KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

TE 4109

(Fabric Structure and Design-II)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.
iii) Graph paper will be provided if needed.

SECTION-A

1(a)	Define color and weave effect with its type.	05
1(b)	Mention the order of coloring for- (i) Simple and (ii) Compound.	10
1(c)	Write down the construction principle of color and weave effect.	10
1(d)	Draw a pattern chart for color and weave effects.	10
2(a)	Give eight examples for simple color and weave effects.	05
2(b)	Draw the following simple color and weave effects with the smallest unit and also color the effect with different colors: (Any three) (i) Hair lines, (ii) Birds eye effect, (iii) Dog's tooth, and (iv) Crows foot pattern.	30
3(a)	Write the basic principle, end uses, and typical weaves of tubular cloth.	10
3(b)	Show the cross-sectional view of double width and tubular cloth.	10
3(c)	Classify the stitched doubled cloth with necessary sketches.	15
4(a)	Point out the basic features of the Leno fabrics with its end uses.	15
4(b)	How many ways self-stitch double cloth can be produced?	03
4(c)	Produce the design in the graph paper for self-stitch double cloth by back to face or face to back stitching system and also show the drafting and lifting system.	17

SECTION-B

5(a)	Describe the different types of fabric selvedge with necessary sketches.	20
5(b)	Mention the types of pile and terry fabric.	10
5(c)	What is the function of Selvedge?	05

6(a) Draw Lapping diagram, cam and needle arrangement of the following design: 30

i) Birds eye,
ii) Polo pique,
iii) Single cross tuck,
iv) Single Lacoste and
v) Popcorn.

6(b) Distinguish between Plain and Purl fabrics. 05

7(a) Write short notes on: 25

i) 6X3 Derby rib,
ii) 3X2 rib,
iii) Royal rib,
iv) Full rib and
v) 8X4 rib.

7(b) Distinguish between Rib and interlock fabrics with neat sketches. 10

8. Suppose you are a Manager of Square knit fabrics Ltd. Your company has received a Double Lacoste order from H&M buyer on 4 truck 30″ diameter machine. Find out the following: 35

i) Number of total needles,
ii) Number of 1st butt needles,
iii) Number of 2nd butt needles,
iv) Number of 3rd butt needles,
v) Number of 4th butt needles,
vi) Number of total cams,
vii) Number of total knit cams,
viii) Number of total tuck cams,
ix) Number of total miss cam,
x) Number of total cam boxes.

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

IPE 4121

(Industrial Management)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a)	Define 'Management'. Is your course instructor a manager? Discuss in terms of managerial functions, managerial roles, and skills.	14
1(b)	Define organization. Demonstrate divisional and functional structure with their advantages and disadvantages.	12
1(c)	Discuss critically the basic components of scientific management as propounded by Taylor.	09
2(a)	What are the basic tenets of Weber's bureaucracy theory of management? Discuss the systems theory of management.	14
2(b)	What is the contingency theory of management? What are its implications and relevance?	11
2(c)	What is MIS? Write down the importance of MIS in Textile Engineering.	10
3(a)	Differentiate between centralization and decentralization. What are the factors which tend to promote decentralization?	10
3(b)	Write short notes on: (i) BGMEA, (ii) BKMEA, and (iii) BCSIR.	15
3(c)	What are the factors affecting span of management? Differentiate between flat and tall organizational structure.	10
4(a)	Briefly explain different types of business.	13
4(b)	What is the role of ISO? Briefly explain ISO 9001 and its scopes.	14
4(c)	What is information? Differentiate between data and information.	08

SECTION-B

5(a)	What is meant by merit rating? Which is preferable to you between theory X and theory Y? Show explanation on behalf of your answer.	12
5(b)	What is lean manufacturing? How does 5 s help to achieve lean manufacturing?	13
5(c)	Define 'Halo effect'. Explain based on point method of job evaluation 'the more points the more wage'.	10
6(a)	What is 'Group Dynamics'. Explain the impact of 'Group Dynamics' on an industry.	10

6(b) What is Delphi method? What are the causes of irregular variation of forecasting? 07

6(c) What is meant by Laissez-Faire leadership? Write down the functions of employment section of a company. 13

6(d) What are the various aspects of job performance? 05

7(a) What is meant by 'Wage'? Differentiate between Bedaux plan and Emerson's plan. 10

7(b) Cell phone sales for a California-based firm over the last 10 weeks are shown in the table below: 12

Week	Unit sales
1	700
2	724
3	720
4	728
5	740
6	742
7	758
8	750
9	770
10	775

Plot the data, and visually check to see whether a linear trend line would be appropriate. Then determine the equation of the trend line and predict sales for weeks 11 and 12.

