KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2019
TE 3109
(Fabric structure and Design)
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 simple structure and compound structure of woven fabric?	06
1(b)	Give graph paper example with drafting and lifting plan of $\frac{9}{9}(9)$ fancy matt.	15
1(c)	Show the weave plan of $\frac{1}{1}(5+3)$ rib.	06
1(d)	Calculate the weight of warp and weft yarn in kg to produce 1500m of the following fabric: $\frac{140\times100}{50\times40}(56")$	08

2(a)	Discuss the factors affecting the prominence of twill line.	06
2(b)	Draw the weave plan of reversed twill design of $\dfrac{3\quad 2}{3\quad 1}(z)$twill.	07
2(c)	Show the weave plan of the following design:	16
	(i) Diaper design based on $\frac{5}{3}(z)$ twill.	
	(ii) Weft way elongated twill based on $\dfrac{5\quad 3}{2\quad 1}(z)$ twill.	
2(d)	Make a comparison among simple, expanded, and multiple twill.	06

3(a)	State the conditions for selection of move number for satin weaves.	05
3(b)	Draw the weave plan of plain base crepe weave based on 5-end sateen and $\dfrac{3\quad 1\quad 1}{1\quad 3\quad 1}(z)$ twill.	10
3(c)	Give graph paper example with drafting and lifting plan of Devon Huckaback design.	10
3(d)	Show the weave plan of smallest repeat size sponge weave.	10

4(a)	Make a pattern chart for color and weave effects.	04
4(b)	Show the weave plan of shepherd's check design where weave type: $\frac{2}{2}(z)$ twill and order of color-6:6.	08
4(c)	Differentiate between extra warp with extra weft figuring.	05
4(d)	Give a graph paper example with drafting and lifting plan of (18×4) wadded Bedford cord design.	12
4(e)	Write short notes on the following items: (i) Canvas, (ii) Denim, and (iii) Seersucker fabric.	06

SECTION-B

5(a)   Distinguish between double cross miss and single cross miss design.   11

5(b)   Draw the lapping diagram , cam and needle arrangement of the following design ;   11

     (i) Weft lock knit, and

     (ii) Mock rib.

5(c)   Find out the total number of needle, total number of knit cam, and total number of tuck   13
cam of following design if machine dia. is 24 inch.
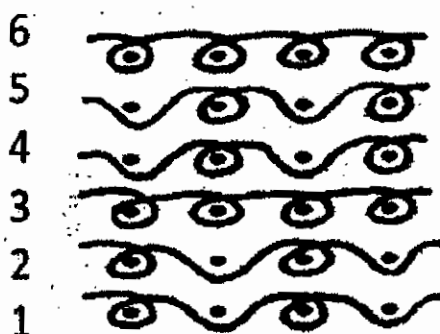
6(a)   How would you ornate plain knit fabrics?   07

6(b)   How does a finger box work to make a stripe design?   08

6(c)   Describe the basic concept of auto stripe circular knitting machine to produce a stripe   10
fabric.

6(b)   What is meant by finger boxes? Mention the usability of a finger box.   10

7(a)   Is it possible to convert auto stripe design into multi-feeder stripe design? Give   15
appropriate reason for your answer with example.

7(b)   Suppose you are a R&D Manager of knit concern group, your team has received a stripe   20
swatch from Puma office. Design a pattern arrangement by using 6 color finger box from
following colors:

