Registration Number | | | | | | | |

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri

Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : I — Time:3 Hours

Course Code & Title : **BS101 Mathematics - I** — Maximum Marks: 100

PART-A

(2×10=20 Marks)

Answer all the questions within two to three sentences

1 . Find the value of $1 - 2\,sin^2\,(22\frac{1}{2})°$

2 . Find equal value of 18° degree in radians

3 . Evaluate : $\lim_{x \to -7}(2x + 5)$

4 . If $y = \frac{1}{2} + x^{-3}$, find $\frac{dy}{dx}$

5 . Prove that $\frac{{}^{n}P_r}{{}^{n}C_r} = r\,!$

6 . Find the value of ${}^{10}C_3$

7 . Write the definition of probability of an event.

8 . A bag contains 5 blue balls and 4 green balls. A ball is drawn at random. What is the probability to draw a blue ball.

9 . Find the mean of the values 120, 127, 152,157,160,134,137,123,140,144.

10 . Write formula to find the control limits of X - chart.

PART-B

(6+10) ×5=80 Marks

Answer all the questions in detail

11. A. Prove that $\frac{\sin 2A}{1-\cos 2A} = cotA$ (6)

B. Find the value of tan 75° and Hence Prove that tan 75° + cot 75° = 4 by using trigonometric formulae. (10)

(OR)

C. Prove that $\frac{\sin 3A}{1+2\cos 2A} = sinA$ (6)

D. If $A + B = 45°$ then Prove that $(\cot A - 1)(\cot B - 1) = 2$ and Hence find the value of $cot(22\frac{1}{2})°$. (10)

12. A. Evaluate : $\lim_{h \to 0} \frac{(3+h)^2 - 9}{h}$ (6)

B. Find $\frac{dy}{dx}$, If $y = e^{3x}\, logx\, sin3x$ (10)

(OR)

C. If $y = e^x(logx + 25)$ then find $\frac{dy}{dx}$. (6)

D. Differentiate $y = \frac{x^2+3x}{x\cos x}$ with respect to x. (10)

13. A. An exam paper contains 8 questions, 4 in part A and 4 in Part B. The students are required to answer 5 questions. If atleast two questions from Part A must be answered. How many ways can this be done? (6)

B. Find the middle term in the expansion of $(2x + y)^7$. (10)

(OR)

C. If $nC_4 = 495$, Find the value of 'n'. (6)

D. Expand $(x + y)^7$ by using Binomial Theorem. (10)

14. A. Two coins are tossed together , what is the probability of getting different faces on the coins. (6)

B. If A and B are mutually exclusive events of a random experiment and the probability of happening of event A is 0.5 and probability of happening of event B is 0.3 . Find the probability that neither A or B happens. (10)

(OR)

C. There are two boxes with some components, the first box contains 2000 components of which 5 % are defectives. The second box contains 500 components of which 40 % are defectives. If a component is selected at random then what is the probability that the component is defective. (6)

D. The chances of X,Y,Z becoming manager of a certain company are 0.44,0.22,0.33 respectively. The probabilities that bonus scheme will be introduced by X,Y,Z are 0.3 ,0.5 and 0.8 respectively. If the bonus scheme has been introduced, what is the probability that X is appointed as the manager? (10)

15. A. Find the average range value for the following 10 sample values : (6)

Sample number	1	2	3	4	5	6	7	8	9	10
Sample values	49	50	50	48	47	52	49	55	53	54
	55	51	53	53	49	55	49	55	50	54
	54	53	48	51	50	47	49	50	54	52
	49	46	52	50	44	56	53	53	47	54
	53	50	47	53	45	50	45	57	51	56

B. In a factory 1000 bolts are examined daily for defectives. The numbers of defectives for 15 days are 9, 10, 12, 8, 7, 15, 10, 12, 10, 8, 7, 13, 14, 15, 16 respectively. Draw the np – chart and state your comment. (10)

(OR)

C. Find the fractional defective values of the data given below : (6)

Number of items inspected :	90	65	85	70	80	80	70	95	90	75
Number of Defectives :	9	7	3	2	9	5	3	9	6	7

D. The numbers of weekly customer complaints are monitored at a large hotel using a C – chart .Complaints have been recorded over the past 12 weeks. Develop the control chart using the following data : (10)

week	1	2	3	4	5	6	7	8	9	10	11	12
Number of complaints	3	2	3	1	3	3	2	1	3	1	3	4

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Table : Quality Control - Chart Constants

Sample Size	Chart for average $\bar{X}$-chart			σ-chart — Chart for Standard Deviations					Chart for Ranges — R-chart				
	Factors for Control Limits			Factors for Central line	Factors for Control Limits				Factors for Central line	Factors for Control Limits			
n	A	A_1	A_2	C_2	B_1	B_2	B_3	B_4	d_2	D_1	D_2	D_3	D_4
2	2.121	3.760	1.880	0.5642	0	1.843	0	3.267	1.128	0	3.686	0	3.262
3	1.732	2.394	1.023	0.7236	0	1.858	0	2.568	1.663	0	4.358	0	2.575
4	1.500	1.880	0.729	0.7979	0	1.808	0	2.266	2.059	0	4.698	0	2.282
5	0.342	1.596	0.577	7.8407	0	1.756	0	2.089	2.326	0	4.918	0	2.115
6	1.225	1.410	0.483	0.8686	0.026	0.711	0.030	1.970	2.534	0	5.078	0	2.004
7	1.134	1.277	0.419	0.8882	0.105	1.672	0.118	1.882	2.704	0.205	5.203	0.076	1.924
8	1.061	1.175	0.373	0.9027	0.167	1.638	0.185	1.815	2.847	0.387	5.307	0.136	1.864
9	1.000	1.094	0.337	0.9139	0.219	1.609	0.239	1.760	2.970	0.546	5.394	0.184	1.816
10	0.949	1.028	0.308	0.9227	0.262	1.584	0.284	1.716	3.078	0.687	5.469	0.223	1.777
11	0.905	0.973	0.285	0.9300	0.299	1.561	0.321	1.679	3.173	0.812	5.534	0.256	1.744
12	0.866	0.925	0.266	0.9359	0.331	1.541	0.354	1.646	3.258	0.924	5.592	0.284	1.716
13	0.832	0.884	0.249	0.9410	0.359	1.523	0.382	1.618	3.336	1.026	5.646	0.308	1.692
14	0.802	0.848	0.235	0.9453	0.384	1.507	0.406	1.594	3.407	1.121	5.693	0.329	1.671
15	0.775	0.816	0.223	0.9490	0.406	1.492	0.428	1.572	3.472	1.207	5.737	0.348	1.652
16	0.750	0.788	0.212	0.9523	0.427	1.478	0.448	1.552	3.532	1.285	5.779	0.364	1.636
17	0.728	0.762	0.203	0.9551	0.445	1.465	0.466	1534	3.588	1.359	5.817	0.379	1.621
18	0.707	0.738	0.194	0.9576	0.461	1.454	0.482	1.518	3.640	1.426	5.854	0.392	1.608
19	0.688	0.717	0.184	0.9599	0.477	1.443	0.497	1.503	3.689	1.490	5.888	0.404	1.596
20	0.671	0.697	0.110	0.9619	0.491	1.433	0.510	1.490	3.735	1.544	5.922	0.418	1.586

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Diploma in Handloom & Textile Technology

April/May-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : I — Time:3 Hours

Course Code &Title : **HS101: Communication Skills in English** — Maximum Marks:100

PART-A

(2×10=20 Marks)

Answer all the questions within two to three sentences

1 . What is Communication?

2 . Define Soft Skill.

3 . What is 'Feedback' in process of communication?

4 . Write any one difference between soft skill and hard skill.

5 . What is précis writing?

6 . Write any one advantage of using E-mail.

7 . Who is the writer of the story "The Gift of the Magi."

