

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
BARGARH/CUWAHATI/FULLA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHITIGADAG/SPKMVENKATAGIRI
DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
SEMESTER EXAMINATION NOV/DEC- 2017
(2014 REGULATION)

Semester: VI Semester

Subject Code & Name: 6.1 Weaving Technology & Textile Calculation-V

Time: 3 Hours
Max.marks:80

PART A

Answer all the questions within two or three sentences

2x10=20 Marks

1. What are warp and weft materials used in the Banaras Saree?
2. What you mean by Double Ikat weaving?
3. What do you understand by London System of harness building?
4. What are the different harness ties used in jacquard weaving?
5. State factors that are responsible to change the weight of the fabric.
6. Write the formula to calculate ends per inch in the required cloth while changing the count to maintain same level of compactness.
7. Write the formula to calculate the total ends in a fabric if details of reed count, reed width, extra selvedge ends are given.
8. Write the formula to calculate tape length if details of cloth length and percentage of warp crimp are given.
9. What are the factors required to determine cost price of a fabric?
10. Write the formula to calculate selling price per meter of a fabric if details of cost price per meter and margin of profit are given.

PART - B

Answer all questions in detail.

12x5=60 Marks

11. A. Explain the difference between Adai Weaving of Kancheepuram and Jala Weaving of Varanasi. (4)
B. Explain in detail about various stages involved in Warp Tie & Dye weaving technique in handloom weaving. (8)
- Or
- C. Write short notes on Jamdani weaving of West Bengal. (4)
D. Explain in details about the various stages involved in Weft Tie & Dye Technique in handloom weaving. (8)
- 12.A. Using line sketch, explain Norwich system of harness building. (4)
B. A 400 hook jacquard loom is engaged in the production of figured fabric having 80 ends per inch. It is proposed to manufacture fabric with 56 ends per inch in the same loom. Prepare suitable caste out plan. (8)

Or

- C. What count of point paper is to be used to produce a fabric having 128 ends per inch and 96 picks per inch for producing design using 400 hook jacquard. (4)
 D. With suitable diagram explain any one of the design harness tie. (8)

13. A. A cotton saree is woven with 80 ends per inch of 100^s cotton yarn. Calculate number of ends per inch required to keep same level of compactness, if cotton yarn is used. (4)
 B. A plain cloth is woven with 40^s cotton is required to change the weave into
 i. 4 thread twill ii. 6 thread sateen
 What count of yarn is required to maintain same level of compactness? (8)

Or

- C. A cloth is woven with 32 ends per inch using 12^s cotton. What count of yarn is to be used to have 42 threads per inch to maintain same compactness? (4)
 D. A cotton grey cloth is made with 20^s x 20^s having 40 ends per inch x 44 picks per inch. It is required to produce a fabric with same compactness but 10% heavier. What count of yarn and threads per inch should be used in the new fabric. (8)

14. A. Calculate weight of warp and weight of weft required to produce the cotton shirting fabric considering the following details.

Count of warp & weft - 60 ^s x 40 ^s	Ends/inch & picks per inch - 72 x 60
Crimp of warp & weft - 5% x 4%	Wastage of warp & weft - 5% x 4%
Width of fabric - 36 inches	Selvedge - $\frac{1}{2}$ inch on both sides
Cloth length - 100 yards	

(12)

Or

- B. Calculate the weight of warp and weight of weft required to produce silk fabric by considering the following particulars.

Count of warp & weft - 20 denier x 20 denier	Ends/cm & picks/cm - 48 x 40
Crimp of warp & weft - 6% x 5%	Wastage of warp & weft - 5% x 4%
Width of fabric - 120 cm	Selvedge - 1 cm on both sides
Cloth length - 100 metres	

(12)

15. Calculate the selling price of the fabric by considering the following.

Cloth length	- 100 metres
Weight of warp consumed including wastage	- 2.893 kg
Weight of weft consumed including wastage	- 3.452 kg
Cost of warp yarn	- Rs. 320.00 per kg
Cost of weft yarn	- Rs. 280.00 per kg
Warp preparatory charges	- Rs. 60.00 per kg
Weft preparatory charges	- Rs. 50.00 per kg
Dyeing charges for warp and weft	- Rs. 90.00 per kg
Weaving charges	- Rs. 25.00 per kg
Overhead charges	- @ 15% over production cost
Profit of margin	- @ 30% on cost price

