INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
BARGARH/FULIA/GUWAHATI/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI,GADAG/SPKM/VENKATGIRI
DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
SEMESTER EXAMINATION NOV/DEC -2017
(2011- REGULATIONS)

Semester : IV SEMESTER **TIME: 3 Hours**

Subject : 4.1 Weaving Technology and Textile Calculations-III **Max Marks: 80**

PART-A

Answer all the questions within two to three sentences **2x10= 20 Marks**

1. What is the necessity of warp protector motions in power loom?
2. Write about the principle of climax dobby?
3. What do you mean by Automatic powerloom?
4. What is the need of warp stop motions?
5. What are all the factors affecting the production of a warping machine?
6. Write the formulae for calculating the efficiency of a warping machine?
7. Calculate total number of ends in a warp, if the creel capacity is 500 and number of sections made is 6 ?
8. 100Kg warp yarn found to weigh 120 kg after sizing. What is the percentage of size put in the yarn?
9. Calculate the actual production in hours of a cone winding machine with a calculated rate of winding of 500 meter per minute and efficiency of 80 percent?
10. Calculate production per hour of a loom running at a speed of 200 rpm with an efficiency of 80 percent. The number of pick inserted per inch in the cloth is 80 ?

PART- B **12 x 5= 60 Marks**

11. A) Compare side weft fork mechanism with center weft fork mechanism? (4)
    B) With the help of neat sketch explain about the working of climax dobby? (8)

    OR

    C) Compare the loose reed and fast reed warp protection motions? (4)
    D) With the help of a neat sketch explain about the working and mechanism of fast reed warp protector motion? (8)

12. A) Write about Automatic power looms and its automations? (4)
    B) With the help of a neat sketch explain the mechanism and working of any one type of Drop box mechanism? (8)

    OR

    C) Write about automatic weft replenishment and its types? (4)
    D) Prepare a layout plan for accommodating 50 powerlooms. Also mention the facilities which are necessary for the shed? (8)

13. A) Calculate the quantity of yarn required in pounds to make the warp of 1000 yard length with 500 ends. The count of yarn is 20^s Ne and ignore the wastages during warping ? (4)
    B) A warping unit with 3 warping machine is required to complete the order of 30 back beam with 30,000 meters of warp on each. The calculated warping speed of the machine is 900 metres per minute and the efficiency of the machine is 80. Calculate the time that would be required to complete the work?(8)

OR

C) Calculate the 'beam count' of a warpers beam which weighs 303 pounds and has 12000 yards of warp on it. The total number of ends in the warp is 420 and the weight of the empty beam is 63 pounds.? (4)

D) Five hundred (500) cones are to be used for producing back beams containing 500 ends and length of warp required on each back beam is 25000 metres. The weight of yarn on each cone is 2 Kg and its count is 20 tex, calculate the number of back beams that could be produced from the cone and also calculate the weight of warp yarn on each back beam? (8)

14. A) The total number of ends in a warp is 3200. Calculate the number of sections to be made and the number of ends per section, if the creel capacity is 500. (4)

B) An unsized warp of 1000 meters long is required to be sized to 20% on its weight. If the total number of ends in the warp is 3000 and the count of the warp yarn is 10 tex. Calculate the following

i. The weight of the size to be put on the warp
ii. The weight of sized warp
iii. The count of the sized warp yarn (8)

OR

C) The reed width of the warp is 40 inches, if 7 sections are to be made for the warp,what is the width of each section? Consider 2 inch as the allowance in calculation (4)

D) A stripe warp has 42 stripes of 40 ends each, 40 extra pattern ends and selvedge ends 14 on each side. Find the number of sections and the number of ends on each sections. The creel capacity is 500 bobbins. (8)

15. A) Calculate the time required to wind 400 pounds of 12^s cotton yarn on 10 drums. The actual production per drum per minute is 560 yards.? (4)

B) The stoppages of a loom per hour due to various causes are as follows:
Number of re shuttling @ 25 seconds is 6 per hour
Number of warp breakages @ 3 per hour, the time for mending a broken warp end being on average of one minute.
Stoppages for other causes 5 minutes per hour,
Calculate the running efficiency of the loom? (8)

OR

C) A shuttle less sulzer loom is running at 276 rpm and producing a cloth with 46 picks per inch. If the efficiency of the loom is 85 percent, calculate the production in yards of the loom per day of 8 hours? (4)

D) Calculate the number of spindles of a fully automatic pirn winding machine that would be required to supply 276 looms with weft, if the quantity of weft consumed by each loom is 12 pounds per day of 8 hours. The calculated production per spindle per day of 8 hours is 18.4 pounds. The efficiency of the pirn winder is 90%.Ignore waste? (8)

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

SEMESTER EXAMINATION NOV/DEC -2017

(2014- REGULATIONS)

Semester : IV SEMESTER **TIME: 3 Hours**

Subject :4.1 Weaving Technology and Textile Calculations-III **Max Marks: 80**

PART-A

Answer all the questions within two to three sentences **2x10= 20 Marks**

1. Which type of warp protector mechanism is suited for denim cloth? Why?
2. What are all the functions of lattice and peg in climax dobby?
3. What do you understand the term 'Weft Mixing'?
4. What is the scope of dobby in powerloom weaving?
5. What do you mean by the term back beams ?
6. Write the formulae for calculating the Beam count in Ne system?
7. Calculate the number of sections to be made , if the creel capacity is 500 and total number of ends in a warp is 3000?
8. 100Kg warp yarn to be sized with 15% size put in the yarn. Calculate the weight of sized warp yarn?
9. Calculate the actual production in hours of a pirn winding machine having 6 spindles with an efficiency of 80 percent. The calculated rate of winding is 300 meter per minute?
10. Calculate production per hour of a loom running at a speed of 300 rpm with an efficiency of 80 percent. The number of pick inserted per inch in the cloth is 70 ?

PART- B **12 x 5= 60 Marks**

11. A) Enumerate the principles of loose reed and fast reed warp protector mechanism? (4)
    B) With the help of neat sketch explain about the working of side weft fork mechanism? (8)

OR

    C) Draw the diagram of pegged lattices suitable for Right handed & Left handed climax dobby by taking 3 up 3 down twill? (4)
    D) With the help of a neat sketch explain about the working and mechanism of any one type of warp protector motion? (8)

12. A) What are all the features required for a automatic power loom? (4)
    B) With the help of a line sketch explain the working of automatic pirn changing mechanism? (8)

OR

    C) Write about the necessity of automatic weft replenishment mechansim and its types? (4)
    D) Prepare a layout plan for accommodating 50 powerlooms. Also mention the facilities which are necessary for the shed? (8)

13. A) The warping speed of a modern warping machine is 500 meters per minute. Calculate the length of warp in meters that can be produced on 5 warping machines in a day of 8 hours. The efficiency of the warper is 80%? (4)

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B) A super speed warper producing a warp with 500 ends is having an average production rate of 700 yards per minute. The length of the warp required on each back beam is 30,000 yards. if the count of the warp yarn is 50^s Ne and the efficiency is 89.29%, Calculate the following:

i. The length of warp produced per day of 8 hours?
ii. The number of beams produced per day of 8 hours?
iii. The total weight of warp produced per day of 8 hours?
iv. The weight of warp on each back beam? (8)

OR

C) Calculate the quantity of yarn required in pounds to make the warp of 1000 yard length with 500 ends. The count of yarn is 20^s Ne and the wastages during warping is 5% (4)

D) A super speed beam warping machine is required to supply 60,000 meters of warp with 3400 ends for a set of back beams. The count of warp is 30 Tex. If the capacity of warping creel is 500, calculate the following:

i. No. of back beams to be made?
ii. No. of ends on each back beam?
iii. Weight of warp yarn on each back beam? (8)

14. A) The calculated rate of production of a slasher sizing machine was found to be 22500 yards per hour. Find out the actual production per shift of 8 hours with 80% efficiency?. (4)

B) A set of 8 beams each containing 32000yards of warp is to be used for producing of weaver's beams on a high speed slasher sizing machine. If the percentage of elongation of warp during sizing is 0.5% and waste of warp is 60 yards, calculate the number of beams which could be made from the back beams. The length of sized warp on a weavers beam is 1200 yards.? (8)

OR

C) A sized beam contains 60 Kgs of sized warp of 1000 meters. The count of the unsized yarn from which the warp has been prepared is 20 tex. If the number of ends in the warp is 2500, Calculate the percentage of size? (4)

D) A stripe warp is to be prepared on a sectional warping machine with a creel capacity of 480 bobbins. There are 70 stripes in the warp, each stripe containing 36 ends. Besides, there are 20selvedge ends on each side. Calculate the number of sections to be made and the number of ends in each section.? (8)