8 . **Identify the following lines and name the poem from which these lines have been taken:-**

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

9 . **Write one word for each of the sentences given below:-**

a) People working together in the same office or department

b) Study of environment

10 . **Fill in the blanks with suitable preposition given in the bracket:-**

a) He is suffering.....fever. (for/from/in)

b) The cat jumped.....the table. (on/upon/under)

PART-B

((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Explain types of communication. (6)

B. Elaborate the art of effective communication. (10)

(OR)

C. Describe in detail any five barriers to effective communication. (6)

D. Explain 7Cs for effective communication. (10)

12. A. Write a short note on following life skills: (6)

a) Emotional Intelligence

b) Self Awareness

B. Explain the importance of soft skills. (10)

(OR)

C. How soft skill is different from hard skill? Explain. (6)

D. Explain the importance of 'Leadership skill' and 'Time Management' as soft skills. (10)

13. A. Read the lines given below and answer the questions that follow: (6)

Where the mind is without fear and the head is held high;
Where knowledge is free;
Where the world has not broken into fragments
By narrow domestic walls.

i. Write the name of the poem from which the above lines have been taken.

ii. What breaks the world into fragments?

iii. Who is the poet of the above lines?

B. Read the passage given below and answer the questions that follow: (10)

Swami is a small child in Malgudi living with his family and grandmother. Once while reading a newspaper, his father reads an article about bravery shown by an 8-year old boy and feels that Swami should do something like that. Swami has the habit of sleeping with his grandmother after listening a story told by her. This irritates Swami's father. Swami's father then challenges, or rather forces, him to sleep in his office. When Swami tells his friends of the ordeal, his friends warn him about a ghost living near the office. When Swami sleeps in his father's office he has nightmares about the ghost and wakes up with a start. At the same time, Swami spots an intruder breaking into the office. Mistaking him for the ghost, Swami grabs the intruder's leg and yells for help. The rest of the villagers rush inside the office and catch the intruder. The police tell Swami that the intruder was a thief wanted by the police and congratulate him. The incident is published in the Malgudi times but little Swami is so scared after the incident that he starts sleeping with his grandmother again.

i. Who is the author of "Malgudi Days"?
ii. Who is Swami?
iii. What challenge did Swami's father give him?
iv. After the nightmare with whom Swami started sleeping?
v. What is the meaning of the word 'intruder' in the above passage?

(OR)

C. **Read the lines given below and answer the questions that follow:** (6)

I remember the night my mother
was stung by a scorpion. Ten hours
Of steady rain had driven him
to crawl beneath a sack of rice.

i. Write the name of the poet who has composed the poem from which the above lines have been taken.
ii. Whom does 'him' refer to in the above lines?
iii. Why did he come inside the house? Where did he hide?

D. **Read the passage carefully and answer the questions that follow:** (10)

You never saw such a commotion up and down a house, in all your life, as when my Uncle Podger undertook to do a job. A picture would have come home from the frame-maker's, and be standing in the dining-room, waiting to be put up; and Aunt Podger would ask what was to be done with it, and Uncle Podger would say: "Oh, you leave that to ME. Don't you, any of you, worry yourselves about that." I'LL do all that." And then he would take off his coat, and begin. He would send the girl out for sixpen'orth of nails, and then one of the boys after her to tell her what size to get: and, from that, he would gradually work done, and start the whole house.

i. Write the name of the story from which the above passage has been taken.
ii. What is the name of the writer of the above story?
iii. What job did Uncle Podger take?
iv. Who was Aunt Podger?
v. What is the meaning of the word 'gradually' in the above passage?

14. A. **Read the passage given below and summarize it by giving appropriate title:-** (6)

Ishwar Chandra Vidyasagar was a man of exemplary character. Though a great scholar, he was not at all proud. On the contrary, he was very modest.

He was an extremely dutiful son and cherished great reverence for his parents. On one occasion, while he was a teacher in the college of Fort William, his mother wrote to him to come to home to attend his brother's wedding. He applied to his superior officer for leave, but was refused. He was there upon immediately tendered his resignation, saying that his mother's command was much more important than his service. The officer was impressed by his boldness and granted him leave.

B. Write a letter to a bookseller for ordering the books. (10)

(OR)

C. Write an email to your friend congratulating him/her on getting a new job. (6)

D. Write a letter to a friend inviting him to attend your birthday party. (10)

15. A. Pick out Nouns in the following sentences:- (6)

a) He went to Kanpur.

b) Army marched forward.

c) Cows are grazing.

B. Change the following sentences into their negative forms:- (10)

a) She speaks Hindi.

b) I saw a dog in the street.

c) She has written an article.

d) Radha danced well.

e) Mohan plays cricket.

(OR)

C. Pick out Pronouns in the following sentences:- (6)

a) They are good boys.

b) Trees shed their leaves in autumn.

c) She has completed her work.

D. Convert the following sentences into Passive Voice:- (10)

a) Rita wrote a letter.

b) Jacob always plays the guitar.

c) They are eating bananas.

d) The teacher called the student.

e) Astha was learning French.

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : I — Time:3 Hours

Course Code & Title : **BS105 Applied Chemistry** — Maximum Marks: 100

PART-A (2×10=20 Marks)

Answer all the questions within two to three sentences

1. Define Hund's rule.
2. Define a Chemical bond.
3. What is Alkalinity of water?
4. How do you remove hardness of water?
5. Define Alloy.
6. Give any two examples of Thermoplastics.
7. What is meant by HCV and LCV?
8. Define the term 'Viscosity index"
9. What is Faraday's Law?
10. What is a Primary cell? Give examples.

PART-B (6+10) ×5= 80 Marks

Answer all the questions in detail

11. A. Explain the formation of a Chemical Bond. (6)

    B. Write the shapes of s, p and d orbitals and explain the terms of Pauli's exclusion principles. (10)

(OR)

    C. Predict the shapes of the following molecules on the basis of hybridization H_2O, CH_4, $BeCl_2$, (6)

    D. Explain the Rutherford atomic model and its limitations. (10)

12. A. What are the troubles caused by using hard water in boilers? How it can be prevented? (6)

    B. What is meant by hardness? How will you determine hardness of water by EDTA method? (10)

(OR)

C. Describe Zeolite process for water treatment. (6)

D. Explain with neat sketch the various steps in the treatment of water for municipal supply (10)

13. A. Write a note on the extraction of Iron from ores. (6)

B. Write short note on General principle of metallurgy. (10)

(OR)

C. Demonstrate the process of manufacturing of port land cement. (6)

D. Write the preparation and their applications of PTFE and Nylon - 6. (10)

14. A. Calculate the Gross & Net calorific value of coal having the following composition. C- 85%, H-8%, S-1%, N-2% and ash-4%. (6)

B. Describe the Proximate analysis of coal. (10)

(OR)

C. Write a note on functions of a Good lubricant. (6)

D. Explain the Physical properties of lubrication. (10)

15. A. What is meant by electrolytic and non-electrolytic solutions? Give examples. (6)

B. Write a short note on i) Electroplating ii) Electrolytic refining. (10)

(OR)

C. Discuss the construction and functioning of a lead acid battery (6)

D. Explain Internal corrosion preventive measures. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : II — Time:3 Hours

Course Code & Title : **BS102 Mathematics – II** — Maximum Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. If $A = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 2 & 0 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 2 & 3 \\ -1 & 4 & 5 \end{bmatrix}$ find 2A + 3B.
2. Verify $A^T = A$ for the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 0 \\ 3 & 0 & 5 \end{bmatrix}$
3. Integrate $\int \cos(2 - 7x)dx$.
4. Evaluate $\int e^{3x}dx$.
5. Find the centre of the circle $x^2 + y^2 - 8x + 6y + 5 = 0$.
6. Find the equation of the straight line passing through the point (2,1) and perpendicular to the straight line $x + y = 9$.
7. Find the value of $[\vec{\imath} \quad \vec{\jmath} \quad \vec{k}]$.
8. If $\vec{a} = 5\vec{\imath} + 2\vec{\jmath} - 3\vec{k}$ and $\vec{b} = -3\vec{\imath} - 2\vec{\jmath} + 5\vec{k}$ then find $3\vec{a} + 2\vec{b}$.
9. Write any two applications of t-test.
10. Define Type-I and Type-II error.

PART-B ((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. If $A = \begin{bmatrix} 1 & 3 & 2 \\ 1 & 0 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 1 \\ -2 & 0 \\ 4 & 3 \end{bmatrix}$ obtain where possible, the values of (6)

AB, B^TA and B^TA^T.