7(c) Define 'TQM'. Write down the construction procedure of a Pareto diagram. 13

8(a) What is dexterity test? What are the new sources of new employees? 10

8(b) What is Judgemental Forecasting? Differentiate between irregular and random variation of forecasting. 10

8(c) Define 'Control chart'. Write down the 'out-of-control signals' of a process. 10

8(d) The skewed distribution is asymmetrical, 'Why'? 05

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

TE 4105

(Wet Processing Engineering-III)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a)	Despite of insolubility of pigment, why pigment dyeing is so much familiar garments dyeing in recent time?	08
1(b)	How many ways can you do cationic pretreatment? Why cationic pretreatment is done at cotton fabric before pigment dyeing?	07
1(c)	"Fluorescent dyes treated fabric is more fluorescence under UV light"- Explain this argument.	08
1(d)	Write down the pigment dyeing process on cotton fabric with recipe and curve.	12
2(a)	Mention the foam evaluation criteria that is necessary to control the foam dyeing process.	08
2(b)	Write down the reasons for using foam in wet processing.	08
2(c)	What types of solvent are used in dyeing process and how can it be recovered after dyeing process?	07
2(d)	Describe the foam dyeing procedure in rotary screen printing.	12
3(a)	What is air flow dyeing machine? Why factory authority set up air flow dyeing machine instead of existing different water jet dyeing machine?	10
3(b)	Describe the nozzle system of air flow dyeing machine with neat sketch.	08
3(c)	What is super critical fluid? Why super critical CO_2 is used in dyeing process instead of normal CO_2 gas?	05
3(d)	If you use sc-CO_2 dyeing system for natural fiber Sud2 like cotton, what will be the setting parameters of this machine and its working principle? Explain neat sketch	12
4(a)	What is meant by effluent? What will be characteristics of waste water to be discharged into the environment?	08
4(b)	What is bio-mass engineering? Write down the importance of bio-mass engineering in ETP.	05
4(c)	What is meant by clarifier? How can you identify the primary or secondary clarifier by observing the both clarifiers function?	07
4(d)	Write down the function of different chambers in biological effluent treatment plant.	15

SECTION-B

5(a)	Write down the advantages of natural dyes over synthetic dyes.	07
5(b)	Write down the pore model and free volume model of dye diffusion in fibers with proper sketch.	15
5(c)	What is diffusion? State the Fick's law.	08
5(d)	Write down the classification of mesh count for different types of ink deposition and sharpness of border line.	05
6(a)	What is aggregation of dyes? Write the types of aggregation.	08
6(b)	Write down the reasons of dye aggregation in dye bath and preventive steps to control this aggregation.	12
6(c)	What is meant by adsorption isotherm? Describe three types of adsorption isotherm with curve and equation.	15
7(a)	What is natural dyes? Write the names of mordant that are used to get hue form natural dyes.	08
7(b)	Write down the classification of natural dyes according to chemical constitution with chemical structure.	12
7(c)	State the extracting process of natural dyes.	15
8(a)	What is synthetic thickener? Why synthetic thickener is used instead of emulsion thickener?	05
8(b)	What is meant by Halation? How can you solve this problem during light passing through screen?	05
8(c)	Write down the squeezing system of rotary screen orienting.	12
8(d)	Write down working principle of fully automatic flat screen printing with advantages and disadvantages.	13

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

TE 4103

(Fabric Manufacturing Engineering-II)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a)	State the features of an automatic loom.	07
1(b)	Describe the working principle of 4X1 drop box motion.	18
1(c)	Differentiate between drop box and circular box.	10
2(a)	What is feeler? Write down the types and function of feeler.	08
2(b)	Describe pirn change with the help of side – sweep mechanical feeler mechanism with neat sketch.	20
2(c)	Why weft replenishment motion is necessary?	07
3(a)	Differentiate between fast reed and loose reed motions.	10
3(b)	What are the purpose of warp protector motion?	05
3(c)	State the causes of shuttle failure.	08
3(d)	Differentiate between center weft fork and side weft fork motions.	07
3(e)	Sketch a drop wire. Why it is used?	05
4(a)	What is costing? Classify costing.	10
4(b)	Explain break even point. How to reduce break even point in weaving mill?	12
4(c)	What is weavers load? State the duties of a weavers.	13