15. A) The time taken for winding a full pirn on a super speed automatic pirn winding machine with out any stoppages during the period is 2.5 Minutes. The weight of the yarn on the pirn is 50 gms and the count of the yarn is 25 Tex. Calculate the actual production of a machine with 6 spindles per day of 8 hours, if the efficiency is 85%.? (4)

B) A cloth is to be woven with 20 picks per cm on a loom having a rpm of 200. The total length of warp on the beam is 1200 metres and the warp take up in weaving is 5 percent. If the efficiency of the loom is 77percent, calculate the time required to weave the warp on the loom beam. Take 8 meters as waste of warp? (8)

OR

C) How many drums would be required to wind 1000 pounds of 24^s cotton yarn in 12 hours, if the actual production per drum per minute is 560 yards. Ignore yarn waste.? (4)

D) A weaving shed contains looms of the following particulars:

150 looms of 32 inch reed space
200 looms of 36 inch reed space
200 looms of 40 inch reed space
150 looms of 48 inch reed space

What is the average reed space of the loom? (8)

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

FOURTH SEMESTER (BACK PAPER) EXAMINATION – NOV/DEC-2015

4.1 - WEAVING TECHNOLOGY & TEXTILE CALCULATIONS -III

Time: 3 hours **Max. Marks 80**

PART-A

Answer all the questions within two or three sentences. 2x10=20

I. i. List out the objectives of warp protection mechanism.

ii. List out the characteristics of a double lift dobby.

iii. What do you mean by box motion or box mechanism?

iv. Write a short note on card saving device.

v. The diameter of a line shaft drum is 7.5" and its speed is 90 rpm. Calculate the speed of machine pulley if its diameter is 15".

vi. Calculate the Beam count, if the beam contains 12600 yards with 420 ends. Weight of the full beam is 362 lbs and weight of empty beam is 51 lbs.

vii. Calculate the number of sections, if the number of warp ends required is 2700 and creel capacity is 500 bobbins.

viii. Calculate the efficiency of a slasher sizing machine whose calculated production is15,795 yards per hour and actual production is 12,004 yards per hour.

ix. Calculate the number of spindles required to wind 280 lbs of 20^S yarn in a pirn winder in 8 hours. The actual production capacity of pirn winder is 1.4 lbs per spindle per hour.

x. Calculate the picks per inch in a cloth where the dividend of 5 – Wheel take up mechanism is 2112 and the change wheel having 48 Teeth.

PART-B

Answer all the questions in detail. (4+8x5=60)

II. a. Compare Side weft fork and Centre weft fork motions. (04)

b. Explain the working principle of Centre Weft Fork Motion with neat sketches. (08)

OR

c. Differentiate between Tappet Shedding and Dobby Shedding. (04)

d. Explain the working principle of Climax Dobby with neat sketches. (08)

III. a. Write a note on Drop box motions. (04)

b. Explain the working of Drop box motion with neat diagrams. (08)

OR

c. Write a note on weft replenishment mechanisms. (04)

d. Explain the working of Warp Stop Motion with required sketches. (08)

IV. a. The warping speed of modern warping machine is 600 mpm and the Efficiency is 75%. Calculate the length of warp in meters that can be produced on 3 warping machines in a day of 8 hours.

b. The calculated speed of a super speed warping machine producing a warp with 500 ends is 750 mpm. The length of warp required in each back beam is 32,000 meters. If the count of warp yarn is 20 Tex and the Efficiency of the machine is 80%. Calculate the following:

i. The length of warp produced per day of 8 hours.
ii. The number of beams produced per day of 8 hours.
iii. The total weight of warp produced per day of 8 hours.
iv. The weight of warp on each back beam.

OR

c. Given that the speed of wooden drum is 45 rpm and diameter of the drum is 20 inches. If the efficiency of warp is 65%, what is the length of warp prepared per warper per day of 8 hours? (04)

d. A super speed warper with a warping speed of 880 ypm is preparing a standard warp of 525 ends. If the count of the yarn is 30^s and the overall efficiency is 84%, calculate the following. The length of warp on each beam is required to be 44,352 yards. Ignore waste. (08)

i. The total length of warp produced per day of 8 hours.
ii. Number of beams produced per day of 8 hours.
iii. The total weight of yarn in lbs. warped per day of 8 hours.
iv. The weight of yarn on a beam.

V. a. The total number of ends in a warp is 2700. Calculate the number of sections and number of ends in each section to be made, if the capacity of the creel is 500 bobbins. (04)

b. A stripe warp of the following particulars is to be made on a sectional warping machine. Total number of ends 2240; Number of ends per pattern 32; Number of extra pattern ends at both ends near selvedge 24; Selvedge ends at each side 20. If the creel capacity is 480 bobbins and width of warp in the reed is 35 inches, calculate the following: (08)

i. Number of complete pattern in the warp.
ii. Number of sections to be made.
iii. Number of ends per section
iv. Width of warp on the Weaver's beam
v. Width of a section.

OR

c. A sizing machine is sizing 1,334 yards (actual) per hour. It feeds warp to looms producing 4 yards of cloth per hour on an average. It is also observed that the cloth produced having 6% regain and 0.5% waste (per weaver's beam). Calculate the number of looms that the slasher machine could supply. (04)

d. The calculated production of a high speed slasher is 100 ypm and machine efficiency is 75%. Calculate: (08)

i. Actual production per day of 8 hours.
ii. Total length of warp yarn, if the total ends is 3250.
iii. Total weight of sized warp, if it is sized to 10% and the count of unsized yarn is 40^s cotton.

The winding speed of a pirn winder is 880 ypm . Calculate the actual production per day of 8 hours for 20^s cotton yarn at 86% efficiency. (04)

b. Calculate the number of high speed winding machines and the number of winding drums per machine that will be required for feeding 5 high speed warping machines. The average actual production of warping machine is 75,600 yards per 8 hours and the average number of ends warped on back beam produced on this machine is 400. The winding machine is supposed to have on an average actual production of 303 hanks per 8 hours. Warp yarn waste during warping is 1%. (08)

OR

c. A shuttleless loom is running at a speed of 279 rpm and producing a cloth with 46 ppi, if the efficiency of the loom is 85%. Calculate the production of the loom per day of 8 hours. (04)

d. A jobber looks after 40 looms in the day shift. The varieties of cloth produced on the looms on a particular day of 8 hours is given below. Calculate the average production of the day at 40 picks. (08)

Variety	Picks per inch	Production in the day
Sort No.1	36	284.4 yards
Sort No.2	52	277.2 yards
Sort No.3	60	825.6 yards
Sort No.4	72	118.8 yards

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
FOURTH SEMESTER (NEW SYLLABUS) EXAMINATION – APRIL/MAY-2016
4.1 WEAVING TECHNOLOGY AND TEXTILE CALCULATIONS-III

Time: 3 Hours Max. Marks: 80

PART-A

Answer all question within 2 or 3 sentences. 2X10= 20

I. i) What are the objects of warp protection mechanism.
ii) Mention 2 types of weft fork motion.
iii) Mention 2 types of multiple box motions of a power-loom.
iv) What is the purpose of warp stop motion?
v) The calculated production and actual production of a warping machine is 15,000 yards and 12,000 yards respectively. Calculate its efficiency.
vi) A line shaft of 10 inches diameter is running at a speed of 120 RPM. Calculate the speed of the machine pulley with diameter of 20".
vii) The total no. of ends in a warp is 3000. Calculate the no. of sections to be wound if the creel capacity is 250 bobbins.
viii) The sized warp weighs 120 lbs. The percentage of size is 10%. Calculate the weight of unsized warp.
ix) Calculate the time required to wind 10 lbs of 20^s yarn, if the speed of the machine is 560 yards/minute.
x) Calculate the time required to complete a beam of 300 yards. The loom is running at a speed of 200 RPM with 50 picks/inch.

