



RAN - 2311001101050001

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B. Sc. (IT) (Sem. - I) Examination December - 2023

Communication Skills in English : Paper - 101

Time: 2 Hours]

[Total Marks: 25

સૂચના : / Instructions

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

B. Sc. (IT) (Sem. - I)

Name of the Subject :

Communication Skills in English : Paper - 101

Subject Code No.: **2311001101050001**

Seat No.:

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Student's Signature

Q. 1. Answer the Following in Brief : (Any 4)

(04)

1. State the 7C's of communication.
2. Discuss the role of the sender, receiver, message and feedback in The communication process.
3. What is meant by contradiction with reference to Non-verbal Communication.
4. Which are the sub-skills included in listening?
5. Explain Intercultural communication.
6. What does formal writing include.

Q. 2. Write Paragraphs on any 2 of the following :

(07)

1. Sports and Politics
2. The Impact of COVID-19 on students
3. Green-Earth
4. Abuses of consuming drugs

Q. 3. Answer the following in Detail. (Any 2) (07)

1. Explain the importance of Public speaking for workplace success.
2. Discuss the different types of listening.
3. Mention the role of emotions in communication.
4. Which are the different purposes served through non-verbal behaviour?

Q. 4. Do as Directed : (07)

(A) Write a note on Role and Importance of 4 Communication skills. 03

(B) Interpret and Analyze the Table given below : 04

Result	No. of Students			
	Section A	Section B	Section C	Section D
Students failed in both Exams	28	23	17	27
Students failed in half-yearly but passed in Annual Exams	14	12	8	13
Students passed in half-yearly but failed in Annual Exams	6	17	9	15
Students passed in both Exams	64	55	46	76



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B.Sc. (IT) (Sem. I) Examination December - 2023

Fundamentals of Computer (New) : Paper 103

[Total Marks: 50

સૂચના : / Instructions

(૧)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
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Name of the Examination:

☛ **B.Sc. (IT) (Sem. I)**

Name of the Subject :

☛ **Fundamentals of Computer (New) : Paper 103**

Subject Code No.: **2311001101030001**

Seat No.:

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Student's Signature

Q-1 Answer the following in short.

10

- 1) What is software?
- 2) List out the types of Buses on motherboard.
- 3) What is device driver?
- 4) Explain 8 bit BCD system.
- 5) Define NTFS.
- 6) What is ASCII?
- 7) What is batch processing OS?
- 8) What is slide sorter?
- 9) List out the LINUX components.
- 10) Which command is used to mount file system read only?

Q-2 Answer the following in details. (Any 2)

14

- 1) What is Computer? Explain the components of computer.
- 2) Explain the booting process of computer in details.
- 3) Write a note on the need and functions of Operating System.
- 4) Explain the motherboard and its components in details.



RAN - 2311001101040001

RAN-2311001101040001**M.Sc. IT / B.Sc. IT (Sem. I) Examination December - 2023****MDC-102 - Mathematics - I****Time: 3 Hours]****[Total Marks: 70****સૂચના : / Instructions**

(૧)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

☛ **M.Sc. IT / B.Sc. IT (Sem. I)**

Name of the Subject :

☛ **MDC-102 - Mathematics - I**Subject Code No.: **2311001101040001**

Seat No.:

Student's Signature

- (2) Answer all questions.
(3) Figures to the right indicates marks.
(4) Follow usual notations and conventions.

Q-1 A. Attempt Any Three.**(9)**

- a) Define one-one function and verify that $f(x) = 2x$ is bijective.
b) Given function $f(x) = 2x + 1$ and $g(x) = x^2 - 8$ then find fog and gof.
c) $A = \{1, 2, 3\}$. Let $P(A)$ be the power set of A and \subseteq be a relation on $P(A)$. List the elements of it. Hence show that it is antisymmetric.

- d) Find inverse of $A = \begin{bmatrix} 2 & -3 & 3 \\ 2 & 2 & 3 \\ 3 & -2 & 2 \end{bmatrix}$ using elementary row operations.

B. Attempt Any Three. (9)

a) Solve the system of linear equations.

$$x + 3y - 2z = 0$$

$$2x - y + 4z = 0$$

$$x - 11y + 14z = 0$$

b) Find $6^2 + 7^2 + 8^2 + \dots + 20^2$.

c) Show that $(A + B)^2 = A^2 + AB + BA + B^2$ where $A = \begin{bmatrix} 2 & 3 \\ -1 & 4 \end{bmatrix}$ $B = \begin{bmatrix} 3 & -4 \\ 5 & 7 \end{bmatrix}$

d) Prove that every square matrix can be uniquely represented as sum of its symmetric matrix and skew symmetric e matrix.

Q-2 A. Attempt Any Three. (9)

a) $A = \{1,2,3\}$, $B = \{a,b,c\}$

$R = \{(1, a), (1, b), (2, b), (2, c), (3,b)\}$

$S = \{(1, b), (2, c), (3, b)\}$

Then compute

(1) R'

(2) $R \cap S$

(3) $R \cup S$

(4) R^{-1}

b) Find 12th term of geometric progression whose 8th term is 192 and common ratio is 2.

c) Find Adjoint of $A = \begin{bmatrix} 2 & 7 & 3 \\ 8 & 4 & 5 \\ 4 & 2 & 9 \end{bmatrix}$

d) Define 1) Transpose of a matrix with illustration.

2) Skew symmetric matrix with illustration.