B. Solve the following equations by using Crammer's rule (10)

$2x + y - z = 3$

$x + y + z = 1$

$x - 2y - 3z = 4.$

(OR)

C. Show that $\begin{vmatrix} 1 & 1 & 1 \\ x & y & z \\ y+z & z+x & x+y \end{vmatrix} = 0.$ (6)

D. Find the adjoint and inverse of matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 4 & 5 \\ 6 & 7 & 9 \end{bmatrix}$. (10)

12. A. Evaluate $\int x \sin 3x \, dx$. (6)

B. Integrate $\int \frac{x^2+1}{(x^3+3x+7)^3} dx$. (10)

(OR)

C. Evaluate $\int \frac{sec^2 x}{5+3tanx} dx$. (6)

D. Integrate $\int_0^{\pi/2} cos^3 x \, dx$. (10)

13. A. Determine the equation of the straight line passing through the point $(-1, -2)$ and having slope $\frac{4}{7}$. (6)

B. Find the eccentricity, centre, foci and vertices of the hyperbola $\frac{x^2}{4} - \frac{y^2}{5} = 1$ and also trace the curve. (10)

(OR)

C. Find the equation of the parabola whose vertex is (1,2) and directrix $x = 3$ (6)

D. If (4,1) is one extremity of a diameter of the circle $x^2 + y^2 - 2x + 6y - 15 = 0$, find the other extremity. (10)

14. A. If $\vec{a} = 2\vec{\imath} + \vec{\jmath} - \vec{k}$ and $\vec{b} = \vec{\imath} - 2\vec{\jmath} + 2\vec{k}$ then prove that $|\vec{a} \times \vec{b}| = 5\sqrt{2}$. (6)

B. Find the work done by the force $2\vec{\imath} + \vec{\jmath} + \vec{k}$ acting on the particle if the particle is displaced from $4\vec{\imath} + \vec{\jmath} + 3\vec{k}$ to the point $5\vec{\imath} + 4\vec{\jmath} + 2\vec{k}$. (10)

(OR)

C. Find the vector moment of $\vec{F}$ about P (0,0,0) when $\vec{F} = 2\vec{\imath} + \vec{\jmath}$ is acting through the point A (1,1,1). (6)

D. Find the angle between the vector $3\vec{\imath} - 2\vec{\jmath} + 5\vec{k}$ and $2\vec{\imath} + \vec{\jmath} + 2\vec{k}$. (10)

15. A. A sample of 900 members has a mean 3.4 cm and standard deviation 2.61 cm. (6)
Is the sample from a large population of mean 3.25 cms and standard deviation of 2.61 cm?

B. Two random samples gave the following data (10)

Sample	*Size*	*Mean*	*Variance*
1	8	9.6	1.2
2	11	16.5	2.5

Do the sample variances differ significantly?

(OR)

C. A machinist is making engine parts with axle diameter of 0.7 inch. A random sample of 10 parts shows a mean diameter of 0.742 inch with S.D of 0.04inch. Compute the statistic you would use to test whether the work is meeting the specification. (6)

D. Find the value of chi-square (10)

Category	*A*	*B*	*C*	*D*
Observed frequency (O)	114	92	66	28
Expected frequency (E)	105	90	75	30

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : II — Time:3 Hours

Course Code & Title : **BS103 Applied Physics** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define Least Count.
2. What are fundamental and derived units?
3. Define coefficient of viscosity.
4. State Hooke's law.
5. Define conduction and convection heat transfer process.
6. What is coefficient of thermal conductivity? Give its unit.
7. What are the characteristics of laser?
8. Give the conditions for total internal reflection.
9. State Ohm's law.
10. Give any two properties of semiconductors.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Distinguish between fundamental units and derived units. (6)

    B. Write a note on dimensional equations and its applications. (10)

(OR)

    C. Write a note on measuring instruments. (6)

    D. Explain the different types of errors in measurement. (10)

12. A. Discuss the effect of temperature on viscosity. (6)

    B. With a neat diagram explain the stress-strain curve. (10)

(OR)

C. Give the formula for moment of inertia of a rod, disc, ring and sphere. (6)

D. What are the different types of friction and give the applications of friction in engineering. (10)

13. A. What are the different scales of temperature? Give their relationship. (6)

B. Explain the different modes of heat transfer with neat diagram. (10)

(OR)

C. Give the engineering applications of coefficient of thermal conductivity. (6)

D. Derive the expression for coefficient of linear and cubical expansion of solids. (10)

14. A. Define the terms(a) wave velocity(b) frequency and (c) wavelength (6)

B. With a neat diagram explain simple microscope and give its uses. (10)

(OR)

C. What are various applications of lasers in engineering? (6)

D. What are free, damped and forced vibrations. Give examples. (10)

15. A. Define kirchoff's current and voltage law and give its equation. (6)

B. Derive the equation for effective resistance for the resistance connected in series and parallel. (10)

(OR)

C. Distinguish between Intrinsic and extrinsic semiconductor. (6)

D. Explain the working of a PnP transistor. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : II — Time:3 Hours

Course Code & Title : **ES102 Introduction to IT System** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define system software.
2. Give four examples of website.
3. Describe keyboard.
4. Explain browser with examples.
5. List four examples of operating system.
6. What is program?
7. When and by whom C language was invented?
8. Write full forms of HTML and CSS?
9. What is softcopy and hardcopy? Explain.
10. How CLI is differ from GUI?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Describe peripheral devices with example. (6)

    B. What is computer? Draw a block diagram of computer and also write the characteristics of computer. (10)

(OR)

    C. Elaborate CPU? How hardware is differ from software? (6)

    D. What are the different components of computer system? Compare and contrast HDD (Hard disk drive) with SSD (Solid state drive). (10)

12. A. Discuss Unix Shell and its types. (6)

B. Define operating system. What are the different functions and services provided by operating system? (10)

(OR)

C. Explain Unix commands with examples? (6)

D. Briefly explain Unix. Differentiate Linux with Windows. (10)

13. A. Elaborate HTML? List all the features of HTML. (6)

B. Briefly discuss all the versions and building blocks of HTML. (10)

(OR)

C. Define CSS with syntax. Why we use CSS and also discuss its advantages. (6)

D. What are the different ways of inserting/adding CSS in HTML documents? Explain its tags with example. (10)

14. A. Discuss power point presentation. (6)

B. Explain Microsoft office. (10)

(OR)

C. What is spreadsheet? Write the importance of MS Excel? (6)

D. Elaborate Microsoft Word? Explain the procedure of resume making with example. (10)

15. A. Define C language. How high-level languages are differ from low level languages? (6)

B. Describe the structure of C language with example? Explain the evolution of C language. (10)

(OR)

C. What are conditional statements? Explain its types. (6)

D. Write a program of addition in C language. Explain the different data types in C language. (10)

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri

Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : II — Time:3 Hours

Course Code &Title : **ES104 Fundamental of Electrical and Electronics Engineering** — Maximum Marks:100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What is Boolean algebra?
2. What is a Passive component? Give example.
3. Draw the symbol of operational amplifier?
4. Define slew rate.
5. State Lenz law.
6. What is reluctance?
7. Define Power factor.
8. Define RMS value and give its expression.
9. Why DC series motor is called as variable speed motor?
10. List out the merits and demerits of core and shell type transformer.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Distinguish between Voltage source and Current source. (6)

    B. Explain the construction and working principle of JFET. (10)

(OR)

    C. Classify and explain the counters. (6)

    D. Explain the following flip flops: - (10)

    i) RS flip-flop ii) JK flip-flop

12. A. An inverting amplifier has R_1 =1MΩ R_f= 50 Ω and input voltage is 0.1 V. Determine voltage gain and its output voltage. (6)

    B. Explain about the closed loop inverting and non-inverting configuration of op-amp. (10)

(OR)

C. Write short notes on Half adder and Full adder. (6)

D. Explain the operation of Integrator with suitable expressions and also list out the applications of practical integrator. (10)

13. A. Explain the following terms (6)

i) MMF ii) EMF iii) Permeability.

B. Explain B-H curve with a neat sketch. (10)

(OR)

C. Compare Magnetic circuit with an Electric circuit. (6)

D. Explain in detail about (10)

i) Statically induced emf.

ii) Dynamically induced emf.