PART-B

Answer all questions in detail: (4+8)x5=60

II. a) Compare loose Reed motion and Fast Reed motion. 4
b) With a neat diagram, explain the working principle of Fast reed motion. 8

OR

c) Compare Side weft Fork and Centre weft Fork motions. 4
d) Explain the working principle of center weft Fork motion. 8

III. a) Explain the principle of Electrical warp stop motion. 4
b) With a neat diagram explain the working of mechanical warp stop motion of an automatic powerloom. 8

OR

c) Write short notes on shuttle feeler. 4
d) With a neat diagram explain the working cop changing mechanism of an automatic power loom. 8

IV. a) A beam warping machine runs at a speed of 100 RPM and its diameter is 24". If the efficiency is 80%, what is the length of warp prepared per day of 8 hours. 4
b) Calculate the time required to prepare a set of 6 warp beams on 2 high speed beam warper at a speed of 600 yards/minute. The length of warp on each beam is 40,000 yards. The over all efficiency of the warping machine is 85%. 8

OR

c) A modern high speed beam warping machine produces 1,96, 560 yards of warp per day of 8 hours. If the calculated warping speed is 455 yards/minute, calculate its efficiency. 4
d) Calculate the no. of warper beams and the length warp that can be produced from 520 bobbins each of which contains ½ lbs of 40^s yarn. The no of ends in the warp is 2080. Allow 5% for wastage 8

V. a) The total no. of ends in a warp is 3000. Calculate the No. of sections to be made, if the creel capacity Is 400. 4

b) A stripe warp has 40 stripes of 50 ends each, 80 extra pattern ends and selvedge ends 28 on each side. Find the No. of sections to be made and no. of ends made in each section, if the creel capacity is 400 bobbins. 8

OR

c) A warp containing 3000 ends of 44^s count is sized to 10%. If the sized warp weighs 150 lbs, calculate the length of sized yarn. 4

d) The average actual production per loom of a weaving shed is 6.5 yards of cloth per hour. The take up of warp in weaving is 8%. The actual production of the slasher which is supplying beam to the weaving shed is 32,000 yards per day of 8 hours. Calculate the no. of looms it can keep running. Allow 1% as waste of warp. 8

VI. a) Calculate the time required to wind 500 lbs of 32^s cotton yarn on 10 drums. The actual production/ drumis 480 yards/minute. 4

b) 1500 lbs of 40^s cotton yarn is to be wound in 8 hours on a high speed machine at a speed of 600 yards per minute. If the machine runs with 90% efficiency, how many winding drums could be required. 8

OR

c) A jet loom is running at a speed of 750 picks/inch and producing bandage cloth with 30 picks/inch. If the efficiency of the loom is 90% , calculate the length of cloth produced is 8 hours. 4

d) A weaving shed of 500 looms has an average RPM of 200 and average reed width of 48". The production per loom per day of 8 hours at 44 picks is 52 yards. If the pirns on average holds 1.5 ounces of weft and the average count of weft is 40^s, how many pirns are required per day of 8 hours. Allow 1% waste for weft. 8

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
FOURTH SEMESTER (OLD SYLLABUS/ BACK PAPER) - APRIL/MAY 2016

4.1 – WEAVING TECHNOLOGY & TEXTILE CALCULATIONS – III

Time: 3 Hrs **Max. Marks: 80**

PART-A

NOTE:- ANSWER ALL QUESTIONS WITHIN TWO OR THREE SENTENCES. **[2 x 10 = 20]**

I
a) Mention any tow auxiliary motions of ordinary powerloom.
b) Mention two types of warp protecting mechanisms.
c) What is the purpose of attaching multiple box motion on a powerloom?
d) What is the use of cop changing mechanisms?
e) Mention the formula for calculating efficiency.
f) The Surface speed of the warping drum in 200 yards/minute. Calculate the actual length of warp wound in a shift of 8 hours.
g) A stripe warp has 45 stripes of 50 ends each and 80 ends extra for selvedge. Calculate the total number of ends in the warp.
h) 50 lbs of unsized warp becomes 55 lbs after sizing. Calculate the percentage of size.
i) Calculate the length of yarn wound per/minute if the diameter of the drum is 3 inches and RPM is 2000.
j) Calculate the production per hour of a loom running at a speed of 120 RPM with picks per inch of 80.

PART - B

Answer the following questions in details:

II a) Compare single lift and double lift dobby system. 04
b) With a neat diagram explain the working of 'Loose Reed Motion' of a powerloom. 08

OR

c) Write down the defects in dobby weaving. 04
d) With a neat sketch explain the working principle of 'Center weft fork motion.' 08

III a) Explain the principle of 'Mechanical warp stop motion'. 04
b) With a neat diagram explain the working of 'Electrical warp stop motion' of an automatic powerloom. 08

OR

c) What is the use of weft replenishment mechanism? 04
d) Explain the working of 'Shuttle Changing Mechanism'of an automatic powerloom. 08

IV a) The length of warp on a warpers beam is 24,000 yards and the number of ends in the warp is 560. If the net weight of the warp is 400 lbs. Calculate the beam count. 04
b) Calculate the Quantity of yarn in lbs which will be required for a set of 8 back beams to be produced on a high speed beam warper. The length of warp on each beam is 30,000 yards and there are 500 ends on each beam. The count of yarn is 60^s. Allow 2 % wastage during warping. 08

OR

c) Calculate the weight of warp on a set of back beams within contains 32,000 ends. The length of warp on each beam is 20,000 yards and the count is 60^s. 04
d) A warping machine with a speed of 920 yards/ minute is preparing a warp of 600 ends. If the count of yarn is 36^s, efficiency is 90 % and the length of warp on each beam is 66, 240 yards. Calculate the following. 08
i) Total length of warp produced per day of 8 hours.
ii) Number of beams produced per day of 8 hours.
iii) Total weight of yearn warped in 8 hours.
iv) Weight of yarn on one beam

P.T.O.

V a) The Reed width of the warp is 42 inches. If 11 sections are to be made for the warp, what is the Width of each section? 04

b) If the total no of ends in the required warp is 3200 and the creel capacity is 500 bobbins, ascertain the following. 08

i) Total no. of sections to be made

ii) No. of ends in each section.

OR

c) If a 36 teeth tin roller is used for a cut length of 30 yards, calculate the size of the stand wheel. 04

d) The Actual production of a high speed slasher is 4800 yards/ hour. If the percentage of elongation during sizing is 0.5% and the wastage of warp is 48 yards, calculate the time required to size a set of 8 back beams containing 32,000 yards of warp on each beam. 08

VI a) How may drums are required to wind 800 lbs of 26^S cotton yarn in 8 hours , if the actual production per drum is 520 yards/minute. 04

b) The rate of winding of a super speed automatic pirn-winding machine is 960 yards/ minute. Calculate the actual production per day of 8 hours, if the efficiency is 90 % and the count of yarn is 26^s. 08

OR

c) Calculate the production per hour of a loom running at the sped of 200 RPM with efficiency of 80 %. The picks/ inch is 72. 04

d) A loom shed contains 378 looms of the following particulars: 08

Reed space of the loom	No. of looms
56 inches	40
52 inches	30
48 inches	44
44 inches	48
40 inches	96
36 inches	120

Calculate the average reed space of the shed.

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
FOURTH SEMESTER (2014 REGULATION) EXAMINATION – NOV /DEC.- 2016
4.1 WEAVING TECHNOLOGY & TEXTILE CALCULATION - III

Time: 3 Hours | Max Marks: 80

PART-A

I **Answer all the questions within 2 to 3 sentences.** **2x10=20 Marks**

a) What is the object of warp protector mechanism?
b) Name two dobbies used in power loom.
c) What is the use of multiple box motion?
d) Name the mechanism that make an ordinary powerloom into an automatic powerloom.
e) Calculate the efficiency of a warping machine if its calculated production is 920 meters/min. but actually producing 3,53,480 meters of warp in 8 hours.
f) Calculate the count of warp in tex system if the weight of sized yarn is 60 Kg. with 2400 ends of 1000 meters length of warp.
g) Write any two reasons which decrease the speed of a loom.
h) What are the factors involved in the warp calculations?
i) Calculate the production in hanks for 8 hours if the pirn winding machine speed is 840 yards per minute.
j) Write the formula for calculating number of sections in a sectional warping machine.