SECTION-B

5(a)	Describe the knitting action of latch needle for V-bed flat knitting machine for both synchronized timing and delayed timing with neat sketch.	15
5(b)	Describe the advanced developments of flat bed knitting machine.	10
5(c)	What is loop transfer? State the objectives of loop transfer?	10

6(a)	What are the factors on which the productivity of knitted fabric depends?	15
6(b)	Write a short notes on:- (i) VDQ pulley, (ii) Tightness factor, and (iii) Robbing back.	15
6(c)	Why positive feed is better than negative feed system.	05
7(a)	What is full fashioning? State the advantages of it.	07
7(b)	Show the full fashioning shapping calculation by assuming necessary data.	15
7(c)	Explain different relaxation of fabric.	13
8(a)	Describe the features and basic principle of sliver high pile machine.	20
8(b)	Describe the knitting action of three thread fleece with neat sketch.	15

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

TE 4107

(Apparel Manufacturing Engineering-III)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a) Classify the garments dyeing machine. Which dyeing machine is widely used for garments dyeing and why? Draw this machine and indicate its different parts. 12

1(b) State the basic theory of garments dyeing. 05

1(c) Describe the garments dyeing with reactive dyes by the help of pretreatment. 18

2(a) Depict the different thread consumption system with suitable examples. 12

2(b) Estimate the fabric consumption/dozen of Men's T-shirt from the following measurement (Measurement in cm): 15

Ratio	**3**	**2**	**2**	**2**	**3**
Size ratio	S	M	L	XL	XXL
½ chest	56	58	60	62	64
Body length	70	72	74	76	78
Sleeve length	20	22	24	26	28
Hem and Rib width	3	3	3	3	3

[GSM-140].

2(c) If one shirt contains 09 buttons of 17 L and 02 buttons of 14 L, calculate the ligne wise requirement of buttons in Gross and Great Gross (GG) for manufacturing one million of shirts. 08

3(a) Calculate the fabric consumption of basic Men's long sleeve woven shirt from the below specification sheet (All measurement are in cm): 20

Size ratio	**S**	**M**	**L**	**XL**	**XXL**
Ratio	2	2	3	3	2
½ chest	56	58	60	62	64
Body length	80	84	88	92	96
Sleeve length	63	65	67	69	71

(Assume necessary parameters if needed).

3(b) 7 ply carton per square meter rate is $0.30 where length 55cm, width 35cm and height 40cm. Now figure out carton cost for 220 pcs. 06

3(c) List out the seaming defects and assembly defects of garments. 09

4(a) Mention the different steps of inspection in garment factory. What is inspection loop? 05

4(b) Determine the number of samples to be inspected for the lot below and to determine that up to what number of defects will be accepted. 10
Lot size = 2700 pcs garments, AQL = 4%.
(Inspected by single sampling plan).

4(c) How and why seam slippage is occurred? 12

4(d) What aspects should be considered to predict seam strength? 08

SECTION-B

5(a)	Classify the garments washing with its requirement.	06
5(b)	Describe the working procedure of horizontal garments washing machine with neat sketch.	14
5(c)	Make a list of the machines that are used in a washing plant.	05
5(d)	Write down the process sequence of acid wash of 100 kg of sweater.	10
6(a)	Describe the process of Desize + Bleach + Softener wash of 80 Kg of denim long plant with standard recipe.	12
6(b)	Mention the limitations of hypochlorite bleaching.	06
6(c)	Write short notes on: (i) Whiskering, (ii) PP Spray, and iii) Laser Engraving	09
6(d)	How will you produce 3-D effect on denim garments by resin application.	08
7(a)	Explain the body heat balance equation.	10
7(b)	Mention the probable reasons for feeling discomfort during clothed situation.	09
7(c)	How vapour permeability of textiles can be measured by desiccant method?	08
7(d)	Write short notes on: (i) Thermal Manikin, and ii) PERMETEST.	08
8(a)	Why lead compounds are considered as hazardous substances? Discuss the use, limiting values, and regulations in different countries of lead compounds in textiles.	08
8(b)	What are the regulations regarding zipper fasteners to be used in children's apparel? Discuss.	13
8(c)	Make a list of the tests used to evaluate restricted substances in apparel. Discuss the test method to determine formaldehyde content in apparels.	14