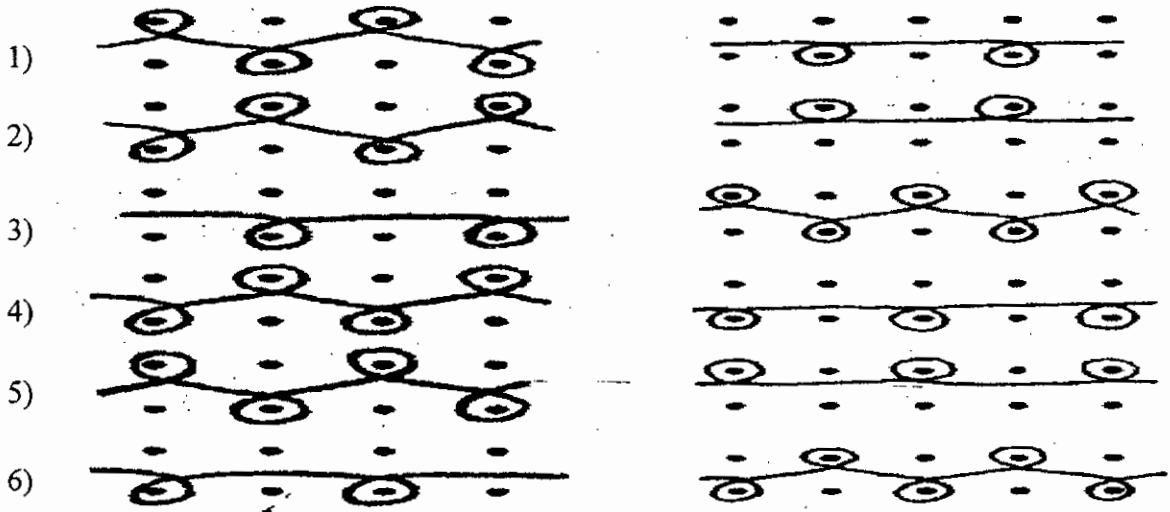| Sl. No.	Color	Stripe Size (CM)
1	Green	1.0
2	Red	1.5
3	Yellow	1.0
4	Green	1.5
5	Blue	1.0
6	Pink	1.5
7	White	1.0
8	Black	5.0
Total		13.5

(Assume 20 course per centimeters)

8(a) Differentiate between 3×3 Rib and 3×3 Purl with figure.   10
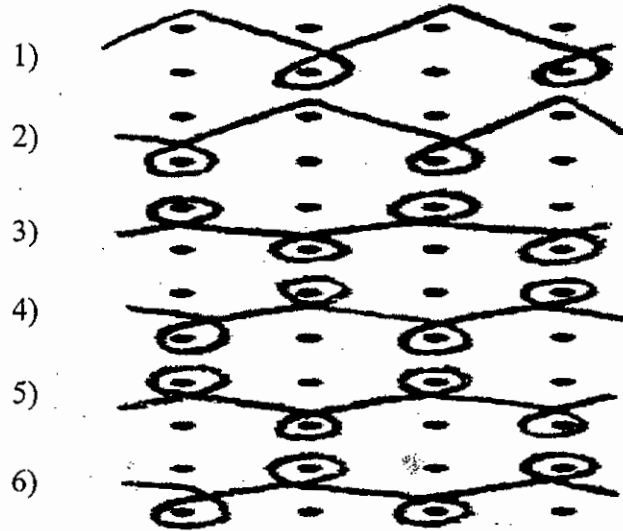
8(b) Draw the cam arrangement and needle arrangement of the following design: 10

8(c) Calculate total no. of inactive cam boxes of following design.   10

8(d) Mention the main features of heald loop.   05

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2019
Hum 3121
(Accounting and Industrial Law)
Time: 3 Hours   Total Marks: 210
N.B.: i) Answer any THREE questions from each section **including question No.4**
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a) Define Accounting. State the importance of accounting.   10

1(b) What is accounting cycle? Describe the steps of accounting cycle.   15

1(c) Define transaction. What are the characteristics of transaction?   10

2.   On January 1, 2015 by Mr. Nazrul Islam established Northern Travel Agency. The following transactions were completed during the month:

2015 January	1	Invested cash to start the Agency Tk 3,00,000
"	2	Cash paid for office rent of January Tk 10,000
"	3	Purchased office equipment for cash Tk 25,000
"	5	Incurred advertising expenses in the Daily Times on account Tk 3,000
"	6	Purchased office supplies for cash Tk 5,000
"	7	Earned for services rendered Tk 30,000 (Tk 20,000 cash received from customers and the balance Tk 10,000 is billed to customers on account.)
"	10	Withdrew cash for owner's personal use Tk 6,000
"	12	Paid 'The Daily Times' amount due on January-5
"	13	Received in cash from customers who have previously been billed on January -7.
"	14	Utility bill paid in cash Tk 1,500
"	15	Paid employees salaries Tk 5,000
"	20	Received cash from a new customer for services rendered Tk 15,000