PART-B

Answer all the questions in detail. **4+8x5=60 Marks**

II a) Differentiate the loose reed and fast reed mechanism. 4
b) Explain the loose reed mechanism with neat sketch. 8

(OR)

c) Compare side weft fork and centre weft fork motion. 4
d) Explain the working principle of Climax dobby. 8

III a) What is the shuttle changing mechanism and its use? 4
b) Explain the principle of mechanical warp stop motion. 8

(OR)

c) Explain the layout of a power loom shed. 4
d) Explain the working of cop changing mechanism with diagram. 8

IV a) The weight of warp in the beam is 240 Kg. with the number of ends in the warp is 500 and the length of warp is 20,000 metres. Find the beam count. 4

b) A super speed beam warper with a warping speed 880 yards per minute is producing a standard warp of 525 ends. The count of yarn is 30^s cotton and overall efficiency is 84%. The length of warp on each beam is required to be 44,352 yds. Calculate the following.
i) Total length of warp produced per day of 8 hours.
ii) Total weight of yarn in pounds warped per day of 8 hours.
iii) Number of beams produced per day of 8 hours.
iv) Weight of yarn on each beam. 8

(OR)

c) Calculate the number of ends in the warp on a back beam, if the weight of the warp is 330 Kgs, the length of the warp is 32,000 metres and the count of warp is 33 Tex. 4

d) A super speed beam warping machine is required to supply 50,000 mts. of warp with 3234 ends for a set of warp back beam. The count of warp is 20 Tex. If the capacity of warping creel is 480, calculate the following:
i) No.of ends on ends each back beam.
ii) No.of backs beams to be made.
iii) Weight of warp yarn on each back beam.
iv) The total weight of yarn required for the back beams with 1½% wastage. 8

V a) A sized beam contains 40 Kgs.of sized warp of 1000 mts. long. The count of the unsized yarn from which the warp has been prepared is 12 Tex. If the number of ends in the warp is 2500, calculate the percentage of size. 4

b) A warp containing 2500 ends and 3200 mts long has to be sized with 25% size on it. If the count of warp yarn is 16 Tex, calculate
(i) The weight of size to be put on the warp.
(ii) The weight of sized warp
(iii) The count of sized warp. 8

(OR)

c) A stripe warp has 40 stripes of 50 ends each and 30 extra pattern ends, 20 selvedge ends on each side. Find the number of sections and number of ends on each section if the creel capacity is 500 bobbins. 4

d) A stripe warp of the following particulars is to be made on the sectional warping machine.

Total number of ends in the body warps	2320 ends.
Selvedge ends on each side of	40 ends.
Creel capacity	400 bobbins.
Width of warp on beam.	40 inches.

Calculate the following
i) Number of sections to be made.
ii) Number of ends per section.
iii) Width of a section. 8

VI. a) How much time will be required to wind 2388 lbs of 20^s cotton yarn on 40 drums of a super speed cone winder, if the calculated rate of winding is 1298 yds/min and the efficiency is 80%. 4

b) Five barber column super speed beam warping machine with a average production (actual) of 3,02,400 yards per day of 8 hours each is required to be supplied with warp by barber column automatic spooler having a production of (actual) 70 hanks per hour per drum. Calculate the number of winding drum required to feed these super beam warping m/c. The average number of ends on a warping beam is 496. 8

(OR)

c) Calculate the average rpm of weaving shed containing 550 looms with the following particulars:

Number of loom	RPM
150 looms	250
200 looms	300
200 looms	180

4

d) A weaving shed contains 200 looms have 42 ST reed and works with 33^s count of weft, the average picks/inch of the cloth produced is 44 and the width of warp in the reed is 40". The production per day of 8 hours is an average of 63 yards, the pirn supply contains an average of 1.22 ounce of weft on each, if change over is made to larger size of pirn with 2.02 ounce of weft on each. Calculate the increase production per day of 8 hours on these 200 looms. 8

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/FULUIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI,GADAG/SPKM IIHT, VENKATAGIRI

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

4.1 WEAVING TECHNOLOGY & TEXTILE CALCULATION - III

Time: 3 Hours | Max Marks: 80

PART-A

I **Answer all the questions within 2 to 3 sentences.** **2x10= 20 Marks**

a) Mention the function of loose reed motion.
b) Write the importance of weft detection motions on looms.
c) Write the importance of weft replenishment motion in an automatic powerloom.
d) Define pick at will motion.
e) The calculated rate of warping of a warper was found to be 4719 yards per hour. If the actual production per hour is 3064 yards. Calculate its efficiency.
f) What do you understand by the term back beam?
g) Write the formula for calculating percentage of size applied on warp.
h) Width of warp is required to be 40 inches .The number of sections in the warp is 8. Calculate the width of each section.
i) Write the formula for calculating actual production in metres per hour per loom.
j) The calculated rate of winding of a super speed cone winding is 1300 metres per minute, if the efficiency is 85%. Calculate the actual length of yarn wound in kms. per day of 8 hours.

PART-B

Answer all the questions in detail.

II a) Define right handed dobby and left handed dobby. 4

b) Explain with sketches about side weft fork mechanism. 8

(OR)

c) Explain briefly about two types of warp protecting motions used in powerloom. 4

d) With the help of line diagram, explain the working of climax dobby. 8

III a) Name the motions that make an ordinary powerloom in to automatic loom. 4

b) Explain with simple line diagram the working principle of drop box motion in powerloom. 8

(OR)

c) What are the advantages of warp stop motion? 4

d) Explain the working principle of shuttle changing mechanism of an automatic loom with neat sketch (any make). 8

P.T.O

IV a) Calculate the length of warp that can be produced per day of 8 hours on an improved modern high speed beam warper, if the warping speed is 600 yards per minute. The overall efficiency is 85%. 4

b) Calculate the time required to prepare a set of 8 warpers beam on 2 improved high speed beam warpers with a warping speed of 560 yards (calculated) per minute. The length of warp in each beam is required to be 36000 yards. The overall efficiency of the warping machines is 80% 8

(OR)

c) The length of warp on a warpers beem is 36000 yards and the number of ends in the warp is 420. If the net weight of the warp on the beam is 500 pounds. Calculate the beam count. 4

d) A super speed beam warper with a warping speed of 880 yards per minute is preparing a standard warp of 525 ends if the count of the yarn is 30^s cotton and the overall efficiency is 84%. The length of warp in each beam is required to be 44352 yards. Calculate the following (1) total length of warp produced per day of 8 hours (2) number of beams produced per day of 8 hours. 8

V a) The total number of ends in warp is 2800. Calculate the number of sections to be made, if the creel capacity is 500 bobbins. 4

b) The calculated production of a high speed slasher is 120 yards per minute if the efficiency of the machine is 80%. Calculate (1) the actual production per day of 8 hours. (2) the total length of warp yarn, if the total ends in the warp is 3200. 8

(OR)

c) A sized warp 840 yards long contain 2500 ends and weighs 60 pounds. If the count of the unsized yarn is 50^s cotton, what is the percentage of size on the warp? 4

d) A stripe warp has 42 stripes of 40 ends each, 40 extra pattern ends and selvedge ends 14 on each side. Find the number of sections and the number of ends one each section. The creel capacity is 500 bobbins. 8

VI a) The rate of winding of a high speed automatic pirn winding machine is 400 meters per minute. If the production per spindle per hour is 18500 metres, calculate the efficiency of the machine. 4

b) A jobber looks after 40 looms in the day shift. The varieties of cloth produced on the looms on a particular day of 8 hours is given below, calculate the production of the day at 40 picks/inch.

Variety	Picks per inch	Production in the day
Sort No.1	36	284 yards
Sort No.2	52	277 yards
Sort No.3	60	225 yards.
Sort No.4	72	120 yards

8

(OR)

c) Calculate the production per hour of a loom running at a speed of 200 rpm with an efficiency of 85%. The number of picks inserted per inch in the cloth is 80. 4

d) Calculate the time required for winding 3000 hanks of 12^s cotton yarn from hanks on a high speed automatic pirn winder with 8 spindles. The calculated rate of winding per minute is 420 yards. Assume that the efficiency is 80%. 8

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION APRIL/MAY-2017 (2014 REGULATION)

Time : 3 Hours **Max. Marks : 80**

IV SEMESTER 4.1 WEAVING TECHNOLOGY & TEXTILE CALCULATIONS-III

Part – A

(Answer all the questions within two to three sentences) **2 x 10=20 Marks**

1. What are the objectives of warp-protection mechanism?
2. What do you understand by the term 'loom Banging-off'?
3. What is the principle of Drop-Box motion?
4. What is the objective of Warp Stop motion?
5. Write down the formula for calculating percentage of size.
6. If six sections are to be made for a warp, which is 27.5 inches wide in the reed, calculate the width of each section.
7. List out the factors involves in a sectional warping calculation
8. Write the formula for calculating actual production of a power loom in yards per hour.
9. Calculate the efficiency of a winding machine, if its calculated rate of winding is 720 yards per minute and actual production is 600 yards per minutes.
10. What do you understand by the term 'Back-Beam'?