(12)

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/FULLA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTIGADAG/SPKMIHTVENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
SIXTH SEMESTER (2011 - REGULATION) EXAMINATION - NOV/DEC-2016

6.1 WEAVING TECHNOLOGY AND TEXTILE CALCULATION - V

Time: 3 Hours

Max.Marks: 80

PART - A

- I. Answer the following questions in two or three sentences : (2X10=20)
- Name any two states where traditional handloom silk sarees are produced.
 - Name any two states where tie and tie silk fabrics are produced.
 - Name any two different harness design ties used in handloom jacquard weaving.
 - Write the formula to calculate total number of ends per repeat of the design in a jacquard cloth sample.
 - If the count of the fabric is changed into finer one, how do you maintain the same level of the compactness?
 - State the factors that are responsible to increase the weight of the fabric.
 - State any two factors that are to be considered for calculating total number of ends in a fabric.
 - Give two examples of wastages that are to be considered while calculating the weight of the fabric.
 - Mention any two components that are to be considered while calculating the cost price of the fabric.
 - What do you mean by selling price of the fabric?

PART B

II. Answer all the questions in detail

- Describe warp tie and dye weaving technique. (4)
 - Explain the Jala weaving technique used in Banaras handloom saree weaving. (8)
- (OR)
- Describe weft tie and dye weaving technique. (4)
 - Explain the Adai weaving technique used in Kancheepuram handloom saree weaving. (8)

- III. A) Compare London system of harness mounting with Norwich system of harness mounting. (4)
- B) With suitable illustration, explain any one of the harness design tie is used in the jacquard weaving. (8)
- (OR)
- A harness is tied-up with 72 sett and it is required to produce a fabric with 64 warp sett. How many hooks are to be caste out in a 400 hook jacquard machine? (4)
 - A fabric is woven with 96 harness cords per inch in a 400 hook jacquard loom. The width of the harness cords tied up in the body portion is 50 inches. The design tie used is Straight harness tie. How many harness cords are to be tied up on each body hook? (8)

IV. A) A cloth is woven with 60 ends per inch of 40^s cotton yarn. Calculate the ends per inch for the cloth to be woven with 20^s cotton yarn so as to maintain the same level of the compactness. (4)

B) A plain cloth is woven with 20^s cotton yarn with 44 ends per inch and 36 picks per inch. What count of warp and weft is to be used to have same compactness if the fabric is to be woven with 62 ends per inch and 51 picks per inch? (8)
(OR)

C) A $\frac{2}{2}$ twill cloth having 85 ends per inch is required to be changed into plain fabric by maintaining same level of compactness. Calculate number of ends per inch that will be required in plain fabric. (4)

D) A Plain cloth is made with 60^s cotton warp and 40^s cotton weft. It contains 72 ends per inch and 60 picks per inch. It is required to produce a fabric with same compactness but 10% heavier. What count of warp and weft, ends per inch, picks per inch should be used in the fabric? (8)

V. A) Calculate weight of warp and weft in lb of cotton fabric measuring 100 yards woven with following particulars.

Count of warp and weft	- 20 ^s x 20 ^s	
Ends per inch and picks per inch	- 42 x 42	
Warp and weft crimp	- 4% x 6%	
Width of the fabric	- 48 inches	
Selvedge is drawn 4 in a dent, $\frac{1}{4}$ inch on both sides of the fabric.		(12)

(OR)

B) Calculate the weight warp and weft in kg of cotton fabric measuring 100 meters woven with following particulars.

Count of warp and weft yarn	- 10 Tex x 15 Tex	
Ends per cm x picks per cm	- 28 x 24	
Warp and weft crimp	- 4% x 6%	
Width of the fabric	- 91 cm	
Selvedge is drawn 4 in a dent, 0.5 cm on both side of the fabric.		(12)

VI. A) Calculate selling price per towel by considering the following particulars.

Number of towels produced per warp	- 60	
Weight of warp yarn including waste	- 3.444 kgs.	
Weight of weft yarn including waste	- 2.856 kgs.	
Cost of warp yarn	- Rs.140.00 per kg.	
Cost of weft yarn	- Rs.120.00 per kg.	
Bleaching charges both for warp & weft	- Rs.40.00 per kg	
Preparatory charged both for warp & weft	- Rs.50.00 per kg.	
Weaving charges	- Rs.30.00 per piece	
Finishing charges	- Rs.8.00 per towel	
Overhead charges	- 15% of the basic cost	
Profit of margin	- 30% of the cost of production	(12)