Required: a) Show summary of transactions preparing tabular analysis.   18

b) Journalize above the transaction in the book of Mr. Nazrul Islam   17

3.   Mr. Liton is a licensed C.A. During the first month of operations of his chamber, the following events and transactions occurred: 35

2018 May	1	Liton invested Tk 200,000 cash.
"	2	Hired a secretary receptionist at a salary of Tk 10,000 per month.

"	3	Purchased supplies on account from Raihan Supply company Tk 15,000
"	7	Paid office rent Tk 9,000 in cash for the month.
"	10	Completed a tax–assignment and billed client Tk 21,000 for services provided.
"	12	Received Tk 35,000 advance on a management consulting engagement.
"	15	Received cash Tk 12,000 for services completed for H.Ahmed Co.
".	18	Paid 40% of balance due Raihan supply company.
"	30	Paid Secretary-receptionist Tk 10,000 salary for the month.

Required: Prepare necessary ledger accounts. Mr. Liton uses the following chart of accounts: No.101 cash, No.112 Accounts Receivable, No.126 supplies, No. 201 Accounts payable, No.205 Unearned Revenue, No.301 Liton's Capital, No.400 Service Revenue, No.726 Salaries expense, No.729 Rent expense.

4. R. Karim began operations as a private investigator on January 1, 2017. The trial balance 35 for Kabir at March 31 is as follows:

R.Kabir Trial balance as on March 31,2017(for the quarter ending)

Account titles	Debit (Tk)	Credit (Tk)
Cash -	14,400	
Accounts Receivable - - - - - - - - - - - - - - - - - -	7,620	
Supplies -	1,250	
Prepaid insurance- -	4,400	
Equipment -	38,000	
Notes payable -		14,000
Accounts Payable -		14,350
Capital -		28,000
R. Kabir, Drawing- -	1,600	
Service Revenue -		17,620
Salaries expense -	2,200	
Travel expense -	2,000	
Rent expense -	2,200	
Miscellaneous expense - - - - - - - - - - - - - - - - - -	300	
	73,970	73,970

Adjustments:
(i) Supplies on hand at March 31, Tk 650.
(ii) Depreciation on equipment is Tk 500 per quarter.
(iii) Insurance expired at the rate of Tk 250 per month.
(iv) Service provided but unbilled at March 31 Tk 950.

Required:

    (i) Prepare a statement of comprehensive income for the quarter ended March 31, 2017.

    (ii) Prepare owner's equity statement, and

    (iii) Prepare a statement of financial position as on 31 March, 2017.

SECTION-B

5(a)	Define industrial law.	05
5(b)	State the importance of industrial law.	10
5(c)	Who is certifying surgeon?	05
5(d)	Describe the responsibilities of certifying surgeon.	15
6(a)	Define 'Industrial dispute' and 'Settlement'.	10
6(b)	Describe the procedures of appointing conciliator and counselor.	10
6(c)	Describe the settlement process of a dispute by an arbitrator.	15
7(a)	What is meant by 'conservation of environment'?	05
7(b)	Discuss the powers and functions of a director general.	15
7(c)	What are the rules regarding cleanliness to be followed by a factory? Describe.	15
8(a)	Explain the certificate of fitness.	10
8(b)	Write down the situations when employer is not liable to pay compensation.	10
8(c)	Discuss the deductions may be made from the wages of a worker.	15

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2019
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 is hard water? Why soft water is required in dyeing?	10
1(b)	Describe the Zeolite (Permutit) method of water softening.	12
1(c)	What is sequestering agent? How does it work?	08
1(d)	Define the below terms:	05
	(i) Interfacial tension, and	
	(ii) Wetting ability.	

