KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2016
TE 3105
(Wet Processing Engineering-I)

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 are meant by temporary and permanent hardness of water?   04

1(b) Write down the reasons of scale formation in boiler.   04

1(c) How to determine water hardness by EDTA? Analyze this procedure.   12

1(d) Describe the Zeolite (Permutit) method of water softening.   15

2(a) What is surfactant? Write down the classification of surfactant.   07

2(b) Which one is more effective between soap and detergent for removing the dirt from   08
substrate?

2(c) Describe the rolling up and emulsification mechanism of dirt removal from substrates.   12

2(d) How can you assess the scouring affect by spot and wicking test.   08

3(a) What is gas singeing machine? Write down the important parameters of gas singeing   09
machine that should be considered before running the machine.

3(b) Why ammonia mercerization is suitable for denim instead of widely used sodium   06
hydroxide mercerization?

3(c) Write down the changes of cellulosic material during mercerization process.   08

3(d) How can you estimate the mercerization effect by Barium Activity Number (BAN)? If   12
BAN of grey fabric is more than acceptable range, as a textile engineer what steps should
be taken before dyeing?

4(a) What is sodium hypochlorite bleaching? Describe it's mechanism.   10

4(b) What is meant by oxy-cellulose? Which factors are responsible for creating this modified   07
cellulose during bleaching?

4(c) Why H_2O_2 bleaching is called universal bleaching agent?   06

4(d) What is standard damage percentage of cellulose after bleaching? How can you identify   12
the damage in cellulose due to bleaching by fluidity test?

SECTION-B

5(a) Introduce the theory of dyeing.   07

5(b) Present the process flow chart of denim dyeing.   06

5(c) Write down the working principle of jet dyeing machine.   10

5(d) What is four point system? Write down the chart of four point system. A fabric roll 120   12
      yards long and 50″ wide contains following defects:-

      6 defects up to 3″ length, 4 defects from 3″ to 6″ length, 2 defects from 6″ to 9″ length, 1
      defect over 9″ length and 1 hole over 1″.

      Do you think this fabric roll can be loaded in dyeing machine according to a point system
      inspection?

6(a) What is meant by super milling acid dyes? Why super milling acid dyes have excellent   07
      wash fastness?

6(b) "Direct dyes have strong affinity towards fibers" – Discuss.   08

6(c) Describe the procedures for application of acid dyes with recipe and curve.   10

6(d) Write down any three after treatment process for improving wash fastness and light   10
      fastness of direct dyed fabric.

7(a) Write down the classification of vat dyes according to chemical structure.   05

7(b) Write down the properties of solubilized vat dyes? How to prepare the solubilized vat   10
      dyes?

7(c) Write down the chemical constituent of basic dyes.   05

7(d) Describe the dyeing method of cotton with basic dyes by the help of curve.   15

8(a) What is mesh count? What are the relationship between mesh count and ink deposition on   05
      printed fabric for different printing quality?

8(b) What is burn out printing? Describe the procedure of burn out printing.   10

8(c) Describe the procedure of transfer printing with necessary sketch.   10

8(d) What is photo emulsion? Which photo emulsion between di-azo and pure photopolymer is   10
      more convenient to us and why? Explain.

--) END (---

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2016
TE 3101
(Yarn Manufacturing Engineering-I)
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 BIAS? Write the objectives of blow room.   10

1(b) Consider 6% trash in raw cotton. Trash in card sliver 0.40%. If cleaning   07
efficiency of carding machine is 75%, then find blow room cleaning efficiency.

1(c) Write short notes on: (i) Melt spinning, (ii) Bale management, (iii) SCI, (iv)   18
HVI, and (v) Vision shield.

2(a) Describe a metal part separator of a blow room line. What is MIC?   10

2(b) Show different elements of gird with sketches. What is CIW?   07

2(c) Describe the working principle of " Uniclean" of Rieter blow room line with neat   13
sketch.

2(d) State the common faults of a blow room line.   05

3(a) Draw a carding machine and indicate its different parts.   15

3(b) Mention the surface speed and write direction of the parts of the carding machine: 08
(i) Taker in, (ii) Cylinder, (iii) Flat, and (iv) Doffer.

3(c) State the different actions of the carding machine with their diagrams.   12

4(a) What is card clothing? Point out advantages of flexible card clothing over   10
metallic card clothing.

4(b) Write down five major setting points of carding machine with their effects on   15
changing.

4(c) Calculate the production /shift in kg of the carding machine from the following   10
data:
Doffer speed = 45 rpm, Doffer dia = 27″, Lap weight = 14 oz/yd, Card draft =
100, Waste = 3%, Efficiency = 90%, and No. of carding machines = 10.

SECTION-B

5(a) Write the features of a modern draw frame.   08

5(b) Show the draft distribution on the 4-over-4 drafting system of draw frame if total   08
draft is 8.

5(c) Discuss an auto leveling system of a modern draw frame. What is roller slip.   10

5(d) Card sliver wt = 55 grain/yd, draw sliver hank 0.16 and drawing draft = 7.5. Find   09
out numbers of card sliver in doubling.