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

SHRI ARH/FULLA GUTHARIATI JODHPUR SALEM VARANASI CHAMPA KANNUR/KHITI GADAG SIKMIBHT VEHLATIGRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY SIXTH SEMESTER (REGULAR AND BACK) EXAMINATION - APRIL/MAY-2016

6.1 WEAVING TECHNOLOGY AND TEXTILE CALCULATIONS-V

Time: 3 Hours

Max. Marks: 80

PART-A

I. Answer all the question in two or three sentence.

2x10=20

- Name any two States where traditional Sarees are produced.
- Name any two States where Tie & Dye fabrics are produced.
- Name any two different harness ties used in jacquard weaving.
- What is the meaning of "Casting Out" in jacquard weaving?
- Write the formula to calculate count of yarn in the required cloth, when threads per inch are required to be changed by maintaining same level of compactness.
- State the factors that are responsible to change the weight of the fabric.
- What is the difference between 'Crimp' and 'Regain' with reference to cloth calculation.
- Give any two types of "Wastages" that are to be considered in the cloth calculation.
- Mention any two components that are to be considered in the costing of fabrics.
- What is the difference between cost price and selling price of the fabric?

Answer the following questions in detail:

- Describe briefly the Warp Tie and Dye technique in terms of design preparation, design transfer to warp and weaving. 4
 - Explain the important features of Kancheepuram handloom saree weaving technique. 8
- OR
- Describe briefly the Weft Tie and Dye technique in terms of design preparation, design transfer to weft and weaving. 4
 - Explain the important features of Banarasi handloom saree weaving technique. 8
- What are advantages and disadvantages of London and Norwich system of harness mounting? 4
 - With suitable illustration explain the following harness tie. 8
 - Sectional tie
 - Mixed tie
- OR
- A jacquard figured fabric is woven with 80 ends and 60 picks per inch. What count of point paper is to be used if the capacity of the jacquard is 400? 4
 - A harness is tied up with 60 sett and it is required to produce fabric with 48 sett. How many hanks should be casted out in a 400 hook jacquard machine and how they should be distributed? 8
- A fabric is woven with 64 ends per inch of 40^s cotton yarn. Calculate the ends per inch with 32^s cotton Yarn to maintain same compactness. 4
 - A cloth is made with 40^s cotton warp x 32^s cotton weft. It contains 60 ends x 48 picks per inch. What count of warp and weft is to be used to have the same compactness if the fabric has 40 ends x 32 picks per inch. 8
- OR
- A plain cloth has 48 ends per inch. It is required to change the weave into 4 thread twill having equal compactness. Calculate the ends per inch in the new fabric. 4
 - A plain cloth is made with 60^s cotton in warp and 40^s cotton in weft. It contains 72 ends per inch and 60 picks per inch. It is required to produce a fabric with same compactness but 10% heavier. What count of yarn, ends per inch and picks per inch should be used in the new fabric? 8

$$\text{upper end width} = 100 + 100 = \frac{200}{100}$$

$$= 105$$

$$\text{So weight of warp} = \frac{105 \times 24 \times 98}{1000 \times 20} = 11.08 \text{ kg}$$

Calculate weight of warp and weft present in 100 yards of fabric with following particulars:

Count of warp & weft	-	20 tex	Warp crimp	-	4%
Ends per inch	-	42	Weft crimp	-	5%
Picks per inch	-	44	Cloth width	-	48 inches.

Selvedge - $\frac{1}{4}$ inch drawn 4 in a dent on both side of the fabric.

OR

Calculate weight of warp and weft present in 100 meters of cotton fabric with the following particulars: 12

Count of warp & weft	-	20 Tex	Warp Crimp	-	4%
Ends/cm.	-	20	Weft crimp	-	5%
Picks/cm.	-	22	Cloth width	-	120 cm.

Selvedge - 0.5 cm drawn 4 in a dent on both side of the fabric.

