being velvet which can only be cut with pile pointing upwards 2

(Any 25 points from above)

Introduction to clothing manufacture

Course code: TXT 4237

SECTION A

Answer all questions in section A.

Each question carries 10 marks.

Total-50 marks

Question 1

Categorise types of collars in garment analysis and give examples.

(10 marks)

Question 2

Describe the duties of an operator in garment assembly.

(10 marks)

Question 3

Explain the influence of fabric structure in marker planning and making.

(10 marks)

Question 4

Analyse three tangible features that make a garment.

(10 marks)

Question 5

Outline the marker planning process in cutting technology.

(10 marks)

Section B

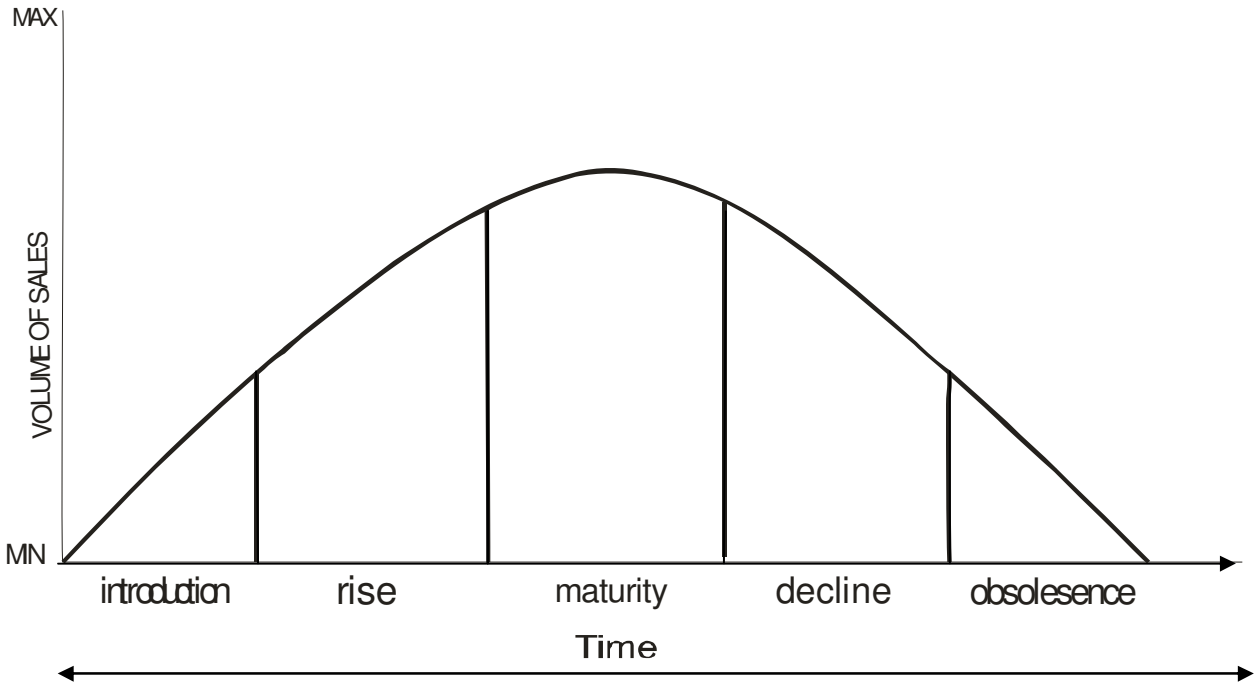
Answer questions only.

Each question carries 25marks.

Total-50 marks

Question 6

Interpret the product life cycle below:



(25 marks)

Question 7

Differentiate make through system from progressive bundle system in garment manufacturing.

(25 marks)

Question 8

Support the use of computer aided design (CAD) in garment design

(25 marks)

Introduction To Clothing Manufacture

Course code: TXT 4237

MARKING SCHEME

SECTION A

Question 1

a) flat collars	1
- lie flat or nearly flat against the garment all round the wear's neck.	2
-if the inner edge of the collar is shaped, in a concave curve, neckline edge, the result is a flat collar.	3
-examples are sailor collar, peter pan collar, puritan and portrait.	
b) standing collars	1
-is a collar with a band extending straight up from the neckline edge of the collar fairly straight	2
the result is a standing collar .	1
-example mandarin, cowl	2
c) rolled (either full roll or partial roll)	1
-is a band of fabric that rolls fully or partially around the neck	2
-a full- roll collar rolls all the way around the neck	1
-Partial- roll collar rolls at the back or at the front of the neck.	1
-full roll collars include turtle-neck, polo collar	2
-partial roll collars include convertible, shawl collar	2

