KHULNA UNIVERSITY OF ENGINEERING &TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2017
TE-3101
(Yarn ManufacturingEngineering-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.
   iii) Assume reasonable data if missing any.

SECTION-A

1(a) Write the process sequence of 50 Ne combed yarn mentioning the blowroom line machineries. 06

1(b) Write short notes on: 09

   i) Bale Management ii) HVI iii) AFIS

1(c) Calculate the production/ shift in Kg of a B/R Line if- 05

   Calender roller dia. = 7.5 inch

   Calender roller speed = 10 rpm

   Lap weight = 15 oz/yd

   Waste = 5%

   Efficiency = 85%

   No. of scutchers = 2

1(d) Find out the B/R cleaning efficiency from the following particulars: 03

   Trash in raw cotton = 6%

   Trash in card sliver = 0.40%

   Carding cleaning efficiency = 75%

1(e) Briefly describe the fiber properties which have influence on yarn quality. 12

2(a) State the objects and faults of blow room. 08

2(b) Describe the working principle of 'Uniclean' of Rieter blow room line with neat sketch. 10

2(c) What is card clothing? Pointout the merits and demerits of different card clothing. What is staving? 10

2(d) Calculate the mechanical draft, when- 04

   Card waste = 6%

   Lap weight = 13 oz/yd

   Card sliver weight = 48 grain/yd

2(e) What is CIW? 03

3(a) Write down the objectives of carding machine. Why carding is called the heart of spinning? 08

3(b) Write down the surface speed and wire direction of the following parts of a carding   08
machine:

i)Doffer,ii) Cylinder, iii) Flat, and iv) Taker-in

3(c) What is carding action? Where and how this action is occurred in carding machine?   06

3(d) Calender roller speed = 80 rpm   06

Calender roller dia. = 4 inch

Card draft = 100

Lap weight = 14 oz/yd

Tension draft = 1.05; No. of cards = 10

Efficiency = 85%

Find out the production/ shift in Kg of the carding machines.

3(e) Depict the causes and remedies of faults in carding.   07

4(a) Describe the operating principle of Drawing frame.   10

4(b) Describe a modern carding machine with a cross sectional diagram. Write short note on   12
'IGS'.

4(c) Distribute the draft among three (03) zones of a 4 over 4 drafting system (Assume total   04
draft = 7) of a Draw frame.

4(d) Find out the production in Kg/day of Draw frame from the following data: 05

Delivery roller speed = 700 meter/ minute

Draft = 7.5

Doubling = 8

Card sliver hank = 0.15

Delivery/ head = 2

No. of Draw frames = 4

Efficiency = 80%

4(e) Write shot note on Nep Counting.   04

SECTION-B

5(a) Write down the features of a modern Draw frame.   06

5(b) Explain (Mathematically and graphically) the effects of draft and doubling on the   10
quality of drawn sliver.

5(c) Depict the causes and remedies of drafting wave.   08

5(d) Discuss the factors considered for roller setting. What is roller lapping?   06

5(e) Card sliver hank = 0.15, Draw frame sliver hank = 0.16, and drawing draft = 7.50. Find   05
out the no. of card sliver.

6(a) List the different types of jute yarn.   03

6(b) Worsted yarn is better than woolen yarn. Why?   04

6(c) What is batch and batching? What factors are to be considered for batch selection?   07

6(d) Mention the ingredients of emulsion and also describe their functions.   10

6(e) Classify the emulsion preparation machine and jute softener machine.   04

6(f) Describe the working principle of jute spreader machine.   07

7(a) Define the clock length and dollop weight. Also show the relation among clock length, dollop weight, and draft.   06

7(b) Mention the batch composition for the following jute yarn: 06

     i)CBC yarn ii) 8 lb/ spyndle Hessian warp iii) 8.5 lb/ spyndle Hessian weft

7(c) Differentiate between jute spreader machine and softener machine.   08

7(d) What is stainless emulsion? List its composition with importance.   06

7(e) Find out the production/ 100 yds of a Good spreader machine from the following data: 05

     Dollop weight = 2000 lb

     Clock length = 375 yds

     Draft = 10

     Emulsion applied = 35%

     Waste = 4%

     Efficiency = 85%

7(f) Clarify the position of Clock-Pointer of jute spinning machine.   04

8(a) Write down the objectives of jute carding. Show types of jute carding.   09

8(b) Describe a Breaker Carding machine of jute spinning with a neat sketch.   15

8(c) Why two types of carding machines are used in jute spinning?   06

8(d) Calculate the weight of sliver in lb/ 100 yds delivered from the finisher card from the following data: 05