VI. Calculate the selling price per meter of a fabric produced with the following particulars. 12

Cloth length	-	40 meters
Actual weight of 60 ^s warp yarn in the fabric	-	1.500 kg
Actual weight of 40 ^s weft yarn in the fabric	-	1.884 kg.
Wastage of warp yarn	-	5%
Wastage of weft yarn	-	4%
Cost of 60 ^s yarn	-	Rs. 240/- per kg.
Cost of 40 ^s yarn	-	Rs. 205/- per kg.
Warp preparatory charge	-	Rs. 30/- per kg.
Weft preparatory charge	-	Rs. 20/- per kg.
Dyeing charges for warp/weft	-	Rs. 50/- per kg.
Weaving charges	-	Rs. 40/- per metre
Overhead charges	-	12% of total cost
Margin of profit	-	30%

$$47.5 \times 2 \times 2$$

$$\text{assuming 21 dent per inch and 2 ends/dent} \\ = 1900$$

$$\text{Total no. of ends in selvedge} = 1 \times 11 \times 4 \\ = 44$$

$$\text{Total end} = 1900 + 44 \\ = 1944$$

$$\text{Total width} = 47.5 \times 47.5 \times \frac{20}{100} \\ = 57$$

$$\text{So weight of warp} = \frac{1944 \times 52}{840 \times 20} \\ = \frac{116928}{16800} \\ = 6.95 \text{ kg}$$

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI GADAG/SPKM VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION APRIL/MAY-2017 (2011 REGULATION)

Time : 3 Hours

Max. Marks : 80

VI SEMESTER 6.1- WEAVING TECHNOLOGY AND TEXTILE CALCULATION-V

PART - A

(Answer all the questions within two to three sentences)

2 x 10=20 Marks

- 1 Name any two traditional silk handloom sarees.
- 2 Name any two traditional tie & dye fabrics.
- 3 Mention any two differences between London harness tie and Norwich harness tie.
- 4 Name any two design harness ties.
- 5 Name any two factors that are responsible for increasing or decreasing the weight of the fabric.
- 6 If the count of the fabric is changed into coarser, how will you maintain the same level of the compactness?
- 7 Write the formula to calculate total number of ends in the body of the warp sheet.
- 8 Mention two examples of wastage in weaving.
- 9 What do you mean by costing of fabric?
- 10 What is the difference between cost price and selling price of the fabric?

PART-B

12 x 5 = 60 Marks

- 11 A) Describe briefly warp tie and dye weaving technique. (4)
B) With the help of diagram explain technique used in Traditional Banaras Saree weaving. (8)
(OR)
C) Describe briefly weft tie and dye weaving technique. (4)
D) Explain in detail about the technique used in weaving Traditional Kancheepuram Saree. (8)
- 12 A) Briefly explain the London tie used in harness building on handloom. (4)
B) With a suitable diagram explain any one of the design harness tie used in handloom. (8)
(OR)
C) A 400 hook jacquard is mounted on 50 inches wide loom. The proposed harness sett is 40. How many harness cords are to be tied up on each hook? (4)
D) A harness is tied up with 72 sett on a 400 hundred hook jacquard loom and it is required to produce 64 warp sett. Prepare casting out plan. (8)