(Any 10 points from above)

Question 2

Duties of an operator in garment manufacture are:

-controls the size of the stitch. 1

-control s the tension of the sewing threads and the rate of stitch formation. 2

-controls the shape of the sewing line 1

-controls the shape of the finished garment parts 1

-matching and fitting of one ply against another 2

-interprets instructions on a specification or work sheet, about different styles 2

- threads up the machine 1

-judge the quality during and after the operation 1

(Any 10 points from above)

Question 3

Symmetrical or either way 2

-Fabric designs can be turned round (through 180 degrees) 2

-the appearance of fabric does not change, in terms of colour or motif 2

assymmetrical or one-either-way 2

-when turned round (through 180degrees)does not retain the same appearance especially 2

-when two opposite sides are sewn together. 2

-individual garment pattern pieces must lie in the same direction. 2

-nape or pile which is brushed in one direction 2

-fabrics with surfaces which show the reflection of light. 2

-knitted fabrics where the loops of the wales always point in the same direction 2

One- way only 1

-these are fabrics with heavy surface pile or nap 2

-a fabrics motif or print that can only be recognized and used only one way up 2

-example being velvet which can only be cut with pile pointing upwards 2

(Any 10 points from above)

Question 4

Design -is a plan of a garment. 1

-it comprises of the characteristics of line (outline of a silhouette/ garment), 2

-colour (use of hue, value and intensity), 2

-shape (of garment components), 2

Materials – these are fabrics and other components used to produce a garment 3

-fabric type (e.g denim, cotton, satin) 4

-trims (plastic, metal, wood, bone, horn) 5

Construction – these are methods used to assemble the garment (e.g stich type, stitch size, 3

seam type, tension, method of production and finish) 2

(Any 10 points from above)

Question 5

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Question 6

intro duction stage

-designers i nterpret their research and their creative ideas into apparel	2
-new styles are introduced at high price level	2
-designers with talent and recognized globally are given financial backup	2
- allowed to design with few limitations on creativity	1
-good quality of raw materials are used	1
-fine workmanship	1
-production costs are high	1
-fashion active consumers and trendsetters are a few who can afford the current style.	2
-Production is small	1
-designers have more freedom, flexibility and room for creativity 3	
Rise	
-the new style purchased, worn and seen by many people 3	
-it may attract attention of buyers, press and the public	3
-popularity of the style may further increase through coping and adaptation	2
-some designers or stylist may modify a popular style to suit the needs and price range for their Customers	2
-some manufacturers may copy it with less expensive fabric and less detail.	2
-the new style will be sold at lower rices	1
Maturity	
-fashion is at its height of popularity	1
-demand is very high	1

- manufacturers copy it or produce adaptations in masses 2

-there are many price ranges 1

-some designers are flattered by coping but some are resentful. 2

-manufacturers study the trend carefully because their customers want clothes that are trendy 2

Decline

-style is less interesting because of overexposure 1

-fashion conscious customers tire of the style and begin to look for something new 2

-customers will wear the style but want to buy it at less expensive regular prices. 2

-retail stores put such declining styles on sale racks, hoping to make room for new merchandise. 2

Obsolescence

-consumers look at the style and express near physical distaste for it 2

-the style is rejected or discarded 1

- the original style is far from removed from the original 1

-it is poorly made and very cheap 2

(each point above plus explanation carries a mark allocated)

(Any 25 points from above)

Question 7

Make through system	Progressive bundle system
-Supervision is minimal because the operator decide their own working methods. (3)	-supervision is high because of the correct movement of work in within a section. (3)
-High labour costs are incurred because the skills are high. (3)	-labour costs are low because various complex tasks are broken down into simple tasks. (3)
-quality control is necessary but less than progressive bundle system. (3)	- quality control is in-progress and inspected into all garments rather than completed garments (3)
-it is not conducive for high level of productivity. (3)	- it is conducive for high level of production Because of the broken down tasks, and use of specialized machinery. (3)
-minimal or less through put time. (1)	-high throughput time at the beginning and at the end of each section. (3)

- a convenient arrangement of machinery is required. (3)	-layout is very important as machines are positioned adjacent to the start of the section which performs the next series of operation. (3)

(each point above plus explanation carries a mark allocated)

(Any 25 points from above)

Question 8

Design (CAD)	1
- new style are developed using colour monitor and pointing devise	2
- new fabric designs are originated, coloured, modified and stored for later use.	2
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- it can be enlarged, reduced, rotated, compressed stretched.	5
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- all the results can be recalled for later use	1
- it is more cost effective in product development and lay planning 1	
- delivery period are shortened	1
Computer aided lay planning (CAM) 1	
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