14. A. Describe a cycle, time period and frequency (6)

B. A coil of resistance 10 Ω and an inductance of 0.1 H is connected in series with a capacitance of 150 μF across a 200v, 50 Hz supply. calculate (10)

i) Inductive reactance ii) Capacitive reactance iii) Impedance iv) current v) power factor vi) voltage across R,L and C

(OR)

C. Briefly explain about the star and delta connected three phase circuits and also derive an expression for I_L ,I_{Ph}, V_L and $V_{Ph.}$ (6)

D. Give the Phasor representation of RC series circuit and derive the expression for Power and Power factor. (10)

15. A. Write a short notes on Autotransformer. (6)

B. Explain the working principle of transformer with neat sketch and also derive the EMF equation of a transformer. (10)

(OR)

C. Write the Industrial applications of AC and DC motors. (6)

D. Draw and Explain the various characteristic curves of DC shunt motor. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : II — Time:3 Hours

Course Code &Title : **ES106 Engineering Mechanics** — Maximum Marks:100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define Principle of Transmissibility.
2. Two forces are 400N and 600N act at an angle of 60^0 to each other. Determine the resultant in magnitude and direction.
3. Define Lami's theorem.
4. What are the types of beam?
5. Define angle of friction.
6. Define co-efficient of friction.
7. Distinguish between centroid and centre of gravity.
8. Write down the formula for centroid of quadrant circle with figure?
9. Define ideal machine with example.
10. Distinguish between reversible machine and non-reversible machine.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Two concurrent forces act an angle of 30^0, the resultant force is 15 N and one of the force is 10N. Find the other force. (6)

    B. State and prove parallelogram law of force system. (10)

(OR)

    C. Three coplanar concurrent forces are acting at a point as a shown in fig.11(c). Determine the resultant in magnitude and direction. (6)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : II — Time:3 Hours

Course Code &Title : **ES106 Engineering Mechanics** — Maximum Marks:100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define Principle of Transmissibility.
2. Two forces are 400N and 600N act at an angle of 60^0 to each other. Determine the resultant in magnitude and direction.
3. Define Lami's theorem.
4. What are the types of beam?
5. Define angle of friction.
6. Define co-efficient of friction.
7. Distinguish between centroid and centre of gravity.
8. Write down the formula for centroid of quadrant circle with figure?
9. Define ideal machine with example.
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PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Two concurrent forces act an angle of 30^0, the resultant force is 15 N and one of the force is 10N. Find the other force. (6)

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    C. Three coplanar concurrent forces are acting at a point as a shown in fig.11(c). Determine the resultant in magnitude and direction. (6)

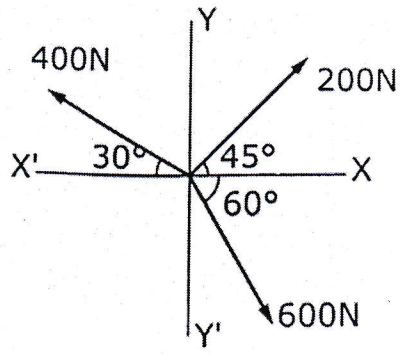

Fig.11(c)

D. Determine the resultant of the force and direction of the force system shown in fig.11(d) (10)

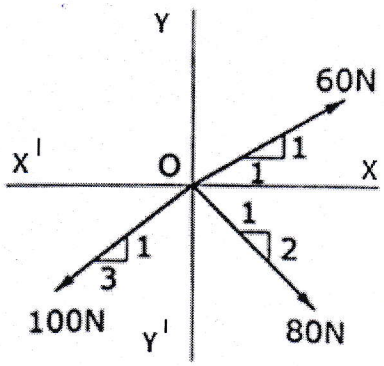

Fig.11(d)

12. A. A Block weighing 5 kN is suspended from the ceiling by a chain. It is pulled aside by a horizontal chord until the chain makes 60^0 with the ceiling as shown in fig. 12(a). Find the tension in the chain and in the chord by applying Lami's theorem. (6)

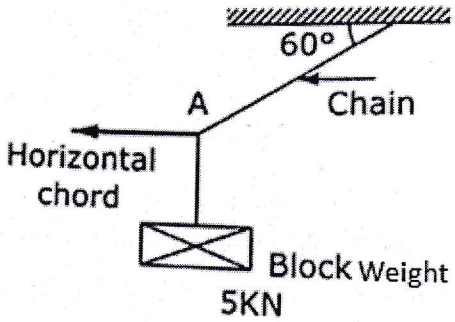

Fig. 12(a)

B. Two equal weights each of 1000 N is supported by a flexible string as shown in fig. 12(b). Find the tension in the portions AB, BC and CD of the string. (10)

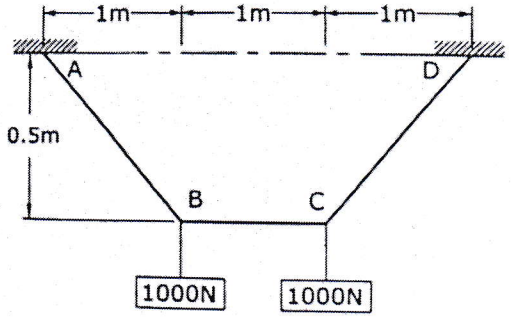

Fig. 12(b)

(OR)

C. Find the reactions at the fixed end of the cantilever beam as shown in fig. 12(c). (6)

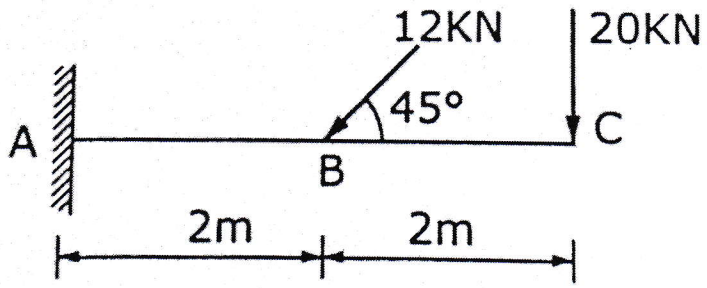

Fig. 12(c)

D. Find the reactions at the supports A and B of the beam as shown in fig. 12(d). (10)

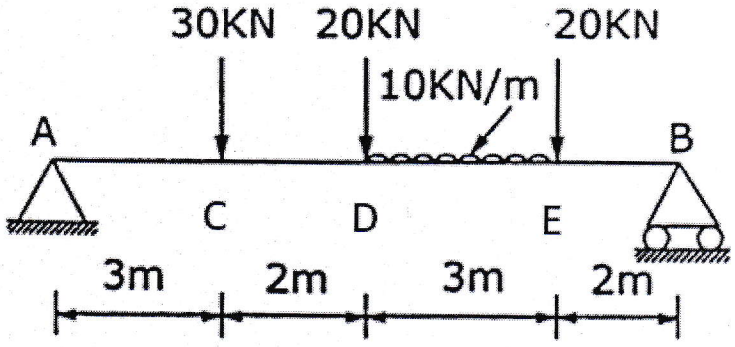

Fig. 12(d)

13. A. A body weight 100 N is placed on a rough horizontal plane, and pushed by a force of 45 N as shown in fig. 13(a),its just case sliding over the horizontal plane. Determine the co-efficient of friction. (6)

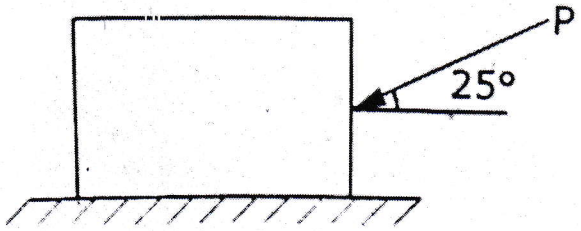

Fig. 13(a)

B. Block (2) is rest on block (1) and is attached by a horizontal rope AB to the wall as shown in fig. 13(b). What is the force P is necessary to cause motion of block (1) to impend? The co-efficient of friction between the blocks is 1/4 and between the floor and block is (1) is 1/3, Mass of blocks (1) and (2) are 14 Kg and 9 Kg respectively. (10)