B. Attempt Any Two. (8)

a) Define the congruence relation and prove that congruence relation is equivalence relation.

b) Define multiplication of two matrices and if possible, find the value of $(AB)C$ and BA for

$$A = \begin{bmatrix} 3 & -2 \\ -1 & 0 \\ 4 & 6 \end{bmatrix} \text{ and } B = \begin{bmatrix} 3 & 4 & 7 \\ -1 & 4 & -3 \end{bmatrix}, C = \begin{bmatrix} 3 & 2 & -1 \\ 1 & 0 & 4 \\ 5 & -5 & 7 \end{bmatrix}$$

c) If $A = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 3 & 5 \\ 3 & 4 & 2 \end{bmatrix}$ then find

(1) $|A|$,

(2) $adjA$, also show that $\frac{A \cdot (adjA)}{|A|} = \frac{(adjA) \cdot A}{|A|}$

Q-3 A. Attempt Any Three.

(9)

- a) In a group of 9 children consisting of 5 boys and 4 girls, 3 children are selected at random from it. Then find the probability that in a group of 3 children (I) one boy and (II) at least one boy.
- b) Find Quartile deviation.

Wage (in rs.)	20-25	25-30	30-35	35-40	40-45	45-50
No. of persons	5	12	15	8	5	5

- c) State Merits and Demerits of Mean, Median and Mode.
- d) In a binomial distribution $n = 6$ and $9P(x = 4) = P(x = 2)$ find the value of mean and variance.

B. Attempt Any Three.

(9)

- a) Find Harmonic mean.

Marks	20	30	40	50	60	70	80
No. of students	3	61	132	153	140	51	3

- b) Define: Range, quartile deviation and mean deviation.
- c) For two events A and B $P(A) = 1/2 = P(B)$ and $P(A \cup B) = 2/3$ then find $P(A \cap B)$, $P(A \cup B)$ and $P(A \cap B)$.
- d) For Poisson distribution if $P(x = 1) = P(x = 4)$ then find $P(x \leq 1)$.

Q-4 A. Attempt Any Three.

(9)

- a) If a pair of dice is thrown and X denote the sum of numbers obtained on them, then find $E(X)$.
- b) Define the following terms
 - I) Random variable
 - II) Mutually exclusive events
 - III) Sample space
- c) The pmf function of a random variable x is,

X	0	1	2	3
P(x)	0.1	0.3	0.2	0.4

Find $E[(2x + 1)^2]$ and $\text{Var}(X)$

- d) Find binomial distribution with mean is 4 and variance is $\frac{4}{3}$ find $P(x \leq 2)$.

B. Attempt Any Two.

(8)

- a) Define Poisson distribution and find its mean and variance.
- b) In a factory Producing screws, three machines produce respectively 25%, 30%, and 45% of the total production out of which 5%, 4% and 2% are defective respectively. One screw draw from random from the production and found that defective, what is the probability that it is produced by machine III.
- c) Find mean, median, D_8 , and P_{65} . From the following data:

Class Interval	20-25	25-30	30-35	35-40	40-45	45-50
Frequency	5	12	15	8	5	5



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B.Sc. (I.T.) (Sem. I) Examination December - 2023

Paper : 104 - Fundamentals of Programming Using C.1

[Total Marks: 50

સૂચના : / Instructions

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નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
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Name of the Examination:

☛ **B.Sc. (I.T.) (Sem. I)**

Name of the Subject :

☛ **Paper : 104 - Fundamentals of Programming Using C.1**

Subject Code No.: **2311001101010001**

Seat No.:

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Student's Signature

Q-1 Do as directed: (Any 10)

[10]

1) What will be output of the following Code?

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    char s[20] = "Hello\0Hi";
```

```
    printf("%d %d", strlen(s), sizeof(s));
```

```
    return 0;
```

```
}
```

2) _____ is a value that does not change throughout the program.

3) We can pass float type value in a switch statement - True or False.

4) If integer needs two bytes of storage, then maximum value of an unsigned integer is _____ .

5) _____ is a unary operator which gives the address of a variable.

6) What will be output of the following program?

```
int main()
{
    int i;
    int arr[5] = {1};
    for (i = 0; i < 5; i++)
        printf("%d ", arr[i]);
    return 0;
}
```

7) _____ function in <string.h> is used to calculate the total no. of characters in a string.

8) Which keyword is written before an integer to read only positive numbers in C?

9) _____ keyword is used to rename datatype in C.

10) What will be output of the following code?

```
int main()
{
    int i=4, j=-1, k=0, w,x,y,z;
    w=i || j || k;
    x=i && j && k;
    y=i || j && k;
    z= i && j || k;
    printf("\n w= %d x= %d y= %d z= %d",w,x,y,z);
    return 0;
}
```

11) What is the output for the following code?

```
int main ()
{
    int a=5;
    while (a==5)
    {
        printf ("RABBIT") ;
        break;
    }
    return 0 ;
}
```

Q-2 A: Attempt any two: [10]

- 1) What do you mean by programming language? Explain various categories of programming languages in detail.
- 2) What is Array? Explain one dimensional Array in C in detail with example.
- 3) What is flowchart? Explain different shapes used to draw it. Also discuss its advantages and limitations.

Q-2 B: Differentiate between break and continue with suitable example. [4]

Q-3 A: Attempt any two: [10]

- 1) Explain following functions with example.
a) strcpy b) strcat c) strcmp
- 2) What is loop? Explain pretest and post test loop with suitable example.
- 3) Explain Typecasting in C with appropriate example.

Q-3 B: What is an Operator? Explain any three categories of Operators in C in detail. [4]

Q-4 Attempt any three of the following: [12]

- 1) Write a C program to check whether a given number N is Armstrong number or not.
- 2) Write a C program to calculate sum of all digits in a given number.
For e.g. if N = 345 then sum = 3 + 4 + 5 = 12.
- 3) Draw a flowchart and write a C program to find the maximum of three numbers. E.g. If input A = 5, B = 6, C = 9 o/p : C is maximum
- 4) Write a program to compare two string without using in built function.