PART-B **(4+8) x 5= 60 Marks**

11 A) Compare side weft-fork motion and centre weft-fork motion **(4)**

B) With the help of line diagram explain the working of side weft-fork motion **(8)**

(OR)

C) Differentiate between loose-reed mechanism and fast-reed mechanism. **(4)**

D) Explain the working principle of climax dobby with neat sketches **(8)**

12 A) What are the mechanisms makes a plain powerloom into an automatic loom? **(4)**

B) Prepare a comprehensive lay out plan for a loom shed accommodating 50 powerlooms. Also mention the facilities which are necessary for the shed. **(8)**

(OR)

C) Write a short note on Weft Replenishment Mechanism **(4)**

D) With the help of a line sketch explain the working of Eccle's Drop Box Motion **(8)**

13 A) Calculate the length of warp that can be produced per day of 8 hours on Modern High Speed, if the warping speed is 610 yards per minute. The overall efficiency is 75%. **(4)**

B) A super speed Beam Warping Machine required to supply 53536 yards of warp with 3234 ends for a set of Back Beams. The count of the warp yarn is 44^S cotton yarn. If the capacity of the warping creel is 480 and the warping beam has a flange diameter of 40 inches, calculate the following: **(8)**

i) No. of Back-Beams to be made.

ii) No. of Ends on each Back-Beam.

iii) Weight of warp on each Back-Beam.

(OR)

C) Weight of warp yarn on a Beam is 240 kgs. If the length of Warp is 20000 mtrs. and the number of Ends in the Warp is 500, calculate the Beam count. **(4)**

D) 500 cones are to be used for producing Back-Beams containing 500 Ends and 28000 mtrs. of warp on each. The weight of yarn on each cone is 2.2 kgs. and its count is 16 tex, calculate the number of Back-Beams that could be produced from the cone and also calculate the weight of warp yarn on each back beam. **(8)**

Contd.... 2

14 A) The total number of ends in a warp is 2700. Calculate the number of sections to be made and the number of ends in each section, if the creel capacity is 500 bobbins. **(4)**

B) The weight of sized warp on a beam was found to be 82.5 pounds. The beam contains 1050 yards of warp, whose count before sizing was 50^S cotton. If the number of ends in the warp is 3000, calculate the following: **(8)**

i) The weight of size put on the warp.
ii) The percentage of size put on the warp.
iii) The count of sized warp yarn.

(OR)

C) A stripe warp is to be prepared on a sectional warping machine with a creel capacity of 480 bobbins. There are 70 stripes in the warp, each stripe containing 36 ends. Besides, there are 20 selvedges on each side. Calculate the number of sections to be made and the number of ends in each section. **(4)**

D) A warp containing 2500 ends and is 32000 mtrs. long has to be sized with 25% size on it. If the count of the unsized warp yarn is 16 tex, calculate the following: **(8)**

i) The weight of size put on the warp.
ii) The weight of sized warp.
iii) The count of sized warp yarn.

15 A) The weight of yarn on 100 bobbins was found to be 99 pounds. The amount of waste made during winding was 1.0 pound. Find the length of yarn in yards required for each bobbin, assuming the count of yarn to be 30^S cotton. **(4)**

B) A loom is producing cloth with 10 picks per centimeter on a Jet-loom with P.P.M. of 300. If the efficiency of the loom is 80%. Calculate the time that would be required to weave 1000 mtrs. of warp on a Weavers' Beam. Take 6% as waste and up-take of warp in weaving. **(8)**

(OR)

C) Calculate the number of spindles required to wind 30 kgs. of 15 tex. yarn in 8 hours, if the actual production per spindle per minute is 600 mtrs. **(4)**

D) Calculate the production in meters of the day of 8 hours at 20 picks per centimeter of 40 looms weaving the following varieties of cloth. **(8)**

Variety	Picks per centimeter	Production in 8 hours
Sort No.1	16	280 mtrs.
Sort No.2	20	270 mtrs.
Sort No.3	24	820 mtrs
Sort No.4	32	120 mtrs.

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

ANNUAL /SEMESTER EXAMINATION APRIL/MAY-2017 (2011-REGULATION)

Max. Marks : 80

Time : 3 Hours

IV SEMESTER

4.1 WEAVING TECHNOLOGY & TEXTILE CALCULATIONS - III

Part – A

2 X 10 = 20 Marks

1. Mention the function of weft-fork motion in a powerloom.
2. List out the object of auxiliary mechanism.
3. What is the object of Multiple Box Motion?
4. What are the different types of Drop Wire used in Warp Stop Mechanism?
5. Calculate the efficiency of a warping machine if its calculated rate of warping is 920 mtrs/minute, but actually producing 736 mtrs/minute of warp.
6. Total number of ends in a warp is 3000, calculate the number of sections to be made, if creel capacity is 250 bobbins.
7. 100 units of yarn found to weigh 130 units after sizing. What is the percentage of size put in the yarn?
8. Write a general formula for calculating an efficiency in the term of production.
9. Write the formula for calculating actual production of a power loom in meters.
10. What is the advantage of using sectional warping machine for warp preparation?

PART-B **12 x 5= 60 Marks**

11 A) Compare Loose Reed Motion and Fast Reed Motion. **(4)**

B) With neat diagram, explain the working principle of Loose Reed Motion. **(8)**

(OR)

C) List out the advantages of Centre Weft-Fork Motion with respect of Side Weft-Fork Motion. **(4)**

D) Explain the working principle of Side Weft-Fork Motion with suitable line diagram. **(8)**

12 A) Explain the principle of Cop Changing Mechanism of an automatic loom. **(4)**

B) Explain the working principle of Mechanical Warp Stop Motion with neat sketch. **(8)**

(OR)

C) Write short notes on an Automatic Loom and also mention the mechanism which makes its an automatic loom. **(4)**

D) Prepare a comprehensive lay out plan for a loom shed accommodating 50 power looms. Also mention the facilities which are necessary for the shed. **(8)**

13 A) A warping Beam made on a super speed warper contains 200 kgs. of warp wound on it. If the length of warp is 20,000 mtr and the total number ends in it is 400, calculate the Beam- count of the warp yarn. **(4)**

PTO

B) Calculate the quantity of yarn in pounds which will be required for a set of 6 Back Beams to be produced on a Modern High Speed Beam Warper. The length of warp on each Back Beam is 24,000 yards and there are 462 ends on each Back Beam. The count of the yarn is 36^s cotton. Allow 1.5% for waste during warping. **(8)**

(OR)

C) The weight of warp on a beam made on a Modern High Speed Beam Warper is found to be 814 pounds. If the number of ends in the warp is 462 and the count of the yarn is 30^s cotton, calculate the length of the warp in yards on the beam. **(4)**

D) A Modern High Speed Beam Warping Machine is required to supply 50,000 mtrs. of warp with 3234 ends for a set of warp of Back Beams. The count of warp is 20 Tex. If the capacity of warping creel is 480, calculate the following **(8)**

i) No. of Back Beams to be made
ii) No. of ends on each Back Beam.
iii) Weight of warp yarn on each Back Beam.

14 A) If 6 sections are to be made from a warp, which 27.5 inches wide in the reed, calculate the width Of each section. **(4)**

B) A warp containing 2800 ends is required to be sized to 20%. The length of the sized warp on the beam is required to be 1080 yards. If the count of unsized warp yarn is 40^s cotton, calculate the following: **(8)**

i) Weight of size to be put on the warp.
ii) The weight of sized warp.
iii) The count of the sized yarn.

(OR)

C) The total number of ends in a warp is 2700. Calculate the number of sections to be made and number of ends in each section, if creel capacity is 500 bobbins. **(4)**

D) An unsized warp of 800 mtrs. long is required to be sized to 25% on its weight. If the total number of ends in the warp is 3000 and the count of the yarn is 15 Tex. Calculate the following: **(8)**

i) The weight of size to be put on the warp.
ii) The weight of the sized warp.
iii) The count of the sized warp yarn.

15 A) Calculate the time required to wind 400 pounds of 12^s cotton yarn on 10 drums. The actual production per drum per minute is 560 yards. **(4)**

B) Calculate the length of the cloth which could be woven from a pirn containing 32 grams of 25 Tex. weft yarn, if the picks per centimeter in the cloth is 16 and the width of the warp in the reed is 80 centimeter. **(8)**

(OR)

C) Calculate the length of cloth produced in 9 hours on a loom which makes 200 picks per minute. The picks per inch in the cloth is 80 and the loom has an efficiency of 78%. **(4)**

D) The calculated rate of winding of a fully automatic Super Speed Winder is 980 yards per minute. Calculate the number of spindle that would be required to wind 30204 hanks of 20^s cotton yarn in 4 hours. Ignore wastage and assume that the efficiency is 90%. **(8)**

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
BARGARH/FULIA/GUWAHATI/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI,GADAG/SPKMVENKATGIRI
SEMESTER EXAMINATION April/ May-2018
(REGULATION-2014)

Semester: IV SEMESTER **TIME: 3 Hours**
Subject code & Name: **4.1 Weaving Technology And Textile Calculations-III** **Max Marks: 80**

PART-A **(2x10= 20 Marks)**

Answer all the questions within two to three sentences

1. What is the necessity of weft stop motion in power loom?
2. Which type of weft detection motion is suitable for 'Pick at Will' loom ?why?
3. Classify the drop wires used in warp stop motions?
4. Which type of mechanism is needed in powerloom to make crossover effect on the fabric?
5. Write the formulae for calculating the efficiency of a mill warping machine?
6. What do you mean by the term 'back beams'?
7. Calculate the creel capacity to be used, if the number of sections to be made is 6 and total number of ends in a warp is 3000?
8. Write the formulae for calculating size pick up%?
9. What is the calculated production of a cone winder, if the actual production is 90kg with 90% efficiency?
10. How many picks will be inserted per hour, if the crank shaft of a loom is running at 300 RPM?