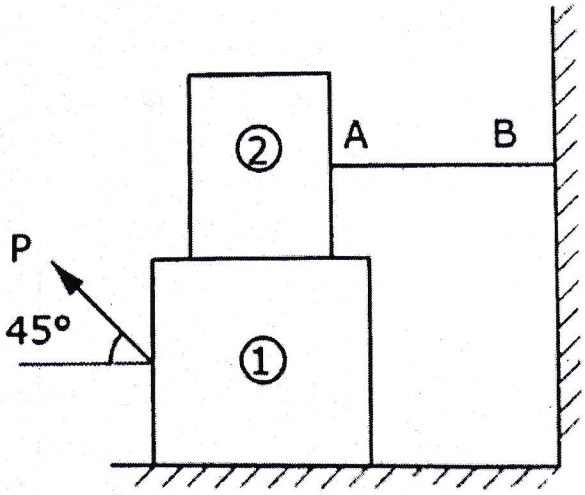

Fig. 13(b)

(OR)

C. A man can pulled the block horizontally with a force of 450 N. A mass of block is 350 kg, resting on a horizontal surface for which is the co-efficient of friction is 0.20. The vertical cable of a crane is attached to the top of the block as shown in fig. 13(c). What will be the tension in the cable is the man is just able to start the block to the right? (6)

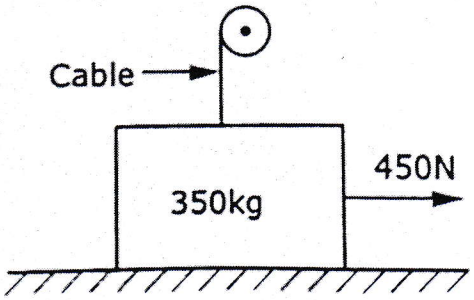

Fig. 13(c)

D. What is the value of the θ as shown in fig. 13(d), below which will make the motion of 900N block down the plane to impend? The co-efficient of friction for all contact surfaces is 1/3. (10)

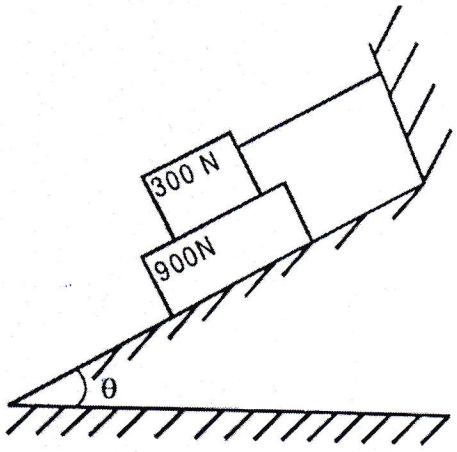

Fig. 13(d)

14. A. To determine the centroid for the L – section as shown in fig. 14(a). (6)

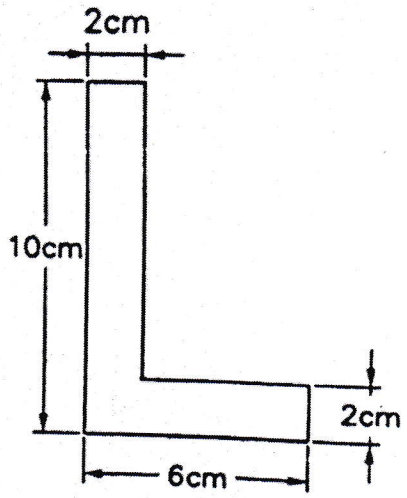

Fig. 14(a)

B. To determine the centroid as shown in fig. 14(b). (10)

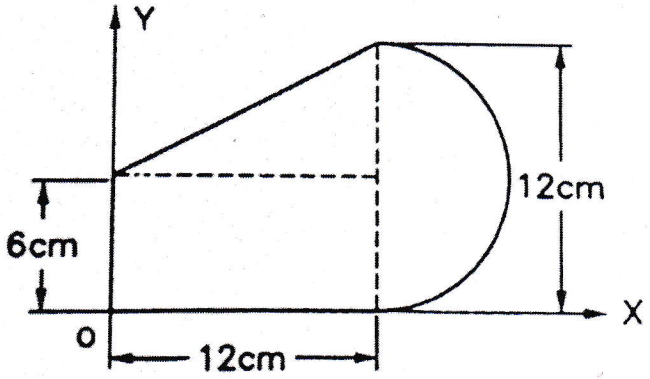

Fig. 14(b)

(OR)

C. To determine the centroid of the T – section as shown in fig. 14(c). (6)

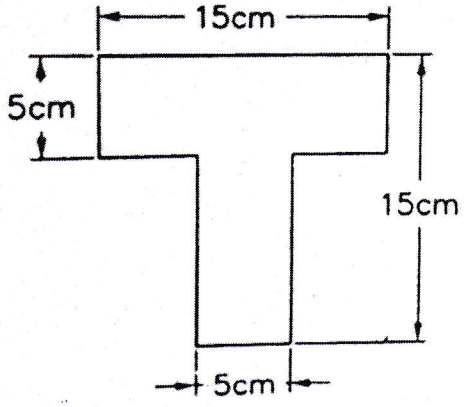

Fig. 14(c)

D. Find the position of the centroid of the solid combination as shown in fig. 14(d) and consisting of a solid cone of height 50 mm, base diameter 80 mm, cylinder of height 100 mm with a semicircular cut as shown in fig.14 (d) (10)

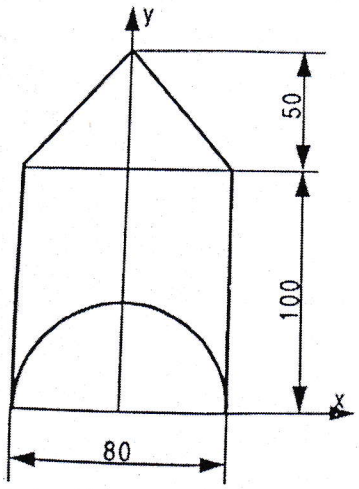

Fig. 14(d) (All dimensions are in mm)

15. A. A single threaded worm and worm wheel, the number of teeth on worm wheel are 50. The diameter of effort wheel is 20 cm and that of the load drum is 10 N. Find the effort required to lift a load of 300 N at an efficiency of 20%. (6)

B. Explain about simple wheel and axle with neat sketch. (10)

(OR)

C. In a certain weight lifting machine, a weight of 1000 N is lifted by an effort of 25 N while the weight moves up by 100 mm, the point of application of that effort moves by 8m. Find velocity ratio and efficiency. (6)

D. Describe the velocity ratio of simple screw jack. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : III — Time:3 Hours

Course Code & Title : **HTPC201 Textile Fibers** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Differentiate syndotactic and isotactic polymers.
2. List out the fibers that produced from dry and wet spinning.
3. What is mono filament & multi filament yarn?
4. How to identify the order and disorder structure of textile fibers?
5. Illustrate the morphological structure of cotton fiber.
6. Find the possible end uses of polynosic rayon fiber.
7. Identify the difference between rearing and reeling in silk fiber production.
8. State the end uses of Nylon 6 Fibers.
9. Highlight any two important chemical properties for polyester fibers.
10. List any two important physical properties of aromatic polyamide fibers.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Define the following terminologies that used in fiber industry: Repeat unit, Molecular weight and Polymerization (6)

    B. Explain the melt spinning with suitable diagrams. (10)

(OR)

    C. Highlight the importance of following post spinning operation: Drawing, Heat setting and Spin finish treatment. (6)

    D. Demonstrate the working principles of air jet texturizing techniques with suitable diagram. (10)

12. A. Classify the natural and synthetic fibers based on textile institute standards. (6)

    B. Analyse the detail morphological structure of wool and silk fibers with suitable diagram. (10)

(OR)

C. Write about dope dyed and delustered yarn. (6)

D. Highlight the important process parameters that required for producing the spun and continuous filament yarn. (10)

13. A. Compare the chemical composition and physical properties of linen fibers. (6)

B. Discuss in detail about the cotton fiber physical & chemical properties and chemical composition of cotton fiber. (10)

(OR)

C. Create a table to compare the physical and chemical properties of polynosic rayon. (6)

D. Demonstrate the viscose fiber production with suitable flow diagram. (10)

14. A. Enlist the various types of silk available in the market (based on their origin and silk moth life period). (6)

B. Discuss the wool fiber extraction and grading in detail. (10)

(OR)

C. Compare the physical and chemical properties of silk fiber. (6)

D. Enumerate in detail about the manufacturing process of Nylon 6, 6 fiber. (10)

15. A. Highlight the important physical and chemical properties of Polypropylene fiber. (6)

B. Explain the manufacturing process of polyester fiber production. (10)

(OR)