     Breaker card delivery sliver weight = 24 lb/ 100 yds

     Breaker card draft = 12

     Finisher card draft = 15

     Finisher card doubling = 12

     Waste = 4%

----END----

SECTION-A

1(a)	Classify knitting machines.	04
1(b)	Write about 1 point and 3 point waxing system.	06
1(c)	Define the following terms with figure: i)Kink of yarn ii) Knitted loop iii) Knitted stitch iv) Open loop v) Closed loop vi) Face loop	18
1(d)	What are the main advantages and disadvantages of a latch needle?	07

2(a)	Differentiate between compound and bearded needle.	08
2(b)	Write the features of knitting cam.	07
2(c)	What is meant by cam truck? Describe different butt positions and butt length of a circular knitting machine.	12
2(d)	What are the functions of sinker? Describe the different parts of a sinker with neat sketch.	08

3(a)	Make a list of comparison among basic weft knitted structures.	10
3(b)	What is the difference between full feeder and half feeder lycra single jersey fabric?	05
3(c)	Describe the action of latch needle with appropriate figure by maintaining sequence.	15
3(d)	Describe single pique with lapping diagram, needle arrangement and cam arrangement.	05

4(a)	What is meant by rib and interlock fabric? Differentiate between them.	10
4(b)	Draw and describe the knitting action of a circular rib machine.	12
4(c)	How can you identify an interlock machine?	08
4(d)	Is it possible to convert rib machine to interlock machine?	05

SECTION-B

5(a)	What are the main features of a flat knitting machine?	07
5(b)	What are the main types of a flat knitting machine?	05
5(c)	Show the yarn passage diagram of V-bed rib flat machine.	10
5(d)	Describe the cam system of a V-bed flat knitting machine.	13

6(d) Mention the ingredients of emulsion and also describe their functions.   10

6(e) Classify the emulsion preparation machine and jute softener machine.   04

6(f) Describe the working principle of jute spreader machine.   07

7(a) Define the clock length and dollop weight. Also show the relation among clock length,   06
      dollop weight, and draft.

7(b) Mention the batch composition for the following jute yarn: 06
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7(d) What is stainless emulsion? List its composition with importance.   06

7(e) Find out the production/ 100 yds of a Good spreader machine from the following data: 05
      Dollop weight = 2000 lb
      Clock length = 375 yds
      Draft = 10
      Emulsion applied = 35%
      Waste = 4%
      Efficiency = 85%

7(f) Clarify the position of Clock-Pointer of jute spinning machine.   04

8(a) Write down the objectives of jute carding. Show types of jute carding.   09

8(b) Describe a Breaker Carding machine of jute spinning with a neat sketch.   15

8(c) Why two types of carding machines are used in jute spinning?   06

8(d) Calculate the weight of sliver in lb/ 100 yds delivered from the finisher card from the   05
      following data:
      Breaker card delivery sliver weight = 24 lb/ 100 yds
      Breaker card draft = 12
      Finisher card draft = 15
      Finisher card doubling = 12
      Waste = 4%

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KHULNA UNIVERSITY OF ENGINEERING &TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2017
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.
  iii) Assume reasonable data if missing any.

SECTION-A

1(a) Define the following terms: 10

  i) Pattern ii) Grain Line iii) PI iv) FOB v) Crotch point

1(b) Describe the pros and cons of RMG industries in perspective of Bangladesh.   10

1(c) Draw the flowchart of garment manufacturing process.   10

1(d) Classify the garments factory with different sections.   05

2(a) How marker planning depends on the requirement of production planning? Discuss.   10

2(b) Define group marker and solid marker with their uses.   08

2(c) Define marker efficiency. Introduce and discuss the factors affecting marker efficiency.   12

2(d) What is digitizing?   05

3(a) Classify cutting machines.   05

3(b) Sketch and describe different knife systems used in automatic cutting machines.   12

3(c) Describe the operating principle and necessity of a band knife cutting machine.   12

3(d) Which cutting machine is more popular in our country and why?   06

4(a) Explain- "Fabric wastages can be reduced by efficient marker making".   05

4(b) Describe the interactive method of marker planning.   10

4(c) "Ultrasonic cutting systems have potential to be used in bulk fabric cutting"- Do you   08
  agree? Justify your opinion.