6(a)	Show the process flow chart of jute yarn.	10
6(b)	What is batch and batching? Write the objectives of batching.	10
6(c)	Write down the ingredients of emulsion and also mention their functions.	15

7(a)	Describe and sketch a jute spreader machine.	10
7(b)	Show a diagram of an automatic batch mixer with description.	09
7(c)	Estimate the production /100 yds of a goods spreader machine from the following data: Dollop wt = 2000 lbs, Clock length = 375 yds, Draft = 10, Emulsion applied = 35% and Waste = 3%.	08
7(d)	What is grinding? Write down the advantages of tandem cards.	08

8(a)	Sketch a Cross-sectional diagram of a breaker card machine.	10
8(b)	Show classifications of jute carding machine.	08
8(c)	Calculate the weight of sliver in lbs/100 yds from the following data: Dollop wt = 30 lbs, Clock length = 12.9 yds, Draft = 12, and loss = 4%.	08
8(d)	Write short notes on: (i) Carding action, (ii) Roller lapping, and (iii) Doffing action.	09

---) END (---

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3ʳᵈ Year 1ˢᵗ Term Examination, 2016
TE 3107
(Apparel Manufacturing Engineering-I)
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 the following terms:	10
	(i) FOB, (ii) Lay, (iii) Dart and pleat, (iv) Swatch, and v) CMT.	
1(b)	"Garment sector has great economical prospect but there is a risk for environment of Bangladesh"- Justify this statement and put your suggestion to overcome this risk.	10
1(c)	Define back to back letter of credit. What is the importance of back to back L/C?	07
1(d)	Show the cycle of a confirmed letter of credit.	08

2(a)	Define anthropometrics. State the steps that are followed to develop a new sizing system.	12
2(b)	Distinguish among block pattern, working pattern, and production pattern.	08
2(c)	Show the sequence of sample garments making.	10
2(d)	What is counter sample?	05

3(a)	What are meant by group marker and solid marker? Discuss comprehensively.	12
3(b)	Sometimes nature of fabric is a constraint of efficient marker. Do you agree? "Justify your opinion".	10
3(c)	What is Digitizing? Write the functions of the following devices:	13
	i) Plotter	
	ii) Pantograph and	
	iii) Planimeter.	

4(a)	Discuss interactive method of marker planning.	10
4(b)	Why shade sorting of the fabric plies are important prior to fabric spreading?	08
4(c)	Why underlay papers and interleaving papers are used in fabric lay?	08
4(d)	What is marker efficiency? Why industry pays more attention on the marker?	09

SECTION-B

5(a) Discuss 'Face up in a single direction' and 'Zig-Zag' modes of fabric spreading with necessary diagrams.   12

5(b) Briefly describe the control features of an automatic spreading machine.   08

5(c) How automated fabric fault registration and management system can be used during fabric spreading?   08

5(d) Write about remnant loss in the process of fabric spreading. How remnant losses can be controlled?   07

6(a) Describe the operating principle and necessity of a band knife cutting machine.   15

6(b) What are the reasons and remedies of fused edge during cutting?   10

6(c) How shape and movement of the cutting device create accuracy problem in manual cutting?   10

7(a) Classify the fabric cutting machine.   10

7(b) What are the importance of nesting and cutter driving software in automatic cutting?   12

7(c) Discuss the working procedure of water jet cutting machines.   13

8(a) Describe the operating procedure of a continuous fusing press with specifications.   15

8(b) Define 'Strike through' and 'Strike back'.   10

8(c) Point out five places where interlining is used in garments.   05

8(d) Write down the conditions for fusing delicate fabrics.   05

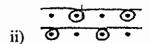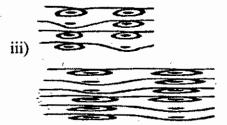--) END (---

SECTION-A

1(a)	Classify knitting machines.	08
1(b)	Discuss the various types of needle with neat sketch.	15
1(c)	Write down the different parts of a sinker.	05
1(d)	Sketch a latch needle and indicates different parts.	07

2(a)	What are the main features of plain fabrics?	10
2(b)	Define the term:- (i) Laddering, (ii) Half cardigan rib, and (iii) Full cardigan rib.	15
2(c)	What are the differences between Synchronized timing and delayed timing?	10

3(a)	Make a comparison among basic 4 weft knitted structures.	08
3(b)	Describe the stitch formation technique of a spring bearded needle with neat sketch.	15
3(c)	Explain knitting action of bearded needle with neat sketch.	12

4(a) If machine diameter of a circular single jersey is $40''$, find out the followings:- 14

    i) Number of cam boxes.

    ii) Number of feeders.

    iii) Number of yarns to be used.

    iv) Number of needles.

    v) Number of sinkers.

    vi) Number of wales.

    vii) Number of courses for one revolution.

Assume system number of this machine is 4.20.

4(b)   Find out the cam arrangement, needle arrangement of following designs:-   12

i)

ii)

iii)

4(c)   Define the term purl. Describe the following design:-   09

SECTION-B

5(a)   What are the basic features of flat knitting machine? Also mention the differences   15
between flat and circular knitting machines.

