Registration Number | | | | | | | | |

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

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

Diploma in Handloom & Textile Technology

April/ May - 2026 Semester Examination

(Regulation-2025)

Semester : **I** Time:3 Hours

Course Code & Title : **25BS101 Mathematics - I** Maximum Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Convert 18° into radians.
2. Find the value of sin23 ° cos22 °+ cos23 ° sin22 ° ,by using trigonometric formulae.
3. Find the value of i^{7}
4. If Z= 5-2i and W= -1 +3i, then find 2Z+3W
5. Evaluate: $\lim_{x \to 2}(x^2 + 3x + 2)$
6. If $y = x\,e^{x}$, find $\frac{dy}{dx}$
7. Find the value of $100C_{99}$
8. State Binomial theorem for positive integral index.
9. Find the mode of the data: 5,3,4,6,5,7,5,6,5,7
10. If $\mathrm{P(A)} = 0.38, \mathrm{P(B)} = 0.41, \mathrm{P}\,(\mathrm{A} \cap \mathrm{B}) = 0.09$, Find $\mathrm{P(A} \cup \mathrm{B)}$

PART-B ((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. If $\tan A = \frac{1}{3}$, $\tan B = \frac{1}{2}$ then find $\tan(A + B)$ (6)

(OR)

B. Prove that $\cot A - \cot 2A = cosec\ 2A$ (6)

C. If $A + B + C = 180°$ then prove that (10)
$\cot A \cot B + \cot B \cot C + \cot C \cot A = 1$

(OR)

D. A ladder 10 cm long is resting against a wall. The foot of the ladder is 6 cm from the wall. Find the height reached by the ladder on the wall. (10)

12. A. Find the value of the real numbers *x* and *y*, if the complex numbers (6)
$(2 + i)x + (1- i)y + 2i - 3$ and $x + (- 1+2i)\, y + 1 + i$ are equal.

(OR)

B. Find the modulus of the complex number $\left|\frac{2+3i}{-4-3i}\right|$ (6)

C. Write $\frac{3+4\,i}{5-12\,i}$ in the rectangular form. (10)

(OR)

D. If Z_1 =1-3i, Z_2 = - 4i, Z_3 = 5 then Verify that : (i). $(Z_1 + Z_2) + Z_3 = Z_1 + (Z_2 + Z_3)$ (ii). $(Z_1 Z_2) Z_3 = Z_1 (Z_2 Z_3)$ (10)

13. A. Evaluate: $\lim_{x\to 0} \frac{1-\sqrt{1-x^2}}{x^2}$ (6)

(OR)

B. Find $\frac{dy}{dx}$: If $y = 2x\ (x+1)(x-3)$ (6)

C. Differentiate y with respect to x, If $y = \frac{\sqrt{x}-1}{\sqrt{x}+1}$ (10)

(OR)

D. Verify the function $f(x) = \frac{1}{1+e^{-1/x}}$ is continuous at $x = 0$ (10)

14. A. Find the expansion of $(2x + y)^7$ (6)

(OR)

B. If nC_4 = 495, find the value of 'n' (6)

C. There are 5 teachers and 20 students. A committee of 2 teachers and 3 students is to be formed. Find the number of ways this can be done if: (i) a particular teacher is always included**,** (ii) a particular student is always excluded. (10)

(OR)

D. Find the middle term in the expansion of $(x^2 + \frac{1}{x})^5$ (10)

15. A. If the probability that a person likes tea is 0.7, the probability that a person likes coffee is 0.5, and the probability that a person likes both tea and coffee is 0.3. Find: (i). the probability that a person likes either tea or coffee. (ii). the probability that a person likes neither tea nor coffee. (6)

(OR)

B. Define an event in probability. Explain any three types of events with examples. (6)

C. Find the mean of the following frequency distribution which gives the marks obtained by 1000 students in an examination: (10)