2(a)	What is soap? Describe the cleansing mechanism of soap.	12
2(b)	Which one is more effective between soap and detergent for removing the dirt from substrate? Explain with figure.	08
2(c)	Write down the characteristics of amphoteric detergent.	05
2(d)	What is singeing? Describe the flame singeing process with suitable fabric passage diagram.	10

3(a)	Describe enzymatic desizing process with suitable recipe and process curve.	12
3(b)	Is there any possibility to form crease mark during scouring? Clarify with valid reason.	08
3(c)	Write down the controlling parameters of scouring.	05
3(d)	How scouring effect is estimated? Write down the recipe and process curve of silk scouring.	10

4(a)	What is mercerization? Write down the changes of cellulosic material during mercerization process.	08
4(b)	Explain the controlling parameters of mercerization.	09
4(c)	Differentiate between bleached and white fabric. Is it possible to convert PFD fabric into white fabric? Explain with valid reason.	06
4(d)	Describe the working mechanism of H_2O_2 bleaching agent. Why is this called universal bleaching agent?	12

SECTION-B

5(a) Define the following terms: 08
      (i) Adsorption, (ii) Exhaustion, (ii) Absorption, and (iv) Fixation.

5(b) Describe the basic components of a dye and their functions.   10

5(c) What is meant by linear and progressive dosing? For which chemicals these dosing   07
      systems are used?

5(d) What is four points system? A fabric roll 120 yards long and 40$''$ wide contains following   10
      defects:-

      7 defects up to 3$''$ length, 5 defects from 3$''$ to 6$''$ length, 2 defects from 6$''$ to 9$''$ length, 1

      defect over 9$''$ length and 2 hole over 2$''$.

      Do you think this fabric roll can be loaded in dyeing machine according to 4-point

      system?

6(a) State the company name of popular dyeing machines that are used in our dyeing factories   05
      and their origins.

6(b) Write the functions of following parts of dyeing machine: 10
      (i) Reel, (ii) Main motor, (iii) Heat exchanger, and (iv) Steam pressure.

      If above parameters are not at standard condition, which types of problem can be

      occurred? Explain.

6(c) In spite of positive ion of basic dye at aqueous media, it has no attraction to cellulose.   05
      How this problem can be solved and at which stages this process can be done?

6(d) Describe the dyeing procedure of cotton fabric with basic dye including recipe and curve.   15

7(a) Write down the classification of vat dye on the basis of chemical structure. For some vat   10
      dyes salt is needed in their dyeing process, what is the basic reason for this? Explain.

7(b) Describe the mechanism of dyeing with vat dyes.   08

7(c) Write down the any three after treatment process for improving the wash fastness of direct   10
      dyes.

7(d) State the characteristics of super milling acid dye. Why super-milling acid dyes have   07
      excellent wash fastness properties? Explain

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

8(b) What is mesh count? What are the effects of mesh count on printing quality?   07

8(c) Write down the mechanism of discharge printing and its classification.   10

8(d) Write down the flow chart of screen preparation and printing.   08

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2019
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) Allowance, (ii) Grain line, (iii) Swatch, (iv) Bicep, and (v) PI.

1(b) What are the challenges of RMG industries of Bangladesh? Make specific suggestions to   12
overcome these challenges.

1(c) Define the following terms of an Letter of credit-   10

        (i) Applicant, (ii) Issuing Bank, (iii) Beneficiary, (iv) Advising Bank, and

        (v) Confirming Bank.

1(d) Mention the allocation of the costs to buyer and seller for the following Incoterms.   03
(According to Incoterms-2010)

        (i) FOB, (ii) CFR, and (iii) CIF.

2(a) Discuss the constraints of marker planning.   15

2(b) When group markers are suitable to use? Explain.   05

2(c) Why industries pay more attention on the marker planning?   07

2(d) Write down the functions of the following devices: 08

        (i) Plotter, and (ii) Digitizer

3(a) How shape and movement of the cutting device create accuracy problem in manual   10
cutting process? Explain with diagram.

3(b) Differentiate between Manual cutting and Automatic cutting.   10

3(c) Why correct placement of workstations is necessary? Describe the best suited placement   15
of automated spreading and cutting equipment in the cutting room.

4(a) Describe the operating principle of a band knife cutting machine.   15

4(b) What are the remedies of fused edge during cutting?   06

4(c) Distinguish between working pattern and production pattern.   05

4(d) Write short notes on the following terms: 09

        (i) GSP,

        (ii) Fabric drilling machine, and

        (iii) Documentary Credit.