5(b)   Describe the main machine parts of a flat bed knitting machine with neat sketch.   15

5(c)   What are the function gap opening and racking lever?   05

6(a)   Calculate the production of a single-jersey circular knitting machine in Kg/hr from the   10
following data:- Machine diameter = $30''$, Gauge = 28, Number of feeders = 96, Machine
speed = 35 rpm, Machine efficiency = 80%, Count = 50Ne, and Stitch length = 0.25 cm.

6(b)   What are the main differences between weaving and knitting?   07

6(c)   What are the differences between warp knitting and weft knitting?   08

6(d)   Mention the properties of hosiery yarn.   10

7(a)   Discuss different types of hosiery products with neat sketch.   13

7(b)   Define welts. What are the requirements of welts.   08

7(c)   Define spirality and shrinkage. Mention the causes and remedies of spirality and   14
shrinkage.

8(a)   Explain yarn storage device. Enlist yarn related defects in knitted fabric.   10

8(b)   What are butt length and butt position of knitting needle?   07

8(c)   Why Nylon is superior in stockings?   08

8(d)   State the important developments in circular hosiery machine.   10

--) END (---

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2016
Hum 3121
(Accounting and Industrial Law)
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 meant by double entry system?   05

1(b)   What are the characteristics of double entry system?   10

1(c)   Differentiate between journal and ledger.   10.

1(d)   State the purposes of trial balance.   10

2.   Quick carriage company started on June 1, 2016 by Mr. Hares has the following   35
transactions during June:

2016 June-01	Hares invests Tk 57,000 cash in a new business called quick carriage company.
2016 June-02	A van is purchased for the business for Tk 36,000 in cash.
2016 June-03	Equipment is purchased on account for Tk 9,000.
2016 June-04	A fee of Tk 1,200 for hauling goods is billed to a customer.
2016 June-05	A fee of Tk 2300 for hauling goods is received in cash.
2016 June-06	Cash Tk 600 is received from customer who was billed in June-04
2016 June-07	A payment of Tk 5000 is made on the equipment purchased in June-03
2016 June-08	Repair expense paid in cash Tk 1,900.
2016 June-09	Purchased gasoline in cash Tk 1000.
2016 June-10	Cash Tk 1,500 is withdrawn from business by Mr. Hares for his personal use:

Required: Pass journal entries in the book of Mr. Hares quick carriage company.

3.   Hasan a chartered accountant, started his own accounting firm. The transaction for July   35
for Hasan C.A; are as follows:-

2016 July-01	Hasan deposited Tk 50,000 in the accounting firm.
2016 July-06	Purchased office furniture costing Tk 20,000 on account.
2016 July-10	Purchased office supplies costing Tk 5,000 for cash.
2016 July-15	Billed clients for Audit service completed Tk 18,000.
2016 July-20	Paid for office furniture purchased on July 06 Tk 20,000.

2016 July-25   Received Cash from clients previously billed Tk 5,000.

2016 July-30   Salary paid to office assistant Tk 1,500 in cash.

Required: Prepare necessary ledger accounts.

4.   The Sea Coast Motel openned for business on March 31, 2011. Its trial balance before   35
adjustment on March 31 is as follows:

SEA COAST MOTEL

Trial Balance

March31, 2011

Account titles	Debit (Tk)	Credit (Tk)
Cash -	3,500	
Prepaid insurance	1,800	
Supplies -	1,900	
Land - - ; -	74,000	
Furniture -	26,800	
Accounts payable - - - - - - - - - - - - - - - - - -		3,700
Unearned rent revenue - - - - - - - - - - - - - - - -		3,600
Mortgage payable - - - - - - - - - - - - - - - - - - -		36,000
Capital -		60,000
Rent Revenue -		9,200
Salaries expense - - - - - - - - - - - - - - - - - - -	3,000	
Utilities expense - - - - - - - - - - - - - - - - - - -	1,000	
Advertising expense - - - - - - - - - - - - - - - - - -	500	
	1,12,500	1,12,500

Other data:
   a) Insurance expires at the rate Tk 300 per month.
   b) An inventory of supplies shows Tk 1,500 of unused supplies on March 31.
   c) Annual depreciation on furniture is Tk 2,400.
   d) Unearned rent of Tk 2,000 has been earned.
   e) Salaries of Tk 2,500 unpaid at March 31.
Required:
   (i) Prepare a statement of comprehensive income as on March 31, 2011.
   (ii) Statement of owner's equity and
   (iii)Statement of financial position as on 31 March, 2011.

SECTION-B

5(a)   Define industrial law.   05

5(b)   State the objectives of industrial law   10

5(c)   State the provisions of health of workers.   10

5(d)   What are the provisions of safety of workers?   10

6(a) What is the special definition of worker?   05

6(b) State the requirements for application of trade union.   15

6(c) What are the requirements for registration of trade union?   15

7(a) What is meant by raising of industrial dispute?   05

7(b) What are the provisions of settlement of industrial dispute?   15

7(c) State the provisions relating to strike and lock-out.   15

8(a) Define labour court.   05

8(b) What are the functions of labour court?   10

8(c) How is labour court formed?   10

8(d) What is ILO and what are the principles of ILO?   10

---) END (---