PART- B **12 x 5= 60 Marks**

11. A) Differentiate between side weft fork and center weft fork mechanism? (4)
    B) With the help of a neat sketch, explain about the working of any one type of warp protection mechanism? (8)

OR

    C) Draw the diagram of pegged lattices suitable for Right handed & Left handed climax dobby by taking 2up 2 down twill? (4)
    D) With the help of a neat sketch explain about the working of climax dobby? (8)

12. A) What are all the features required for a automatic power loom? (4)
    B) Explain about mechanical warp stop motion with a neat sketch? (8)

OR

    C) Write about the features of a drop box type multiple box motion ? (4)
    D) Prepare a layout plan for accommodating 50 powerlooms. Also mention the facilities which are necessary for the shed? (8)

PTO

13. A) Calculate the number of warping machines which would be required to warp 6,33,600 yards of warp in 8 hours. The calculated warping speed is 550 yards per minute and the efficiency is 80%. Ignore wastages? (4)

B) A set of 6 back beams, each containing 30,000 meters of warp is to be produced on 3 high speed warping machines. If the calculated rate of warping per warper per minute is 500 and the efficiency is 80 percent, calculate the time required for preparing the set? (8)

OR

C) Calculate the count of yarn on a back beam which weighs 303 pounds and has 12000 yards of warp on it. The total number of ends in the warp is 420 and the weight of the empty beam is 63 pounds. (4)

D) Five hundred(500) cones are to be used for producing back beams containing 500 ends and 28,000 meters of warp on each. The weight of yarn on each cone is 2.20 Kgs and its count is 16 Tex, calculate the number of back beams that could be produced from the cones? (8)

14. A) The reed width of a warp is required to be 40 inches. If 6 sections are to be made for the warp, what should be the width of each section? Consider 2 inches allowance? (4)

B) A warp containing 2800 ends is required to be sized to 25%. The length of the sized warp on the beam is required to be 1080 yards. If the count of warp is 40^s cotton, Calculate: (8)

i) The weight of size to be put on warp of the given length
ii) The weight of sized warp
iii) The count of sized warp yarn.

OR

C) The calculated rate of production of a slasher sizing machine was found to be 350 yards per minute. Find out the actual production per shift of 8 hours with 85% efficiency? (4)

D) A stripe warp has 60 stripes of 30 ends each, 40 extra pattern ends and 10 selvedge ends on each side. Find the number of sections and the number of ends on each sections. The creel capacity is 500 bobbins. (8)

15. A) Calculate the time required in hours to wind 500 Kgs of 10^s cotton yarn on 10 drums. The calculated production per drum per minute is 800 yards and the efficiency is 80%? (4)

B) A cloth is to be woven with 40 pick per inch on a loom having a rpm of 300. The total length of warp on the beam is 1500 metres and the warp take up in weaving is 5 percent. If the efficiency of the loom is 85 percent, calculate the time required to weave the warp on the loom beam. Take 10 meters as waste of warp? (8)

OR

C) Calculate the production at 20 Picks per cm (4)

Veriety	Picks per Cm	Production per day of 8 hours
Sort1	30	1000 metres
Sort 2	40	600 metres

D) A loom is producing 10 meters of cloth per hour with 50 picks per inch. The reed width is 40 inches. If the count of weft is 20^s Ne and the weight of weft on a pirn is 50 gms, calculate the number of pirns required per loom per hour? (8)

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

DIPLOMA IN HANDLOOM AND TEXTILE TECHNIOLOGY

BARGAR/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTIGADAG/SPKM IIHT/ VENKATAGIRI

ANNUAL/SEMESTER EXAMINATION-APR/MAY-2018

(Regulation-2014)

Year / Semester	: SECOND YEAR / THIRD SEMESTER	Time:	3 Hour
Subject Code & Name	: 3.1 WEAVING TECHNOLOGY AND TEXTILE CALCLATION-II	Max.Marks:	80

PART-A (2×10=20 marks)

Answer all the questions within two to three sentences

1 What type of shed is formed in barrel dobby?

2 List the features of multi treadle loom.

3 List the objectives of cone winding machine.

4 What are auxiliary motions of a powerloom?

5 Write the advantages of early picking.

6 Write the names of two important shaft of powerloom.

7 Write the formula to calculate the resultant count in direct and indirect system.

8 The resultant yarn count of two fold yarn is 31.5^s Ne. count of first component thread is 72 Ne. find the count of other component thread.

9 Write the formula to calculate crimp percentage.

10 What are the advantages of carrier wheels?

PART-B (4+8) ×5=60 marks)

Answer all the questions in detail

11 A Discuss the design features of a pit loom. (4)

B With neat sketch, explain the working of a lattice dobby. (8)

(OR)

C Prepare a layout for a 25 loom capacity handloom shed. (4)

D With neat sketch, explain the passage of warp yarn in multi-treadle loom. (8)

12 A Write the objectives of beam warping machine. (4)

B With neat sketch, explain the yarn passage in cone winding machine. (8)

(OR)

P.T.O....

C List the different types of heald reversing motions. (4)

D With neat sketch, explain the yarn passage in ordinary pirn winding machine. (8)

13 A List the limitations of over pick mechanism. (4)

B With suitable diagram, explain any one type of under-pick mechanism. (8)

(OR)

C Compare early picking and late picking. (4)

D With suitable diagram, explain the working principle of negative let-off mechanism. (8)

14 A Calculate the average count of warp yarn prepared from 30 tex and 40 tex yarn on 1:1 basis (4)

B Calculate the average count of warp yarn prepared from 20 Ne and 30 Ne and 40 Ne yarn on 1:3:2 basis (8)

(OR)

C Define the Stock port (ST) system of reed count. (4)

D Calculate the total number of ends in the warp with the following particulars. (8)
Reed count – 40 ST, denting order (body) - 4 ends per dent, denting order (selvedge) – 8 ends per dent, total reed width – 50 inches (including 1" selvedge)

15 A List different types of gears with simple sketch. (4)

B Pulley A rotates at 120 rpm and has a diameter of 30 cm. Pulley B has a diameter of 30 cm which is driven by pulley A. Pulley C and B is fixed on the same shaft. Pulley C has a dimeter of 40 cm. Another pulley D has a dimeter of 30 cm which is driven by pulley C. find the speed of pulley D (8)

(OR)

C Calculate diameter of a loom pulley required to get a loom speed of 200 rpm. Line shaft speed is 120 rpm and diameter of pulley present in the line shaft is 15 inches. (4)

D Find the speed of wheel "U" with the following particulars (8)
Wheel U – 60 T, wheel V – 40 T, wheel W – 80 T, wheel X – 30 T, speed of the wheel X shaft is 500 rpm. Wheel U drives wheel V. Wheel V and Wheel W is fixed on the same shaft. Wheel W drives wheel X.

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Sheet - 3

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
BARGARH/FULIA/GUWAHATI/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI,GADAG/SPKMVENKATGIRI
SEMESTER EXAMINATION April/ May-2018
(REGULATION-2011)

Semester: IV SEMESTER **TIME: 3 Hours**
Subject code & Name: **4.1 Weaving Technology And Textile Calculations-III Max Marks: 80**

PART-A (2x10= 20 Marks)

Answer all the questions within two to three sentences

1. Classify the warp protector mechanism based on their working principle?
2. What do you mean by double lift dobby?
3. What is the necessity of automatic weft replenishment mechanism in powerloom?
4. How the loom width and speed are interrelated?
5. What is the production per shift of 8 hours of a warping machine with a speed of 500 meter per minute?
6. Write the formulae for calculating the efficiency of a warping machine?
7. Calculate the number of sections to be made if the number of ends in warp is 2500 and the creel capacity is 500?
8. Write the formulae to calculate the percentage of size put on yarn?
9. Calculate the actual production in hours of a pirn winding machine with a calculated rate of winding of 600 meter per minute and efficiency of 75 percent?
10. Calculate production per hour in meter of a loom running at a speed of 300 rpm with an efficiency of 75 percent. The number of pick inserted per inch in the cloth is 60 ?