C.I	0 -10	10 -20	20 -30	30 - 40	40 -50	50 -60
Frequency	30	67	97	187	290	166
C.I	60-70	70-80	80-90	90-100		
Frequency	96	37	20	10		

(OR)

D. Find the median of the following frequency distribution: (10)

C.I	0 -10	10 -20	20 -30	30 - 40	40 -50
Frequency	5	8	12	20	10

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Diploma in Handloom & Textile Technology

April/ May - 2026 Semester Examination

(Regulation-2025)

Semester : I Time:3 Hours

Course Code & Title : **25BS105 Applied Chemistry** Maximum Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Differentiate between Isotopes and Isobars.
2. What is standard solution? Give example of primary and secondary standards.
3. What are Cohesive and Adhesive forces?
4. Define Lewis theory of Acid with example.
5. What are Oxidizing and Reducing agent. Give one example of each.
6. What is Faraday's first law of electrolysis?
7. What are the conditions for a compound to be Aromatic?
8. Draw the structure of Naphthalene and Phenol.
9. What do you understand by the term "latent heat". Give example.
10. Define Exothermic and Endothermic reaction.

PART-B ((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Define any three methods to explain the concentration of a solution. Write their formula and unit. (6)

(OR)

B. What are the causes of Hardness of water? Write any four disadvantages of using hard water? (6)

C. What are quantum numbers? Explain all four quantum numbers. (10)

(OR)

D. Describe the process of softening of water using Zeolite. (10)

12. A. Explain different types of bonds along with example. (6)

(OR)

B. Write the difference between strong and weak Acids and Bases with example. (6)

C. What is hydrogen Bonding? Explain H-bonding in ice. How does it affects the properties of ice? (10)

(OR)

D. Illustrate the anomalous property of HF and H_2O molecule due to hydrogen bonding. (10)

13. A. Write the preparation properties and uses of bleaching powder. (6)

(OR)

B. Write the preparation properties and uses of Hydrogen peroxide. (6)

C. Describe the electrolysis of $CuSO_4$ solution using Pt-electrode and Cu-electrode. Write the cathodic and anodic reaction for it. (10)

(OR)

D. What is secondary cell? Explain working and principle of lead storage cell. (10)

14. A. Differentiate between Homopolymer and Copolymer. (6)

(OR)

B. What is Homologous series? Write the homologous series of formaldehyde and Ethanol. (6)

C. Explain the preparation of Nylon 6,6 with proper representation of chemical reaction involved in it. Write their uses. (10)

(OR)

D. Describe the preparation properties and uses of Terylene (10)

15. A. Differentiate between reversible and irreversible reaction with example. (6)

(OR)

B. Explain Le-Chatelier's principle by taking the example of Haber's process. (6)

C. Elaborate the structure and properties of crystalline solids. (10)

(OR)

D. Elaborate the process of preparation of HNO_3 by using Ostwald process. Write its uses. (10)

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(Regulation-2025)

Semester : **I** Time:3 Hours

Course Code & Title : **25HS101 Communication Skills in English** Max. Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. What is formal communication?
2. Define soft skills?
3. What are the types of communication?
4. Identify the following lines and name the poem from which these lines have been taken:

   "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"
5. Define "Precis writing"?
6. Who is the author of "*The Blue Umbrella"?*
7. Write any two advantages of E-Mail?
8. What is Emotional Intelligence?
9. Fill in the blanks with suitable **Preposition**
   a) They walked _____ the road carefully. (across/between)
   b) She is afraid _____ dogs. (by/of)
10. Fill in the blanks with suitable Articles
    a) _____ sun rises in the east. (a/the)
    b) She is _____ university student. (an/a)

PART-B **(**(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. What are the importance of communication skills? (6)

(OR)

B. What are the process of communication? (6)

C. Explain the 7Cs for effective communication. (10)

(OR)

D. Elaborate art of effective communication. (10)

12. A. Write about teamwork and leadership skills. (6)

(OR)

B. Write a short note on 'Life Skills' (6)

a) Self- awareness

b) Adaptability

C. Explain the importance of soft skills in professional life. (10)

(OR)

D. Differentiate between soft skill and hard skill. (10)

13. A. ***"My little horse must think it queer*** (6)
To stop without a farmhouse near
Between the woods and frozen lake
The darkest evening of the year."

a) Why does the horse think it is strange?

b) Where does the poet stop with his horse?

c) What is meant by "the darkest evening of the year"?