- 13 A) A cloth is woven with 72 ends per inch of 60^s cotton. Calculate ends per inch in the new fabric if the count is to be changed into 80^s cotton so as to maintain same level of the compactness. (6)
- B) A cloth is woven with 28 ends per cm of 10 Tex yarn. Calculate ends per cm in the new fabric if the count is to be changed into 20 Tex. (6)
- (OR)
- C) A cloth is woven with 32 ends per inch using 10^s cotton yarn. What count of the yarn is to be used to have 24 ends per inch to get the same compactness? (6)
- D) A cloth is woven with 12 ends per cm using 60 Tex yarn. What count of yarn is to be used to have 20 ends per cm? (6)
- 14 A) Calculate the weight of warp and weft in lb required to produce 1000 yards of fabric with the following particulars :- (12)
- Count of warp and weft - 40^s x 40^s
 Ends per inch and picks per inch - 60 x 52
 Warp crimp and weft crimp - 5% & 6% respectively
 Width of the fabric - 36"
 Selvedge - ½ inch on both sides 4 ends are drawn per dent
- (OR)
- B) Calculate the weight of warp and weft required in kg to produce silk fabric measuring 100 metres with following particulars :- (12)
- Count of warp and weft - 20 Denier x 20 Denier.
 Ends per cm and picks per cm - 48 x 40
 Warp crimp and weft crimp - 5% & 6% respectively
 Width of the fabric - 90 cm
 Selvedge - 0.5 cm on both sides 4 ends are drawn per dent
- 15 Calculate selling price per metre of the fabric by considering the following particulars :- (12)
- | | |
|---|--------------------------|
| Cloth length - 100 meters | |
| Weight of warp consumed including wastage | - 3.350 kg |
| Weight of weft consumed including wastage | - 3.515 kg |
| Cost of warp yarn | - Rs. 280 per kg |
| Cost of weft yarn | - Rs. 250 per kg. |
| Warp preparatory charges | - Rs. 50/- per kg |
| Weft preparatory charges | - Rs. 40/- per kg. |
| Dyeing charges for warp and weft | - Rs. 80.00 per kg. |
| Weaving charges | - Rs. 15 per metre. |
| Overhead charges | - @ 15% on the base cost |
| Margin profit | - 30% |

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI GADAG/SPKM VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION APRIL/MAY-2017 (2014 REGULATION)

Time : 3 Hours

Max. Marks : 80

VI SEMESTER 6.1- WEAVING TECHNOLOGY AND TEXTILE CALCULATION-V

PART – A

(Answer all the questions within two to three sentences)

2 x 10=20 Marks

- 1 What is the specialty of Kancheepuram saree?
- 2 What is the specialty of Banaras Saree?
- 3 Name two fabrics that are produced by using Sectional harness tie.
- 4 What do you mean by "Casting out"?
- 5 Write the formula to calculate count of warp yarn in the required cloth, when ends per inch in the fabric are required to be changed.
- 6 Write the formula to calculate ends per inch in the required cloth, when the count of the warp yarn in the fabric is required to be changed.
- 7 Name any two factors considered while calculating weight of warp or weft.
- 8 Name any two types of wastages considered while calculating the weight of warp or weft.
- 9 What do you mean by costing of fabric?
- 10 What is the difference between cost price and selling price of the fabric?

PART-B

12 x 5= 60 Marks

- 11 A) Describe steps involved in Traditional Banaras Saree weaving. (4)
B) Explain the warp tie and dye weaving technique. (8)
(OR)
C) Describe steps involved in Traditional Kancheepuram Saree weaving. (4)
D) Explain in details about the weft tie and dye weaving technique (8)
- 12 A) Briefly explain the London system of harness tie. (4)
B) With a suitable diagram explain any one of the following design harness ties. (8)
i. Straight harness tie ii. Pointed harness tie.
(OR)
C) Briefly explain the term casting out? (4)
D) In a 400 hook jacquard loom, It is proposed to build Straight harness tie with harness sett of 40. Width of the body harness to be built up is 50 inches. How many harness cords are to be tied on each hook? (8)

- 13 A) A cloth is woven with 72 ends per inch of 60^s cotton. Calculate ends per inch in the new fabric if the count is to be changed into 40^s cotton so as to maintain same level of the compactness. (4)
- B) A $\frac{2}{2}$ twill cloth is woven with 72 ends per inch and 64 picks per inch. If the weave is changed into plain weave having the same compactness, calculate the number of ends per inch and picks per inch required in the plain cloth if the count of warp and weft are same. (8)
- (OR)
- C) A cloth is woven with 32 ends per inch using 10^s cotton yarn. What count of the yarn is to be used to have 48 threads per inch to get the same compactness? (4)
- D) A cotton cloth is made with 60^sx40^s having 64 ends per inch x 52 picks per inch. It is required to produce a fabric with same compactness but 10% heavier. What count of yarn and threads per inch should be used in the new fabric? (8)
- 14 A) Calculate the weight of warp and weft present in 1000 yards of fabric with the following particulars. (12)
- Count of warp and weft - 40^s x 40^s
 Ends per inch and picks per inch - 60 x 52
 Warp crimp and weft crimp - 5% & 6% respectively
 Width of the fabric - 36 inches
 Selvage - $\frac{1}{2}$ inch on both sides 4 ends are drawn per dent.
- (OR)
- B) Calculate the weight of warp and weft required in kg to produce silk fabric measuring 100 metres with following particulars. (12)
- Count of warp and weft - 20 Denier x 20 Denier
 Ends per cm and picks per cm - 48 x 40
 Warp crimp and weft crimp - 5% & 6% respectively
 Width of the fabric - 90 cm
 Selvage - 0.5 cm on both sides 4 ends are drawn per dent.
- 15 Calculate selling price per metre of the fabric by considering the following particulars. (12)
- Cloth length - 100 meters
 Weight of warp consumed including wastage - 3.350 kg
 Weight of weft consumed including wastage - 3.515 kg
 Cost of warp yarn - Rs. 280 per kg
 Cost of weft yarn - Rs. 250 per kg.
 Warp preparatory charges - Rs. 50/- per kg
 Weft preparatory charges - Rs. 40/- per kg.
 Dyeing charges for warp and weft - Rs. 80.00 per kg.
 Weaving charges - Rs. 15 per metre.
 Overhead charges - @ 15% on the base cost
 Margin profit - 30%

DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
VI SEMESTER (BACK PAPER) EXAMINATION – NOV./DEC. – 2015

6.1 WEAVING TECHNOLOGY & TEXTILE CALCULATIONS – V

Max. Marks: 80

TIME: 3 Hours

PART A



(10 x 2 = 20)

I. Answer all questions in ONE or Two sentences.

- i. Name two traditional motifs of Kanchipuram sarees.
- ii. What is the specialty of Jamdhani designing technique?
- iii. State two major differences between London and Norwich harness ties.
- iv. What is the meaning of "symmetry"?
- v. If the count of a fabric is changed to a finer one, how do you maintain the same level of compactness?
- vi. State the factors that are responsible for the change in weight of a fabric.
- vii. State the length and weight unit of woolen Yorkshire system.
- viii. State the numbering system widely used for expressing the count of silk yarn.
- ix. State which one shall be cheaper? – A grey fabric produced by handloom or by powerloom.
- x. What is the strength of handloom fabric in comparison of powerloom and mill made fabrics.

PART B

Answer all questions in detail.

- II. a. Using line sketch, briefly state the important features of the jala set-up. (04)
b. Explain the designing technique of warp tie and dye. (08)

OR

- c. Using line sketch, briefly state the important features of the Adai set-up. (04)
d. Explain the designing technique of weft tie and dye. (08)
- III. a. Using a line sketch, briefly state the important features of London Harness System. (04)
b. A jacquard loom mounted with 240 hooks (8x30) jacquard is engaged in the production of a figured fabric having 56 EPI using the full capacity of the jacquard with straight harnessing. It is proposed to manufacture the same design without any change in dimensions using 35 EPI with a different warp count in the same loom. Prepare a suitable casting-out plan so that re-harnessing can be avoided. (08)

OR

- c. Using a line sketch, briefly state the important features of Norwich Harness System. (04)
d. A jacquard loom mounted with 400 hooks (8x50) jacquard is engaged in the production of a figured fabric having 80 EPI using the full capacity of the jacquard with straight harnessing. It is proposed to manufacture the same design without any change in dimensions using 56 EPI with a different warp count in the same loom. Prepare a suitable casting-out plan so that re-harnessing can be avoided. (08)

(11)

- IV. a. State the formula for determining the maximum EPI of a fabric. (08)
- b. A 5 thread Satin fabric made of 20 Tex cotton has 120 EPI and 64 PPI. It is required to change the count of warp and weft to 30 Tex maintaining the same compactness. Estimate the EPI and PPI of the new fabric. (08)

OR

- c. State the formula for determining the maximum PPI of a fabric. (04)
- d. A plain cloth made of 36^s cotton has 60 EPI and 52 PPI. It is required to increase the weight of the fabric by 20% keeping the same level of compactness and weave intact. Estimate the EPI and PPI of the Target cloth. (08)
- V. a. Find the gsm of the following fabric. (04)

Count of warp : 20^s
 Count of weft : 20^s
 Ends per inch : 56
 Picks per inch : 48