4(d) Write short notes on: 12

  i)   Back to back L/C

  ii)   Bangladesh in GSP review

  iii)   Water-jet cutting

SECTION-B

5(a)	What is draping? Write down the steps involved in draping.	13
5(b)	State the general principles of pattern alternation.	12
5(c)	Define pattern grading. Why pattern grading is important for apparel production?	10
5(d)	Point out the different tools used for pattern making.	05

6(a)	Briefly describe the modes of fabric spreading.	10
6(b)	What are the differences between manual and automatic fabric spreading method?	10
6(c)	What types of fabric wastages occur in spreading process? How would you minimize those wastages?	10
6(d)	Explain the purchase loss of fabric.	05

7(a)	What is fabric splicing? Describe different types of fabric splicing.	10
7(b)	Why shade sorting is important prior to fabric spreading?	06
7(c)	Demonstrate the techniques involved for controlling quality in fabric spreading.	08
7(d)	Mention the main functions of a spreader truck in an automatic spreading process.	06
7(e)	Write the features of automatic fabric spreading machine.	05

8(a)	Describe the operating methodology of a continuous fusing press with neat sketch.	12
8(b)	Describe the common quality problems that occur in fusing and how those problems can be prevented?	12
8(c)	For which types of fabric area, fusible interlining is troublesome?	05
8(d)	What factors are to be considered at the time of fusing? Explain.	06

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KHULNA UNIVERSITY OF ENGINEERING &TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2017
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.
iii) Assume reasonable data if missing any.

SECTION-A

1(a) What is hardness of water? Discuss the problems happen due to hard water in textile   12
      industries.

1(b) Mention the standard quality of dye house water.   08

1(c) Why the presence of $Ca(HCO_3)_2$ is considered as temporary hardness?   05

1(d) What is water softening? Describe demineralization process of water softening.   10

2(a) What is surfactant? Write down the classifications of surfactants.   09

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

2(c) How micelle is formed during the cleansing action of soap?   10

2(d) Write short notes on the followings-   08

        i)   Cluster formation
        ii)   Interfacial tension

3(a) What is singeing? Why singeing can't be applied to blended fabric?   08

3(b) "Gas singeing is preferable than plate and roller singeing"- Explain this statement.   08

3(c) What is desizing? Discuss the enzymatic desizing process.   13

3(d) What is German hardness? Show the relation between PPM and degree.   06

4(a) How can you assess the effectiveness of scouring process by spot and wicking test?   08

4(b) Why neutralization is necessary after pretreatment (Scouring+bleaching) process?   07

4(c) What is bleaching? Write down the difference between hydrogen peroxide bleaching   10
      and sodium hypochlorite bleaching.

4(d) What should be the reflectance% of bleached fabric? Discuss the controlling   10
      parameters of scouring and bleaching process.

SECTION-B

5(a)	Write down the successive stages of dyeing with necessary sketch.	10
5(b)	If heat recovery system is installed with heat exchanger in dyeing machine, which types of benefit can we get? Explain with figure.	07
5(c)	"Jet dyeing machine is preferable for knit fabric dyeing than winch dyeing machine" Explain this statement by comparing the working principle of both machines.	10
5(d)	Calculate the reel speed of a dyeing machine from the following particulars:	05

Fabric GSM = 180

Fanric dia = 60"

Batch weight = 300 Kg

Dyeing cycle time = 3 min.

5(e)	Why reel speed calculation of dyeing machine is necessary?	03

6(a)	What is super milling acid dyes? Write down the theory of dyeing of acid dye.	10
6(b)	"Direct dyes have strong affinity towards fibers"- Which factors are responsible for this dye diffusion into the fiber?	10
6(c)	Why acid is needed in acid dyeing process?	05
6(d)	Write short notes on:	10

i)Exhaustion ii) Fixation iii) Sorption iv) Adsorption

7(a)	Explain the following terms:	10

i) Shade% ii) Chromophore iii) Chromogen iv) Auxochrome

7(b)	Depict the mechanism of dyeing with vat dyes.	08
7(c)	Describe the dyeing method of cotton fabric with basic dyes including recipe and curve.	12
7(d)	What are the reasons of acid dyes named?	05

8(a)	What is mesh count? What are the relationship between mesh count and ink deposition on printed fabric?	05
8(b)	When discharge printing is done in printing factory? Describe the mechanism of discharge printing with necessary sketch.	10
8(c)	Write down the flow chart of screen preparation.	05
8(d)	Sketch the reactive and pigment printing process diagram with necessary parameter.	07
8(e)	Write down the working principle of diazo photoemulsion.	08

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KHULNA UNIVERSITY OF ENGINEERING &TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2017
Hum-3121
(Accounting and Industrial Law)
Time: 3 Hours   Total Marks: 210
N.B.: i) Answer any THREE questions from each sectionin separate scripts including Question No. 4 from section A.
  ii) Figures in the right margin indicate full marks.
  iii) Assume reasonable data if missing any.