C. Difference between para-aramid and meta-aramid. (6)

D. Write the manufacturing process of Acrylic fiber production. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : III — Time:3 Hours

Course Code & Title : **HTPC202 Yarn Manufacturing Technology** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. List different type of ginning machines.
2. Write the formula for calculating cleaning efficiency in blow room.
3. State the purpose of trumpet in carding machine.
4. Calculate the actual draft in carding machine with mechanical draft 95 and waste extracted 4%.
5. Write the functions of top comb in comber.
6. Why even number of machines employed between carding and comber?
7. State the purpose of spacer in speed frame drafting system.
8. State the objectives of draw frame.
9. List the functions of traveller in ring frame.
10. State the objectives of ring frame.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Write the process flow chart of combed yarn manufacturing system (6)

    B. Calculate the production of blow room machine in kg per shift of 8 hours running at 90% efficiency producing 0.0014 Ne lap hank with speed and diameter of lap roller are 13 rpm and 9" respectively. (10)

(OR)

    C. Compare lap feed and chute feed system. (6)

    D. With a neat sketch, explain the working of knife roller ginning machine. (10)

12. A. Compare carding action and stripping action in carding machine. (6)

B. With neat sketches, explain any two web doffing systems employed in carding machine. (10)

(OR)

C. Write short notes on different types of autoleveller. (6)

D. With a neat sketch, explain the passage of material through high production carding machine. (10)

13. A. Write short notes on forward feed and backward feed in comber. (6)

B. With a neat sketch, explain the passage of material through modern combing machine. (10)

(OR)

C. Draw the diagram of super lap machine and mention the important parts. (6)

D. Calculate the production of a comber in kg per shift of 8 hours running at 90% efficiency with the following particulars: combing cylinder speed 300 nips per minute, length of lap fed per nip 5.8 mm, lap weight 80 g/yard, noil extraction 15% and number of heads 8. (10)

14. A. Calculate the draft and twist on roving machine with the following particulars: draw frame sliver hank 0.14 Ne, roving hank 1.5 Ne and twist multiplier 1.2. (6)

B. With neat sketch, explain the passage of material through modern draw frame machine. (10)

(OR)

C. Draw neat diagram of drafting system employed in draw frame and explain briefly. (6)

D. With neat sketch, explain the passage of material through speed frame. (10)

15. A. Write short notes on bundling and baling. (6)

B. With neat sketch, explain the passage of material through ring spinning machine. (10)

(OR)

C. State the purpose of aprons, traverse guide and ring in ring frame. (6)

D. With neat sketch, explain the working of reeling machine. Also explain different types of reeling. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : III — Time:3 Hours

Course Code & Title : **HTPC203 Handloom Weaving Technology** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What are the objectives of winding?
2. State the relationship between concentration of size and add-on% of sizing.
3. What are the advantages of center closed shed over bottom closed shed?
4. State the functions of mouth piece in handloom.
5. List the suitability of shuttles for various types of fabrics.
6. Write the limitations of barrel dobby.
7. State the differences between worsted and woolen counts.
8. Give the conversion factor for Ne to Denier.
9. Calculate the count of 2 fold yarn twisted from 2 singles of 40^s yarn.
10. What will be the number of ends per inch in a $3/60^s$ stockport reed?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Write the essential characteristics required for weaving of warp and weft yarns. (6)

    B. What are the various types of yarn packages suitable for handloom weaving process? Explain their characteristics and uses with suitable illustrations. (10)

    (OR)

    C. Formulate the size recipe for cotton and polyester/cotton blended yarns. (6)

    D. What are the objectives of sizing? Explain briefly the process of street warp sizing with neat sketch. (10)

12. A. Classify and explain the different motions in handloom weaving. (6)

    B. With neat sketch discuss in detail about the various parts of the handloom and their functions. (10)

(OR)

C. Explain shortly the functions and working mechanism of fly shuttle handloom with neat diagram (6)

D. Discuss in detail about the different types of shed formed with suitable sketch. (10)

13. A. What are the various types of reed? Explain the suitability and characteristics for various types of handloom fabrics with suitable illustrations. (6)

B. Explain the construction and working principle of barrel dobby in handloom with neat sketch. (10)

(OR)

C. Explain the working mechanism of closed shed beat up and crossed shed beat up with respect to design of the fabric. (6)

D. Describe the functions and working mechanism of poker rod and ratchet wheel take up motion with neat diagram. (10)

14. A. If 2400 yards of cotton yarn weigh 40 grams, Calculate the count of the yarn in New English System. (6)

B. (i) If 7200 yards of jute yarn weighs 3 pounds. Calculate the count of the yarn?
(ii) Calculate the length of a skein of flax yarn whose weight is 0.5 lb. and the count is 16 pounds per Spyndle. (10)

(OR)

C. If 1350 metres of Silk yarn weighs 7.5 grams. Calculate the count of the yarn in Denier system. (6)

D. Deduce the conversion factor for converting yarn count from New English system to metric system and Convert 80^s Ne cotton count to metric system. (10)

15. A. Calculate the resultant count of the three fold cotton yarn composed of 12^s, 15^s and 20^s single yarn. (6)

B. The take-up of one of the component threads in a loop yarn is 90%. The count of this component yarn is 40^s. If the count of the other component yarn is 80^s, calculate the length and weight of component threads are there in 5 pounds of the resultant yarn. (10)

(OR)

C. Calculate the average count of 10 tex, 15 tex, and 20 tex yarns. The length of yarn is 1Km each. (6)

D. Calculate the total number of ends in the reed from the following particulars: (10)
Count of the reed : 48^s ST
Denting : 2 ends per dent for body & 4 ends per dent in selvedge
Reed width : 52 inch (including ½ inch selvedge on each side)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : III — Time:3 Hours

Course Code &Title : **HTPC204 - Fabric Structure - I** — Maximum Marks:100

PART - A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1 . Classify the textile fabrics.

2 . Name the derivative structures of plain weave.

3 . Classify the twill weave.

4 . How many minimum ends and picks required for basic twill weave?

5 . Determine the possible moves for 8 thread sateen weave.

6 . Construct the diamond weave with minimum size repeat.

7 . Write the drafting order of ordinary honey comb on 8 x 8.

8 . Name any two weaves suitable for towel fabric.

9 . What type of effects mock-leno weaves produce?

10 . Name any four colour and weave effect

PART - B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. How the woven fabrics are classified? Explain with illustration. (6)

B. Explain the different types of ornamentation techniques using for plain weave fabric. (10)

(OR)

C. Write short notes on catch–cord technique for weaving warp rib weave. (6)

D. Write the derivative structures of plain weave and construct one weave for each derivation. (10)

12. A. Construct one repeat of warp face and weft face twill on 6 x 6 repeat. (6)

B. Construct the $\frac{4}{2}\ \frac{1}{2}$ steep twill design draft and peg-plan. (10)

(OR)

C. Classifications of twill weave with suitable examples. (6)

D. Construct the wavy twill across the cloth design and peg-plan by using 4 up 2 down twill using 1,2,3,4,5,6,1,6,5,4,3,2 drafting order. (10)

13. A. Construct the 4 thread satinette weave, draft and peg-plan. (6)

B. Construct the design, draft and peg-plan for 16 x 16 Diamond weave using 2 up 2 down twill base. (10)

(OR)

C. Explain the differences between Diaper and Diamond weave. (6)

D. Construct the satin and sateen dice-check on 16 ends and 16 picks with drafting and peg-plan. (10)

14. A. Construct the 7 x 7 Weft Corkscrew weave, design, draft and peg-plan. (6)

B. Construct the design, draft, and peg-plan for 16 x 16 thread Brighton honey comb. (10)

(OR)

C. Construct the 6 x 6 Mock-Leno weave, design, draft and peg-plan. (6)

D. Construct the design, draft, and peg-plan for 10 x 10 Huck-a-Back weave. (10)

15. A. Construct the crepe weave by using 5 thread sateen as base. (6)

B. Construct the design, draft, and peg-plan for 20 x 20 Weft Distorted thread effect. (10)

(OR)

C. What are the different methods for constructing Crepe fabric? (6)

D. Construct the design, draft, and peg-plan of Hounds Tooth colour effect with following weave and colour order: (10)

Weave – 2up 2 down twill

Warp and weft colour pattern : 4 dark and 4 light

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Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri

Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : III — Time:3 Hours

Course Code &Title : **HTPC 205 Chemical Processing of Textiles - I** — Maximum Marks:100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. What is scouring?
2. Discuss on anti chlor treatment.
3. Write the classification of dyes.
4. Differentiate Soft, flow and Jet dyeing machine.
5. Define percentage shade with example.
6. Explain the term Material to Liquor ratio with example.
7. What is the use of phenolphthalein paper and vat yellow paper in vat dyeing of Cotton?
8. Write the treatment to improve washing and light fastness in sulphur dyed goods.
9. What is Degumming of silk?
10. Write emulsion scouring of wool.