- b. A stripe fabric of 40.5 inches width on 84^s Stockport Reed is woven using 50^s cotton as warp and weft and has 72 PPI. Selvages are 0.25 inch on each side having 2/40^s yarn drawn 2 per dent. The length of the piece is 30 yards and has a warp and weft regain of 5% each. The warp pattern is given below:
 40^s Dark Brown – 1 inch
 36^s White – 1 inch
 Calculate the amount of warp and weft yarn required to produce 50 pieces considering a wastage of 5% in warp and 3% in weft. (08)

OR

- c. Find the gsm of the following fabric (04)

Count of warp : 30^s
 Count of weft : 30^s
 Ends per inch : 72
 Picks per inch : 68

- d. A piece of 40 metres of cloth woven from a warp which is 80 cms wide in the reed. The warp pattern is as below:
 20 ends of 10 Tex Light Blue
 20 ends of 15 Tex Dark Blue
 4 ends of 20 Tex Dark Brown
 There are 100 repeats of pattern with 20 extra ends of Dark Brown on each side of the selvedge. The count of weft is 20 Tex and the fabric has 25 EPcm.
 If the warp Regain is 5%, estimate the warp and weft required to produce 100 pieces of the fabric allowing an allowance of 3% towards waste. (08)



Calculate the Selling Cost per metre of the following fabric:

Length	-	100 yards
Width	-	40 inches
Reed	-	80 ^s Stockport
PPI	-	76
Warp	-	40 ^s Cotton
Weft	-	40 ^s Cotton
Warp Crimp	-	8%
Weft Crimp	-	5%
Waste in Warp	-	3%
Waste in Weft	-	2%
Selvedge	-	0.4 inch on each side
Cost of 40 ^s Cotton Yarn	-	Rs. 240/- per kg.
Warp Preparatory Charges	-	Rs. 25/- per kg.
Weft Preparatory Charges	-	Rs. 10/- per kg.
Weaving Charges	-	Rs. 12/- per metre
Overheads	-	10% of Base Cost
Profit	-	15% Production Cost
(Assume any other data required)		



OR

b. Calculate the Selling cost per metre of the following fabric:

Length	-	100 metres
Width	-	60 inches
Reed	-	56 ^s Stockport
PPI	-	52
Warp	-	20 ^s Cotton
Weft	-	20 ^s Cotton
Warp Crimp	-	12%
Weft Crimp	-	5%
Waste in Warp	-	3%
Waste in Weft	-	2%
Selvedge	-	0.4 inch on each side
Cost of 20 ^s Cotton Yarn	-	Rs. 200/- per kg.
Warp Preparatory Charges	-	Rs. 25/- per kg.
Weft Preparatory Charges	-	Rs. 10/- per kg.
Weaving Charges	-	Rs. 9/- per metre
Overheads	-	10% of Base Cost
Profit	-	15% Production Cost
(Assume any other data required)		

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/GADAGH/VENKATAGIRI
DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
ANNUAL/SEMESTER EXAMINATION - APRIL/MAY 2018
(Regulation - 2014)

Semester: SIXTH SEMESTER

Time: 3 Hours

Max. Marks: 80

Subject Code & Name: (6.1) WEAVING TECHNOLOGY & TEXTILE CALCULATIONS V

PART-A

Answer all the questions within two to three sentences.

(2x10=20)

- 1) Mention the difference between single ikat and double ikat
- 2) Mention two basic differences between London system of Harness building and Norwich system of Harness building.
- 3) Name any two states where tie and dye silk sarees are produced.
- 4) What is casting-out of Jacquard?
- 5) Ascertain the number of unit spaces of 6-thread sateen.
- 6) Write the formula to calculate ends per inch in the required cloth, while changing the count to maintain same level of compactness in indirect system.
- 7) What is the object of cloth calculation?
- 8) Define the term "Reed-width" and "Tape length".
- 9) What is the difference between cost price and selling price of fabric?
- 10) What are the factors required to determine the cost price of a fabric?