PART- B 12 x 5= 60 Marks

11. A) Compare side weft fork mechanism with center weft fork mechanism? (4)
    B) With the help of a neat sketch explain about the working and mechanism of fast reed warp protector motion? (8)

OR

C) Give the classification of powerloom dobbies? (4)
D) With the help of diagram explain the working of side weft fork mechanism? (8)

12. A) Compare automatic powerlooms with non automatic powerlooms? (4)
    B) Prepare a layout plan for accommodating 50 powerlooms? (8)

OR

C) Discuss the importance of warp stop motions? Give its classification? (4)
D) With the help of a neat sketch explain about any one type of drop box mechanism? (8)

13. A) Calculate the quantity of yarn required in Kgs to make the warp of 1500 yards length with 600 ends. The count of yarn is 30^s Ne and ignore the wastages during warping ? (4)
    B) 10 set of 5 warper's beams each, is to be produced on 4 warping machines. The length of warp on each beam is required to be 15000 metre. If the actual production per warper is 2500meter per hour, how long will it take to complete the sets? (8)

OR

PTO

C) The calculated rate of warping of a warper was found to be 4000 meter per hour. If the actual production per day of 8 hours is 25600 metres, calculate its efficiency? (4)

D) The warping speed of a modern warping machine is 700 yards per minute. Calculate the length of warp in meters that can be produced on 4 warping machines in a day of 8 hours with an efficiency of 75%? (8)

14. A) The total number of ends in a warp is 2800.Calculate the number of sections to be made and the number of ends in each section, if the creel is having capacity of 500 bobbins. (4)

B) An unsized warp of 1000 meters long is required to be sized to 20% on its weight. If the total number of ends in the warp is 3000 and the count of the warp yarn is 20 tex. Calculate the following (8)

i. The weight of the size to be put on the warp

ii. The weight of sized warp

iii. The count of the sized warp yarn

OR

C) What is the actual production per hour of a slasher sizing machine whose draw roller is 10 inches in diameter and has a speed of 40 rpm. Consider 80% as efficiency (4)

D) A stripe warp is to be prepared on a sectional warping machine with a creel capacity of 500 bobbins. There are 60 stripes in the warp, each stripe containing 40 ends. Besides, there are 20 selvedge ends on each side. Calculate the number of sections to be made and the number of ends in each section? (8)

15. A) Calculate the time required to wind 600Kg of 20^s cotton yarn on 10 drums. The actual production per drum per minute is 560 yards.? (4)

B) Calculate the average picks per minute with the following loom particulars: (8)

No. of looms of different sizes	Average R.P.M of each size of loom
50 looms of 40 inch reed space	250
60 looms of 42 inch reed space	200
100 looms of 48 inch reed space	150

OR

C) A shuttle less rapier loom is running at 450 rpm and producing a cloth with 50 picks per inch. If the efficiency of the loom is 80 percent, calculate the production in meters of the loom per day of 8 hours? (4)

D) The actual rate of winding of the spindles of a pirn winding machine is 840 yards per minute. If 600 pounds of 40^s cotton yarn is wound to be in 20 hours, Calculate the number of spindles that would be required ? (8)

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

DIPLOMA IN HANDLOOM AND TEXTILE TECHNIOLOGY (Regulation – 2014)
SEMESTER (BACK PAPER) EXAMINATION-NOV./DEC.- 2018

Year / Semester: **IV Semester** Time: 3 Hours

Subject Code & Name: 4.1 WEAVING TECHNOLOGY & TEXTILE CALCULATION – III **Max Marks: 80**

PART - A

Answer all the questions. **(2x10 = 20 Marks)**

1. Why the warp protector mechanism is necessary in a loom?
2. What type of protector mechanism used for heavy fabric?
3. Which type of shed is formed in climax dobby?
4. What are the mechanisms makes a plain power loom into an automatic loom.
5. Write the formula to calculate Beam count in Ne system.
6. Write the formula to calculate actual production per hour from calculated production per minute & efficiency?
7. The reed width of warp is required to be 38 inches, If 8 sections are to be made for the warp. What should be the width of each section?
8. Write the formula to calculate size pick-up %.
9. A cone contains 4 pounds of $20^{'s}$ cotton yarn. Calculate the length of yarn in yards.
10. Calculate the average RPM of loom shed containing 520 looms with following particulars:-

Number of looms	RPM
120 looms	210
200 looms	200
200 looms	180

PART-B

Answer all the questions in details: **(4+8)x5 = 60 Marks**

11. A) Differentiate between loose reed & fast reed mechanism. (4)
    B) With neat sketch, explain the working principles of loose reed mechanism? (8)

    (OR)

    C) Write the difference (any four) between tappet shedding & Dobby shedding? (4)
    D) With neat sketch, explain the working of side weft fork mechanism? (8)

12. A) Write the necessity of multiple box motion & type of multiple box used in loom. (4)
    B) Explain the working of mechanical warp stop motion with neat sketch. (8)

    OR

    C) Write the short note on weft Replenishment mechanism. (4)
    D) Prepare a comprehensive layout for a loom shed accommodating 50 power looms & mention the facilities which are necessary for the shed. (8)

13. A) The warping speed of a modern warping machine is 600 meters per minute. Calculate the length of warp in meters that can be produced on 3 warping machines in a day of 8 Hours. The efficiency may be taken as 75 percent. (4)

B) Calculate the time required to prepare a set of 8 warper's beams on 2 modern high speed beam warpers with a warping speed of 560 yards per minute (calculated). The length of warp on each beam is required to be 36000 yards. The overall efficiency of the warping machines is 80%. (8)

(OR)

C) A high speed beam warping machine produces 2,22,720 yard of warp per day of 8 Hours. If the calculated warping speed of the warper is 580 yards per minute, calculate its efficiency? (4)

D) A super speed beam warper with a warping speed of 880 yards per minute is preparing a standard warp of 525 ends. The length of warp on each beam is required to be 44352 yards. If the count of the yarn is $30'^{s}$ cotton and the overall efficiency is 84%, Calculate the followings:-

a) The total length of warp produced per day of 8 Hours.

b) Number of beams produced per day of 8 Hours

c) Total weight of yarn in pounds warped per day of 8 hours and

d) The weight of yarn on a beam. (8)

14. A) The total number of ends in a warp is 2700. Calculate the number of sections to be made & number of ends in each section, if the creel capacity of the creel is 500 bobbins. (4)

B) A stripe warp has 42 stripes of 40 ends each, 40 extra pattern ends and selvedge ends 14 on each side. Find the number of sections and the number of ends on each section. The creel capacity is 500 bobbins. (8)

(OR)

C) What is the calculated production per hour of a slasher sizing machine whose draw roller is 29.25 inches in circumference and has a speed of 30 RPM. (4)

D) A warp containing 2800 ends is required to be sized to 25%. The length of the sized warp on the beam is required to be 1080 yards. If the count of warp is $40'^{s}$ cotton, calculate the followings:-

i) The weight of size to be put on warp of the given cloth

ii) The weight of sized warp

iii) The count of sized warp yarn (8)

15. A) The rate of winding of a high speed automatic pirn winding machine is 420 yards per minute. If the production per spindle per hour is 18900 yards, calculate the efficiency. (4)

B) Calculate the time that will be required to wind $20'^{s}$ cotton yarn to produce a cone containing 6.0 pounds of yarn on a super speed cone winding machine. The rate of winding is 1260 yard per minute and the efficiency is 80%. (8)

(OR)

C) Calculate the production per hour of a loom running at a speed of 192 RPM with an efficiency of 75%. The number of picks inserted per inch in the cloth is 80. (4)

D) A cloth with 44 picks per inch is to be woven on a loom running at 200 picks per minute. The width of cloth in reed to be woven is 52 inches and the efficiency of the loom would be 76%. If the weft pirn contains 1.21 ozs. of $30'^{s}$ cotton yarn, calculate the length of cloth produced per pirn. (8)

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY (Regulation – 2014)
SEMESTER (REGULAR & BACK PAPER) EXAMINATION – April / May -2019

Year / Semester : IV Semester **Time: 3 Hours**
Subject Code & Name: 4.1 Weaving Technology & Textile Calculation – III **Max. Marks: 80**

PART-A

Answer all the questions within two to three sentences **2x10= 20 Marks**

1. Why warp protector motion is necessary for power loom?
2. Which type of weft detection motion is suitable for multiple box fitted power loom?
3. Explain the term "weft replenishing"?
4. What are the uses of drop box mechanism in power loom?
5. Define the term efficiency?
6. What are all the factors affecting the production of a warping machine?
7. Calculate the number of section, if the creel capacity is 500 and number of ends are 4000?
8. 100Kg warp yarn found to weigh 120 kg after sizing. What is the percentage of size put in the yarn?
9. Calculate the actual production in hours of a cone winding machine with a calculated rate of winding of 500 meter per minute and efficiency of 80 percent?
10. Calculate production per hour of a loom running at a speed of 200 picks per minute with an efficiency of 80 percent. The number of pick inserted per inch in the cloth is 80 ?