PART-B ((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Write the importance of Mercerization of Cotton. (6)

    B. Describe the working of Gas Singeing machine with neat sketch and write its advantages over other methods. (10)

(OR)

    C. Explain the saponification and emulsification reactions of scouring in Cotton with process details. (6)

    D. What is OBA treatment? Explain the method of hydrogen peroxide bleaching of Cotton with reactions. (10)

12. A. Describe the working of Vertical can dryer with neat sketch. (6)

B. Explain the working of Jigger machine with neat sketch. (10)

(OR)

C. Describe the working of J Box with neat sketch. (6)

D. Explain the working of Cabinet hank dyeing machine with neat sketch. (10)

13. A. Write the classification of Reactive dyes. (6)

B. Explain the dyeing of Cotton with hot & cold brand Reactive dyes. (10)

(OR)

C. Write the process of dyeing Cotton with Vinyl Sulphone dyes (6)

D. Explain the dyeing of Cotton with Direct dyes. Write after treatment with cationic dye fixing agent. (10)

14. A. Discuss about the Sulphur black tendering. (6)

B. Explain the dyeing of Cotton with Azoic dyes with its reactions. (10)

(OR)

C. What are the causes of bronziness of shade in Sulphur dye? (6)

D. What is vatting? Explain the dyeing of Cotton with Vat dyes. (10)

15. A. Describe the method of dyeing of Silk with Acid dyes. (6)

B. Explain Milling of Wool with neat sketch of milling machine. (10)

(OR)

C. Write Crabbing, Potting and Decatising treatment of wool. (6)

D. Write the Solvent and Freezing method of scouring wool. Explain the method of dyeing wool with Metal Complex dyes. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV — Time:3 Hours

Course Code & Title : **HTPE202 Garment Manufacturing Technology** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Mention various types of fabric.
2. Write the functions of sampling department in garment industry.
3. What is eight head theory and state the importance?
4. What are pattern details should be given in the pattern?
5. Define marker efficiency and give the formula to calculate.
6. List the advantages of computerized cutting machine.
7. State the application of class 500 stitch in garment making.
8. Discuss the purpose of interlinings in garment making.
9. State the functions of sewing needle.
10. Name two types of stitches formed in button sewing machine.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Write short notes on apparel industry in India. (6)

    B. Explain the process flow chart for production of basic T-shirt. (10)

(OR)

    C. Write short notes on various seasons with respect to garment manufacturing. (6)

    D. List various departments in garment industry and explain in detail any two departments. (10)

12. A. List and explain various measurements taken to create pattern for basic T-shirt. (6)

B. With neat sketches, explain various pattern making tools used with their applications. (10)

(OR)

C. Explain about grading systems and grading techniques. (6)

D. Explain pattern preparation for basic bodice and basic sleeve with neat sketches. (10)

13. A. State the common defects in cutting and its remedies. (6)

B. Explain various methods of fabric spreading used in garment industry. (10)

(OR)

C. Write short notes on marker planning. (6)

D. With neat diagram, explain the working of straight knife and band knife cutting machines. (10)

14. A. Write short notes on labels and waddings. (6)

B. Discuss in detail the various types of seams with neat sketches. Give their applications. (10)

(OR)

C. Write short notes on types of yarn construction for sewing thread. (6)

D. With neat sketch, explain various types of buttons and zippers. (10)

15. A. Write short notes on sewing needle size. (6)

B. Draw the neat diagram of single needle lock stitch machine and explain the functions of each part. (10)

(OR)

C. Write short notes on button hole sewing machine. (6)

D. Explain about the overlock and flat lock machines. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV — Time:3 Hours

Course Code & Title : **HTPE203 Nonwoven Technology** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. State the definition of nonwoven.
2. List any two application of nonwoven and mention the type of nonwoven which is most suitable for that application.
3. What are the two type of machines used for dry laid web formation?
4. In which direction fibers are oriented in parallel laid and cross laid web?
5. List the different methods of application of thermal energy to bond the web.
6. Name any two machines used for bonding of nonwoven using stitch bonding method.
7. State the advantages of meltblown nonwoven over spunbond nonwoven.
8. List the applications of spunbonded fabrics.
9. List any two mechanical finishes imparted for nowoven fabrics.
10. What is the importance of heat setting of nonwoven?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. What are the stages involved in preparation of fiber for nonwoven manufacturing. (6)

    B. Write the classification of nonwoven with respect to web formation and bonding technologies. (10)

(OR)

    C. Explain the various industrial applications of nonwoven. (6)

    D. List the important fiber characteristics considered for each type of nonwoven production techniques. (10)

12. A. List the properties of parallel laid web. (6)

B. With suitable diagram, explain the process of cross laid web formation. (10)

(OR)

C. Compare parallel laid and cross laid web formation techniques. (6)

D. What are the important quality parameters considered while assessing the quality of web. (10)

13. A. Draw the diagram showing the functional elements of spunlace (water-jet) machine used for bonding of nonwoven web. (6)

B. With suitable schematic diagram, explain the principle of bonding of web in the needle-punching machine. (10)

(OR)

C. Lists the merits and demerits of thermal bonded nonwoven process. (6)

D. With suitable binder polymer, explain the process of nonwoven binding using chemical bonding method. (10)

14. A. What are the process parameters to be controlled in the spunbond process? (6)

B. With neat sketch, explain the method of production of spunbonded nonwoven. (10)

(OR)

C. What are the process parameters to be controlled in the meltblown process? (6)

D. With neat sketch, explain the method of production of meltblown nonwoven. (10)

15. A. Explain the different mechanical finishes imparted and their effect on the nonwovens. (6)

B. Explain the various tests to be conducted on the fiber material to be converted into needle-punched nonwoven. (10)

(OR)

C. Explain the different chemical finishes imparted and their effect on the nonwovens. (6)

D. Write any four application of nonwoven and the type of tests essentially required with respect to the applications mentioned. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV — Time:3 Hours

Course Code & Title : **HTPC209 Weaving Technology- I** — Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What is bunch building mechanism in weft winding?
2. Define the terms of Knot factor and Clearing efficiency.
3. What are the factors affect the warping efficiency?
4. The total no of ends in a sectional warping is 2700 ends. Calculate the number of section to be made, if the capacity of creel is 500 bobbins.
5. Enlist the limitations of tappet and dobby shedding mechanisms.
6. Mention the different types of reversing motions used in power looms.
7. Classify the negative let – off motions.
8. What is sley eccentricity?
9. List out the types of feelers used in pirn changing mechanism.
10. What is 'pick-at-will' motion?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate between drum winder and precision winder. (6)

    B. Describe the passage of material in automatic cone winding machine and tensioner setting of any one type with neat sketch. (10)

(OR)

    C. With suitable examples, discuss about various faults in wound package and their causes and remedies. (6)

    D. Explain the concepts in mechanical, capacitance and optical yarn clearers in winding machines with suitable sketch. (10)

12. A. Calculate the length of warp that can be produced per day of 8 hours an modern high speed warping machine, if the warping speed is 610 yards per minute, the overall efficiency is 75%. (6)

B. What are the objectives of sectional warping? Describe the working procedure of high speed sectional warping machine with a neat sketch (10)

(OR)

C. A warp containing 2400 ends of 44^s yarn is sized to be 10%. If the sized warp weight is 120 lbs. Calculate the length of the sized warp and the total length of sized yarn. (6)

D. With a neat material passage diagram, describe the various section and working of a multi cylinder sizing machine. (10)