(OR)

B. ***"Shall I compare thee to a summer's day?*** (6)
Thou art more lovely and more temperate.
Rough winds do shake the darling buds of May,
And summer's lease hath all too short a date."

a) What does the poet compare the beloved to?

b) Why does the poet say the beloved is better than a summer's day?

c) What do the "rough winds" do?

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

Mother Teresa was a great humanitarian who dedicated her life to serving the poor and the sick. She received the Nobel Peace Prize in 1979 for her work among the poorest people in society. In her Nobel Lecture, she spoke about love, peace, and compassion. She said that the greatest poverty in the world is not hunger or lack of shelter but the feeling of being unwanted, unloved, and uncared for.

Mother Teresa believed that every person can bring peace to the world by showing love and kindness in their daily lives. According to her, small acts of kindness can make a big difference. She encouraged people to care for the poor, help the sick, and support those who are lonely. Her message was simple: if we truly love others and help those in need, we can make the world a better and more peaceful place.

a) Who was Mother Teresa?

b) When did she receive the Nobel Peace Prize?

c) What does Mother Teresa say is the greatest poverty?

d) How can people bring peace to the world?

e) What message does Mother Teresa give in her Nobel Lecture?

(OR)

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

My Lost Dollar, Stephen Leacock tells a funny story about a dollar he lent to a man named Todd. The writer expected Todd to return the money soon, but he never did. Instead of asking directly for the dollar, the writer began to observe Todd's behavior carefully. He noticed that Todd avoided him and behaved strangely whenever they met. The writer started imagining many reasons why Todd did not return the money.

Although the amount was very small, the writer kept thinking about it again and again. He wondered whether Todd had forgotten the debt or simply did not want to pay it back. Through this humorous situation, Stephen Leacock shows how people sometimes worry too much about small matters. The essay also highlights human nature and the awkwardness people feel when dealing with money matters.

a) Who wrote the essay My Lost Dollar?
b) To whom did the writer lend a dollar?
c) Did Todd return the dollar to the writer?
d) How did Todd behave when he met the writer?
e) What idea does the writer convey through this essay?

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

Communication is an important skill in our daily life. It helps people share ideas, feelings, and information with others. Good communication builds strong relationships in family, school, and workplace. It includes speaking, listening, reading, and writing. A person who communicates clearly can avoid misunderstandings and solve problems easily. In modern society, effective communication is necessary for success in both personal and professional life.

(OR)

B. Write an email to a manager requesting information about a job vacancy. (6)

C. Write a letter to the class advisor requesting leave for two days. (10)

(OR)

D. Write a letter to your friend asking him to visit your place during summer vacation. (10)

15. A. Identify the **two Nouns** in the following sentences. (6)

a) The doctor with the nurse entered the ward.
b) Books and pens are on the table.
c) Indira Gandhi was a brave lady.

(OR)

B. Underline the **Preposition** in the following sentences. (6)

a) The book is under the chair.
b) She came from Chennai yesterday.
c) The cat is sitting on the table.
d) He ran across the road.
e) The bird is flying above the tree.
f) The dog jumped over the fence.

C. Change the following sentences into their **Negative forms:** (10)

a) She is very happy today.
b) The children are playing in the park.
c) I like reading books.
d) He works in an office.
e) We have a meeting tomorrow.

(OR)

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

a) The teacher will explain the lesson tomorrow.
b) She writes a letter.
c) The boy kicked the ball.
d) They built a new house.
e) The students completed the project.

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