SECTION-A

1   Roshni decides to open a computer programming service which she names Digicom Technology on July 1, 2016. During the first month of operations, the following transactions occurred:

July-1	Roshni invested Tk. 1,50,000 cash in the business.
July-2	Digicom purchased computer equipment for Tk. 70,000 cash.
July-3	Digicom purchases for Tk. 16,000 computer paper and supplies on account.
July-4	Digicom receives Tk. 20,000 cash from customer/ clients for programming services provided.
July-5	Digicom receives a bill for Tk. 2,500 from the "Daily News" for advertising on account.
July-6	Digicom provides Tk. 35,000 of programming services for customers: cash of Tk. 15,000 is received from customers and the balance is billed on account.
July-7	Expenses paid in cash: store rent Tk. 6,000; salaries Tk. 9,000 and utilities expenses Tk. 2,000
July-8	Digicom paid Tk. 2,500 to the "Daily News" in cash (transaction July-5)
July-9	Cash received from customers who have previously been billed for services in transaction 6.

Instructions:

  a) Prepare a tabular summary of the transactions.   20

  b) Journalise above the transactions.   15

2(a)   Define accounting.   05

2(b)   What are the functions of accounting?   10

2(c)   State the importance of accounting.   10

2(d)   Describe the rules for determining debit and credit.   10

3(a) Define trial balance. Discuss the limitations of trial balance.   05

3(b) What is adjusting entries? Discuss its necessities.   05

3(c) The following data relating to Subarnia Trader are given below: 25

	Taka
Purchases of raw materials	1,50,000
Direct expenses	20,000
Direct labour	60,000
Raw materials 01-01-2017	Tk. 20,000, Factory overhead Tk. 40,000
Raw materials 31-01-2017	Tk. 30,000, Office expenses Tk. 32000
Work-in-progress 01-01-2017	Tk. 36,000, Selling expenses Tk. 25,000
Work-in-progress 31-01-2017	Tk. 26,000, Sale of scrap Tk. 2,000
Finished goods 01-01-2017	Tk. 40,000, Profit 20% on total cost
Finished goods 31-01-2017	Tk. 35,000

Required:

Prepare a statement of cost for the month of January, 2017 and show:

a) Raw materials used; b) Prime cost; c) Factory cost; d) Production cost; e) Cost of goods sold; f) Total cost, and g) Profit/ loss and sales.

4. The trial balance for Mahim Video Service for the year ended 30 June, 2017 are given below: 35

Mahim Video Service

Trial Balance as on June 30, 2017

Account Titles	Debit (Taka)	Credit (Taka)
Cash	10,000	
Accounts Receivable	18,000	
Parts and supplies	91,000	
Prepaid Insurance	5,400	
Lab Equipment	2,40,000	
Accumulated depreciation- Lab Equipment		60,000
Accounts payable		20,000
Notes payable		40,000
Mahim, capital		2,05,000
Mahim, Drawing	2,17000	
ServiceRevenue Earned		4,35,600
Wages Expense	10,3,800	
Rent Expenses	48,000	
Utilities Expenses	21,700	
Advertising Expenses	4,900	
Miscellaneous Expenses	800	
	7,60,600	7,60,600

Adjustment data: i) Parts and supplies on hand at June 30, 2017 amount to Tk. 16,000 ii) Wages payable at June Tk. 3200 iii) The estimated amount of utilities consumed but unpaid as of year-end Tk. 4,000, iv) Depreciation on lab Equipment for the year amount to Tk. 30,000.

Required:

a) Prepare a statement of comprehensive income for the period 1st July,2016 to 30 June, 2017   15

b) Prepare an owner's equity statement.   05

c) Prepare a classified statement of financial position as on June 30, 2017   15

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)	Define factory under the Bangladesh Labour Act.	05
6(b)	State the provisions regarding cleanliness in a factory.	10
6(c)	Discuss the formation of workers association.	10
6(d)	Explain the rules concerning welfare activities in a factory.	10
7(a)	What is special definition of worker?	05
7(b)	What are the requirements for application of a trade union?	10
7(c)	State the requirements for registration of a trade union.	20
8(a)	State the raising of industrial dispute.	05
8(b)	Discuss the settlement of industrial dispute.	20
8(c)	State the provisions relating to strike and lock- out under section 211.	10

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