13. A. Classify and explain the different motions in power loom weaving. (6)

B. Describe the working principle of cone over pick mechanism with timings diagram. (10)

(OR)

C. Write the reasons for shuttle trap and differentiate late shedding and early shedding. (6)

D. Discuss the working principle and mechanism of climax dobby with diagram. (10)

14. A. Differentiate between five-wheel and seven-wheel take-up motions. (6)

B. Describe the seven wheel take up motion and calculate theoretical and practical dividend. (10)

(OR)

C. Differentiate between side weft-fork and centre weft-fork motions. (6)

D. Explain the working principle of loose reed warp protection motion with a neat sketch (10)

15. A. Differentiate cop change and shuttle change mechanisms. (6)

B. With neat sketches describe the working principles of cop changing mechanisms. (10)

(OR)

C. Construct different sections lay- out for a power loom shed. (6)

D. Explain the working principle and limitations of mechanical warp stop motions with a neat sketch. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV — Time:3 Hours

Course Code &Title : **HTPC210 Fabric Structure- II** — Maximum Marks:100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What are the objectives to add wadding threads in bed ford cord weave?
2. Name the different series of warp threads are used in welt structure and how they held?
3. Write the stitching method followed in weft centre stitched double cloth?
4. Show the line diagram of thread interchanging double cloth.
5. What is the objective to produce treble width plain cloth?
6. Which type of backed cloth can be produced economically & why?
7. What is face to face weaving technique?
8. What are the difference between cut pile & loop pile?
9. Draw the interlacing diagram of gauze structure using 4 ends & 4 picks.
10. Write the formula to calculate the total number of ends in a repeat in the jacquard sample.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Construct the design & draft of 2/1 twill face bed ford cord weave. (6)

    B. Construct the design, draft & interlacement diagram of a wadded plain face Bedford cord repeats on (20 x 4), keeping 4 wadding threads in a repeat. (10)

(OR)

    C. Differentiate between Bedford cord & welt structure. (6)

    D. Construct the design, draft & interlacement diagram of a fast back welt structure repeats on (4 x 14), keeping the 3rd, 4th , 9th & 10th as wadding picks in a repeat. (10)

12. A. Construct the design & interlacement diagram of double width plain cloth repeats on 8 ends & 8 picks. (6)

    B. Construct a self-stitched double cloth design by taking face weave as 3/3 twill (10)

weave & back weave as 2/4 twill weave. Mention the stitching method followed.

(OR)

C. Construct a warp center stitched double cloth design by taking 2/2 twill weave as face & back weave. (6)

D. With proper illustration, show the stripe & check effects produced in cloth interchanging double cloth. (10)

13. A. Construct a reversible warp backed cloth design using sateen/satin weave. (6)

B. Construct a design of weft wadded warp backed cloth using 4/1 twill & 1/4 twill weave. (10)

(OR)

C. Construct a design of a 2/2 twill imitation warp backed. (6)

D. Construct a treble cloth design by using 3/3 twill weave on face, center & back weave. Mention the stitching methods followed. (10)

14. A. Write the salient features of terry piles. (6)

B. Construct the design and interlacement diagram of the followings (10)

i) 3 pick terry pile produced both sides

ii) 4 pick terry pile produced on face side only

(OR)

C. Construct the design of a corded velveteen repeats on 10 ends by taking Ground weave – plain & Ground : pile pick = 1 : 3 (6)

D. Draw the design and interlacement diagram of warp pile structures produced in both the methods "wire is inserted alone" & "simultaneous insertion of a pick and wire" from the following particulars. (10)

Ground weave – 2/1 Rib , Ground: Pile end – 2 : 1 & Pick : wire - 3 : 1

15. A. Draw the neat diagram showing the formation of cross shed formed in leno weaving. (6)

B. Showing four stages to prepare a figured single cloth structure in 40 X 40 in graph for punching using a small motif. (10)

(OR)

C. What count of point paper should be used for producing a fabric with 48 EPI & 36 PPI without any distortion on a 200 hooks jacquard loom? (6)

D. Take a motif of 10 X 10 for extra warp figure, show the complete structure in 20 ends & 10 picks in the graph paper, keeping the proportion of ground to extra warp 1: 1 & plain weave for ground and mention its draft. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV

Time:3 Hours

Course Code & Title : **HTPC211 Chemical Processing of Textiles - II**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. State the objectives of heat setting.
2. What are carriers?
3. List any 4 ingredients used in print paste.
4. Define ageing.
5. Mention the methods of after treatments employed in reactive printing.
6. Write the recipe for printing of silk with acid dye.
7. Give two examples for Temporary Chemical finish.
8. What is Sueding?
9. Differentiate Soil repellency and Soil release finish.
10. Name two chemicals used to impart crease recovery finish in cotton.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Describe the process of bleaching polyester using sodium chlorite. (6)

    B. Explain the methods of heat setting process. (10)

(OR)

    C. Discuss on any 3 dyeing defects and their remedies. (6)

    D. Explain in detail the process of thermosol dyeing of polyester with a neat sketch. (10)

12. A. Compare Dyeing and Printing. (6)

    B. Explain the process of flatbed screen printing with a neat line diagram. (10)

(OR)

C. Write briefly on the styles of printing. (6)

D. Discuss in detail on the batik and tie & dye styles of printing. (10)

13. A. List the ingredients used in direct dye printing with its function. (6)

B. Explain the process of reactive printing using steaming and wet development method. (10)

(OR)

C. Differentiate dyes and pigments. (6)

D. Discuss on the printing process of polyester fabric with disperse dyes. (10)

14. A. State the objectives of finishing. (6)

B. Classify textile finishing with example. (10)

(OR)

C. Write brief note on the Napping process. (6)

D. Describe on the process of swizzing calendaring and friction calendaring. (10)

15. A. Write short notes on softening process. (6)

B. Explain on the process and mechanism of wrinkle recovery finish (10)

(OR)

C. Give a brief note on antistatic finish. (6)

D. Discuss in detail on the process of flame retardant finish on cotton fabrics. (10)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV — Time:3 Hours

Course Code &Title : **HTPC212 Textile Testing – I** — Maximum Marks:100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Distinguish between Random and Biased sampling.
2. State the points to be considered while fiber sampling.
3. Why conditioning of sample is done before testing?
4. Define the terms 'Moisture Content' and 'Moisture Regain'.
5. State the importance of fiber length testing.
6. What is maturity coefficient of cotton fiber?
7. What are the factors influencing tensile testing results?
8. What is weak link effect in tensile testing?
9. State the relation TPI and TM.
10. State any four yarn faults.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Write the importance of Textile Testing. (6)

    B. Give a detailed account on zoning technique used for selection of fibre samples. (10)

(OR)

    C. Discuss the various factors to be considered for selection of samples for quality assessment. (6)

    D. With suitable illustrations, explain the various sampling techniques used for selection of yarn samples. (10)

12. A. Give a brief note on instruments used for measurement of Relative Humidity? (6)

    B. Discuss in detail, the effect of moisture and humidity on textile properties. (10)

(OR)

C. Write the standard moisture regain value of cotton, viscose, wool and polyester. (6)

D. With suitable diagrams, explain any one methods of measurement of Moisture in Textile fibers. (10)

13. A. What is meant by spinnability of fibers? State the influence of fiber fineness on spinnability of fibers. (6)

B. Discuss the measurement of various length parameters of fiber using Baer Sorter. (10)

(OR)

C. Discuss in brief, the method of measurement of fibre maturity using microscopic method. (6)

D. How does air flow method help in the determination of fibre fineness? Explain with a diagram the method of measurement of the fibre fineness using anyone micronaire measuring instrument. (10)

14. A. Outline the factors affecting the tensile test results obtained from testing instruments. (6)

B. Elaborate the bundle fiber strength measurement using stelometer. (10)

(OR)

C. What are CRE, CRT and CRL type tensile testers? (6)

D. With suitable illustrations, explain the construction and working principle of lea strength tester and state its merits and demerits. (10)

15. A. Brief the measurement of yarn twist with a suitable diagram. (6)

B. Explain the method of measurement of yarn count using Beesley's balance along with its merits and demerits. (10)

(OR)

C. Give a brief note on relationship between twists and yarn strength with suitable illustrations. (6)

D. State the measurement principle of yarn evenness and explain the classification of yarn faults. (10)

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