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

TE 4113

(Textile Testing and Quality Control-II)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a)	What is Oeko-Tex-100^{+} ? Write down the different categories of Textiles according to Oeko-Tex.	15
1(b)	What is WRAP? State the WRAP principles.	15
1(c)	Describe ECHA's activities on nano materials under REACH.	05
2(a)	What is meant by BAN? Describe the process of BAN for estimation mercerization of the fabric.	15
2(b)	Define hardness of water. How will you express the hardness of water? Explain in details.	10
2(c)	Discuss a method of estimating available chlorine present in a fabric.	10
3(a)	Define the following terms:- (i) Air porosity, (ii) Water retention, (iii) Shower prof, and iv) Wet ability.	10
3(b)	Mention the different teat methods for wet ability or water permeability of fabrics.	04
3(c)	Explain the Bundesmann test for water penetration and absorption of fabric.	15
3(d)	Differentiate between water prof and water repellent.	06
4(a)	Write shirt notes on:- (i) Flame resistance rating, (ii) Flame prof, and (iii) Flame resistance finish.	09
4(b)	Depict the different factors those affecting the flame resistance.	10
4(c)	Describe the 45° flame test for standard ASTM D-1230-94.	16

SECTION-B

5(a)	What is color fastness? Describe a test of color fastness to wash according to an established standard.	12
5(b)	Show different light sources used in textile testing. Write short note on blue wool.	06
5(c)	Discuss a test of color fastness to rubbing mentioning the standard.	09
5(d)	Show a format of a test report of color fastness to light indicating the standard.	08

6(a)	Define carpet thickness and durability of carpet.	05
6(b)	How will you measure carpet thickness by WIRA carpet thickness gauge?	15
6(c)	What is snagging? Describe a snagging test mentioning the evaluation procedure.	10
6(d)	Briefly explain the reasons of pilling.	05

7(a)	What is pilling? Show a pilling test with an established evaluation procedure.	10
7(b)	Write the factors affecting abrasion resistance.	05
7(c)	Describe abrasion resistance test with the assessment.	10
7(d)	Write down the disadvantages of wearer trials and laboratory tests.	10

8(a)	Discuss the procedure of carrying out a crease recovery test.	08
8(b)	Show a comparison of ISO and AATCC test of color fastness to perspiration.	11
8(c)	What is grab test?	06
8(d)	Show a durability measurement test of a carpet.	10

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

B. Sc. Engineering 4th Year 1st Term Examination, 2016

TE 4133

(Technical Textiles)

Time: 3 Hours | Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a)	What is Technical Textiles? Write down the scope of Technical Textiles.	10
1(b)	Mention the ways and techniques to produce technical textile according to Textiles institute.	05
1(c)	Point out the main categories of technical textiles with their applications.	15
1(d)	How does technical textile differ from conventional textiles?	05
2(a)	When should geo-textiles be used? State the functions of geo-textiles.	15
2(b)	Show the flow chart of nonwoven geo-textile manufacturing process.	08
2(c)	What is FRC. Write the factors affecting properties of FRC.	07
2(d)	State some applications of FRC.	05
3(a)	Distinguish filtration from sieving and decanting?	05
3(b)	Define: Filter medium, filter cake, and filtrate.	06
3(c)	What are the different types of filter media? State the requirements of textile filter.	12
3(d)	Differentiate between surface and depth filtration.	12
4(a)	What is microfiltration? Write down the application of micro filtration.	07
4(b)	Mention the different configurations of ultra filtration membrane. Why ultra filtration is preferred?	10
4(c)	Describe filtration mechanism with neat sketch.	12
4(d)	State the mechanism of sound absorption in fibrous materials.	06

SECTION-B

5(a)	Define medical textile with its application area.	06
5(b)	Briefly discuss the medical textile products.	15
5(c)	Explain- i) Scan2knit ii) Sutures.	10
5(d)	Classify the medical textiles.	04

6(a)	What is protective clothing? Give eight examples with its requirements.	10
6(b)	Give the fabric specification of racing driver's clothing.	06
6(c)	Describe the materials used to make parachute.	10
6(d)	Write short notes on:- i) Rain coat ii) Gortex-clothing iii) Rip stop Nylon.	09
7(a)	Distinguish among function textiles, intelligent textiles, and smart textiles.	09
7(b)	How smart textile works?	07
7(c)	State basic functions of smart textile.	14
7(d)	List some types of smart material used in smart textiles.	05
8(a)	Classify and describe the coated fabrics.	15
8(b)	What is laminated fabric? Write down the importance of foam for producing of laminated fabrics.	05
8(c)	In how many ways laminated fabric can be produced? Describe one of them.	10
8(d)	Write down the end uses of laminated fabrics and coated fabrics?	05

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