PART- B **(4+8) x 5= 60 Marks**

11. A) Compare the features of different types of warp protection motions? (4)
    B) With the help of neat sketch explain the working of side weft fork motion? (8)

OR

    C) Compare the features of different types of weft detection motions? (4)
    D)Explain the working of climax dobby with a neat sketch? (8)

12. A) Explain about the essential automations needed for a automatic power loom? (4)
    B) Explain the working of any one type of warp stop motion used in power loom with sketches? (8)

OR

    C) Compare the features of different types of weft replenishment mechanisms? (4)
    D)With help of neat sketch explain the working of any one type of multiple box motion? (8)

13 A) The warping speed of a modern warping machine is 600 metres per minute. Calculate the length of warp in metres that can be produced in 3 warping machine in a day of 8 hours. The efficiency is 80%. (4)

B) A super speed beam warper with a warping speed of 880 yards per minute is preparing a standard warp of 525 ends . If the count of the yarn is 30s cotton and the overall efficiency is 84% , calculate the following. The length of warp on each beam is required to be 44352 yards. Ignore waste .

i. Total length of warp produced per day of 8 hours
ii. Number of beams produced per day of 8 hours
iii. The total weight of yarn in pounds warped per day of 8 hours
iv. The weight of warp on a beam? (8)

OR

C) Calculate the 'beam count' of a warpers beam which weighs 303 pounds and has 12000 yards of warp on it. The total number of ends in the warp is 420 and the weight of the empty beam is 63 pounds.? (4)

D) The actual warping speed of modern high speed warper in a mill is 560 Yards per minute and the creel capacity of each machine is 480 active cones and 480 reserved cones. If the actual production of each high speed slasher sizing machine is 28,000 yards per day of 8 hours, calculate the proportion of slasher to beam warper. The total number of ends required on the loom is 3840. (8)

14. A) The total number of ends in a warp is 3200. Calculate the number of sections to be made and the number of ends per section, if the creel capacity is 500. (4)

B) An unsized warp of 1000 meters long is required to be sized to 20% on its weight. If the total number of ends in the warp is 3000 and the count of the warp yarn is 10 tex. Calculate the following

i. The weight of the size to be put on the warp
ii. The weight of sized warp
iii. The count of the sized warp yarn (8)

OR

C) The reed width of the warp is 40 inches, if 7 sections are to be made for the warp, what is the width of each section? Consider 2 inch as the allowance in calculation (4)

D) A stripe warp has 42 stripes of 40 ends each, 40 extra pattern ends on each side near selvedge and selvedge ends 14 on each side. Find the number of sections and the number of ends on each sections. The creel capacity is 500 bobbins. (8)

15. A) Calculate the time required to wind 400 pounds of 12^s cotton yarn on 10 drums. The actual production per drum per minute is 560 yards? (4)

B) Calculate the number of spindles of a fully automatic pirn winding machine that would be required to supply 276 looms with weft, if the quantity of weft consumed by each loom is 12 pounds per day of 8 hours. The calculated production per spindle per day of 8 hours is 18.4 pounds. The efficiency of the pirn winder is 90%. Ignore waste? (8)

OR

C) A loom is running at 276 rpm and producing a cloth with 46 picks per inch. If the efficiency of the loom is 85 percent, calculate the production in yards of the loom per day of 8 hours? (4)

D) A cloth with 44 picks per inch is to be woven on a loom running at 200 picks per minute. The width of the cloth to be woven is 52 inches, and the efficiency of the loom would be 76%. If the weft pirns contains 1.21 ozs of 30^s cotton yarn. Calculate the number of pirns that would be required for the loom per hour. (8)

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY (REGULATION - 2014)

ANNUAL / SEMESTER EXAMINATION – NOV/DEC -2019

Year/Semester: 4th Semester Back Paper **Time: 3Hours**

Subject Code & Name: 4.1 Weaving Technology & Textile Calculation-III **Max. Marks: 80**

PART-A

Answer all the questions within 2 to 3 sentences. **2x10 = 20**

1. Write the principle of fast reed warp protection mechanism.
2. Define the term jack missing in a dobby.
3. Name the type of weft replenishment mechanism, which is suitable to weave fine and delicate fabrics in an automatic powerloom.
4. What is meant by a hole and blank in drop-box pattern card?
5. The calculated rate of warping of a warper was found to be 4719 yards per hour. If the actual production per hour is 3064 yards. Calculate its efficiency.
6. Define the term 'back beam'?
7. Write the formula for calculating percentage of size add on.
8. Width of warp is required to be 40 inches .The number of sections in the warp is Calculate the width of each section.
9. Write the formula for calculating actual production in metres per hour per loom.
10. The calculated rate of winding of a super speed cone winding is 1300 metre per minute, and the efficiency is 85%. Calculate the actual length of yarn wound in km. per day of 8 hours.

PART-B

Answer all the questions in detail. **(4+8) x 5 = 60**

11.a) Define right handed dobby and left handed dobby. **4**

b) With neat sketch, Explain the working of loose reed warp protection motions. **8**

OR

c) Explain the need for using weft detection motion in a loom. **4**

d) Select any 8 end & 8 pick motif of your own and prepare a lattice to weave it on a double lift left handed climax dobby. **8**

12.a) Write short notes on automatic powerlooms. **4**

b) With simple line diagram, explain the working principle of Ξecles drop box motion in power loom. **8**

OR

c) What are the advantages of warp stop motion? **4**

d) Explain the working principle of cop changing mechanism of an automatic loom with neat sketch . **8**

P.T.O.

13.a) Calculate the length of warp that can be produced per day of 8 hours in an improved modern high speed beam warper, if the warping speed is 600 yards per minute. The overall efficiency is 85%. 4

b) Calculate the time required to prepare a set of 8 warper's beam on a 2 improved high speed beam warpers with a warping speed of 560 yards (calculated) per minute. The length of warp on each beam is required to be 36000 yards. The overall efficiency of the warping machines is 80 %. 8

OR

c) Calculate the weight of warp on a set of 8 back beams which contains 320 ends per back beam. The length of warp on each beam is 20,000 yards and the count is 60^S Ne. 4

d) A super speed beam warper with a warping speed of 880 yards per minute is preparing a standard warp of 525 ends if the count of the yarn is 30^S cotton and the overall efficiency is 84%. The length of warp on each beam is required to be 44352 yards. Calculate the following .(i) total length of warp produced per day of 8 hours.(ii) number of beams produced per day of 8 hours. 8

14.a) The total number of ends in warp is 2800. Calculate the number of sections to be made, if the creel capacity is 500 bobbins. 4

b) The calculated production of a high speed slasher is 120yards per minute if the efficiency of the machine is 80%. Calculate (i) the actual production per day of 8 hours. (ii) the total length of warp yarn , if the total ends is 3200. 8

OR

c) A sized warp of 840 yards long contain 2500 ends and weighs 60 pounds, if the count of the unsized yarn is 50^S cotton. What is the percentage of size on the warp? 4

d) A stripe warp of the following particulars is to be made on a sectional warping machine.

Total ends	– 2240
Number of ends per pattern	- 32
Number of extra pattern ends at both ends near selvedges has	- 24
Total selvedge ends at each side	- 20

If the creel capacity is 480 bobbins and the width of warp in reed is 35 inches, calculate the following:

i) Number of complete patterns in warp
ii) Number of sections to be made
iii) Number of ends per section 8

15.a) The rate of winding of a high speed automatic pirn winding machine is 400 metres per minute. If the production per spindle per hour is 18500 metres, calculate the efficiency of the machine. 4

b) A cloth is to be woven with 40 picks per inch on a loom having a rpm of 300. The total length of warp on the beam is 1500 metres and the warp take up in weaving is 5 percent. If the efficiency of the loom is 85%, calculate the time required to weave the warp of the loom. Take 10 metres as waste of warp.

OR

c) Calculate the production per hour of a loom running at a speed of 200 rpm with an efficiency of 85%.The number of picks inserted per inch in the cloth is 72. 4

d) Calculate the time required for winding 3000 hanks of 12^S cotton yarn from hanks on a high speed automatic pirn winder with 8 spindles. The calculated rate of winding per minute is 420 yards. Assume that the efficiency is 80%. 8

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