SECTION-B

5(a) Discuss modelling method of pattern developing. 07

5(b) What is garment sampling process? Classify different types of samples required for completing a garment export order. 15

5(c) What is computer-aided grading? Analyze different softwares used for CAD grading. 08

5(d) Write short note on 3D body scanning for pattern making. 05

6(a) What is fabric spreading? State the flowchart of fabric spreading and cutting. 07

6(b) List out the preparatory equipment and describe the processes involved in fabric spreading. 15

6(c) Demonstrate the issues and techniques involved for controlling quality in fabric spreading. 13

7(a) Briefly describe the modes of fabric spreading based on fabric lay construction. 10

7(b) What are the differences between manual and automatic fabric spreading method? 12

7(c) Evaluate different types of fabric wastages occurred in fabric spreading and generate possible ways of minimizing them. 13

8(a) Compare and contrast between lining and interlining. 07

8(b) Describe the operating procedure of a continuous fusing press with specifications. 12

8(c) What is fusible interlining? Write down the required properties of fusible interlining. 10

8(d) Which types of fabric require some special care in case of fusible interlining? Discuss in brief. 06

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KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
Department of Textile Engineering
B. Sc. Engineering 3rd Year 1st Term Examination, 2019
TE 3101
(Yarn 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) Write down the objectives and types of a comber.   07

1(b) Discuss the sequence of operations involved in a rectilinear comber with   10
diagrams.

1(c) State the parameters influencing the combing operation. Why combing is   08
necessary for better quality yarn?

1(d) What is meant by "Degree of Combing"? Show the differences between forward   10
feed and backward feed.

2(a) Write down the objective and faults of a speed frame.   07

2(b) Sketch a modern drafting system of a roving frame.   10

2(c) State the factors considered for selection of twist in roving. What is meant by 10
creel draft?

2(d) Define winding on speed. Mention the types of winding principle and   08
differentiate between them.

3(a) Make a spin plan for a modern cotton spinning mill where no. of spindles = 30
50,000 and average yarn count 40^s (k) hossiery yarn.

3(b) Find the ring draft when wt. of 1 lea yarn is 25 grain and wt. of roving =405 05
grain/30yds.

4(a) State the limitations of ring frame.   05

4(b) Describe the different parts of traveler and spindle.   10

4(c) Prove that traveler speed is less than spindle speed.   10

4(d) What is OPS? Calculate the OPS of a ring frame.(Assume necessary parameters). 05

4(e) Mention the faults of ring yarn.   05

SECTION-B

5(a) Write down the features of a good ring and traveler.   09

5(b) Describe the Tangential belt drive system and Ring data system briefly.   08

5(c) Mention the count change wheel of simplex and show the relation between: 08
(i) Draft and DCP,

(ii) TPI and TCP,

(iii) Roving hank and LCP, and

(iv) LCP and Coil/inch.

5(d) Mention the yarn guiding devices of ring frame. What are the causes of end breakage in ring spinning system?   10

6(a) Write down the objectives of jute drawing frames. State the factors of fixing Reach.   08

6(b) Describe a crimping box with a sketch. Mention the types of jute draw frame.   12

6(c) Write down the features of Gardella 18-M draw frame. Distinguish between push bar and spiral type draw frame.   10

6(d) Calculate production/hr of a double thread screw gill drawing frame from the following data: 05

Back roller surface speed=15.52 ft/min,

Draft=6,

Delivery Sliver weight= 4 lbs/100yds,

Head=5, delivery/head=2, and efficiency =90%.

7(a) Point out the features of a modern spinning frame.   05

7(b) Describe the building mechanism of a jute spinning frame.   10

7(c) Write down the different drafting system used in jute spinning frame and depict any modern drafting system.   15

7(d) Find out the Production/ day of jute sliver spinning frame when;   05

Flyer speed=4200 rpm,

Yarn count= 8 lbs/spyndle,

K-factor= 12,

Waste=5%,

Efficiency=80%, and

No. of flyers/frame=100.

8(a) Prepare a spin plan for a jute mill where production 500 tons/month for CBC yarn (Assume, working days/months= 25 days, and working hour/day=22 hrs.).   30

8(b) How will you control the yarn tension of jute spinning frame?   05

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