PART-B

Answer all the questions in detail

(4x8x5=60)

- 11) (A) Describe briefly the warp tie and dye technique in terms of design preparation, design transfer to warp and weaving.
(B) Explain the important features of Banarasi Handloom Sarees Weaving with jala technique.
OR
(C) Using a line sketch, briefly state the important features of the Adai Set-up.
(D) Explain the design preparation technique of weft tie and dye.
- 12) (A) Using a line sketch, briefly state the important features of London Harness System.
(B) A 304 Hooks Jacquard is tied-up 40 inches wide, 76 Harness cord per inch. If the sett of Harness is reduced to 64 cords per inch, how many hooks will have to be cast out? Prepare a suitable casting out plan so that re-harnessing can be avoided.
OR
(C) Using a line sketch, briefly state the important features of Norwich Harness System.
(D) If a Harness is tied upto 72^s set and it is desired to produce a fabric of 56^s set, how many hooks would have to be cast-out in a 400 hooks machine and how should they be distributed in order to avoid re-harnessing.
- 13) A 52 inches cloth 100 yds. long contains 80 threads per inch of 52^s cotton yarn in both warp and weft. The weight of the fabric is 20 pounds. If we produce a new cloth of equal dimension and firmness, weighing 26 pounds.
(A) What count of warp and weft will be required and how many threads per inch will be in the cloth?
(B) Verify the results by actual calculation assuming 5% contraction in both warp and weft.
OR
(C) A cloth is woven with 40^s warp and 56^s weft. It contains 68 ends per inch and 60 picks per inch, what should be the ends per inch that fabrics will contain if 30^s warp and 100^s weft used to have the same cover fraction.
(D) A plain cloth woven with 24^s cotton yarn is to be changed into (a) 4-thread sateen and (b) 6-thread sateen fabrics. Keeping the same number of threads per inch, what count of yarn should be employed in sateen fabrics to have the same compactness?

(2)

- 14) A cloth 44.5 inches wide on 72^S ST reed is woven with 32^S warp and 40^S weft and 64 picks per inch. Selvages 1/4 inch on each side are drawn 4 ends per dent. The count of the selvage yarn is same as that of warp yarn. The length of the piece is 40 yards. If regain of warp is 5%, calculate:

- (A) Tape length and total number of ends in warp.
(B) Total weight of yarn in the piece.

OR

- (C) A cloth 52.5 inches wide on the reed is 42 yards long and contains 60 picks per inch. If the weight of weft in the cloth is 3 1/2 pound, what is the count of weft yarn?
(D) A 35 metres long and 100 cms. Wide cloth is woven with 20 picks per cm. If the count of the weft yarn is 16 tex and the weft regain is 8%, calculate the total length and weight of the weft in the cloth.

- 15) If a fabric is constructed as per following particular

Count of warp yarn	=	22 ^S cotton (coloured)
Count of weft yarn	=	18 ^S cotton (coloured)
Ends per inch	=	64
Picks per inch	=	60
Warp crimp	=	6.5%
Weft crimp	=	8.5%
Width of cloth	=	36"
Assume length of cloth	=	10 yds.
Weight of warp consumed including wastage	=	1.3277 lbs
Weight of weft consumed including wastage	=	1.55 lbs
Cost of 22 ^S cotton yarn	=	Rs. 320/- per pound
Cost of 18 ^S cotton yarn	=	Rs. 280/- per pound
Warp preparatory charges	=	Rs. 60/- per pound
Weft preparatory charges	=	Rs. 50/- per pound
Dyeing preparatory charges	=	Rs. 100/- per pound
Weaving preparatory charges	=	Rs. 25/- per yds
Overhead charges	=	@ 15% over production cost

- (A) Calculate the weight of fabric in ounce per square yds.
(B) Calculate the selling price per yds. by allowing 30% margin of profit.

OR

If a fabric is constructed as per following particulars:

Count of warp and weft yarn	=	120 denier x 100 denier
Ends and picks per cm.	=	25 x 30
Width of cloth	=	120 cm.
Length of cloth	=	100 mtrs.
Warp and weft crimp	=	5% & 8%, respectively
Weight of warp including wastage	=	4.402 kg.
Weight of weft including wastage	=	4.408 kg.
Waste in warp & weft	=	3% & 2%, respectively
<u>Cost of raw material:</u>		
Warp	=	Rs. 380/- per kg.
Weft	=	Rs. 340/- per kg.
Weaving charges	=	Rs. 3/- per meter
Processing charges	=	Rs. 6/- per meter
Transportation charge	=	50 paise per meter
Overhead charges	=	15% of the total cost

- (C) Calculate the G.S.M. of the fabric.
(D) Calculate the selling price per meter of the fabric allowing 20% margin of profit.