

2311001101010001
EXAMINATION MARCH 2025
B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE)
(NCF-NEP) (FIRST SEMESTER)
MAJOR-104-FUNDAMENTALS OF PROGRAMMING USING
C - I - LEVEL 1

[Time: As Per Schedule]

[Max. Marks: 50]

Instructions:

1. Fill up strictly the following details on your answer book

- a. Name of the Examination : **B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE) (NCF-NEP) (FIRST SEMESTER)**
- b. Name of the Subject : **MAJOR-104-FUNDAMENTALS OF PROGRAMMING USING C - I - LEVEL 1**
- c. Subject Code No : **2311001101010001**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

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Student's Signature

Q.1 Do as directed: (Any ten)

10

- 1) _____ is used to get size of a variable in C.
- 2) _____ is the only ternary operator in C.
- 3) We can pass char type value in a switch statement - True or False.
- 4) _____ statement is used when we want to skip a part of code based on some condition and continuing execution with next iteration.
- 5) _____ is a binary operator which is used to return the remainder of division operation.
- 6) How many times the following loop will run for N = 5?

```
for (i=n; n!=0;i--)  
{  
    Printf ("%d", i);  
}
```
- 7) _____ function in <string.h> is used to compare two strings.
- 8) Define symbolic constant in C.

9) What will be outcome of the following code?

```
#include<stdio.h>
int main()
{
    char s[20]="Hello\0Hi";
    printf("%d %d", strlen(s),sizeof(s));
    return 0;
}
```

10)What is the output for the following code?

```
#include<stdio.h>
int main()
{
    int i=2;
    int j=++i + i;
    printf("%d\n",j);
    return 0;
}
```

11) $x=x+3$ expression can be written as _____ in shorthand notation in C.

Q.2 Attempt any two:

14

- 1) What is a Flowchart? Explain symbols used for drawing a flowchart. Also list advantages of using a flowchart.
- 2) What do you mean by programming language? Explain various categories of programming languages in detail.
- 3) What is Array? Explain declaring, initializing and accessing 1-D array with example.

Q.3 Attempt any two:

14

- 1) What is character array? Differentiate between
 1. strcmp() & strncmp()
 2. strcpy() & strncpy()

3. strcat() & strncat()

- 2) What is loop? Explain pre-test and post-test loop with appropriate example.
- 3) Write a note on: Language Translators.

Q.4 Attempt any three of the following:

12

- 1) Draw a flowchart to check whether a given number N is prime 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) Write a C program to print factorial of integer N entered by user.
- 4) Write a C program to count number of capital letters in a given string.

2311001101030001
EXAMINATION MARCH 2025
B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR
INTEGRATED COURSE)
(NCF-NEP) (FIRST SEMESTER)
MINOR-103-FUNDAMENTALS
OF COMPUTER - LEVEL 3

[Time: As Per Schedule]

[Max. Marks: 50]

Instructions:

1. Fill up strictly the following details on your answer book

- a. Name of the Examination : **B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE) (NCF-NEP) (FIRST SEMESTER)**
- b. Name of the Subject : **MINOR-103-FUNDAMENTALS OF COMPUTER - LEVEL 3**
- c. Subject Code No : **2311001101030001**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

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Student's Signature

Q.1 Answer the following in short (Any 10)

10

1. Explain Data Bus.
2. What is BCD?
3. What is Real time Operating System?
4. Why Linux is called open source?
5. What is a Slide?
6. What is Cache memory?
7. Convert $(76)_{10}$ $(?)_2$
8. List functions of OS.

9. Write shortcut keys for print command in open office.
10. What is Address Bus?
11. What is POS?
12. What is Wi-Fi?

Q.2 Answer in detail (Any 2)

14

1. What is BIOS? What is booting process? Write steps.
2. Write a note on Time sharing operating system.
3. Write a note on input output system.

Q.3 Answer in detail (Any 2)

12

1. Explain components of Linux.
2. Explain Master templates and its reusability
3. Explain RAM and ROM.

Q.4 Answer Any Two

8

1. Explain Hard disk.
2. Explain following commands: wc, mkdir, sudo
3. Write a note on different charts available in open office calc.

Q.5 Answer the following (Any 3).

6

1. $(1522)_{10} = (?)_2$

2. $(5AD)_{16} = (?)_8$

3. $(2124)_8 = (?)_{10}$

4. $(ABC)_{16} = (?)_2$

5. $(BC3.A2)_{16} = (?)_{10}$

2311001101040001
EXAMINATION MARCH 2025
B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE)
(NCF-NEP) (FIRST SEMESTER)
MDC-102-MATHEMATICS - I - LEVEL 4

[Time: As Per Schedule]

[Max. Marks: 50]

Instructions:

1. Fill up strictly the following details on your answer book

a. Name of the Examination : **B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE) (NCF-NEP) (FIRST SEMESTER)**

b. Name of the Subject : **MDC-102-MATHEMATICS - I - LEVEL 4**

c. Subject Code No : **2311001101040001**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.
5. There are four questions in this question paper.

Seat No:

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Student's Signature

Q.1 A. ATTEMPT ANY TWO.

6

1. Define the following terms with an illustration.

1. scalar matrix (2) Diagonal matrix (3) transitive relation

2. If $A = \begin{bmatrix} 2 & 0 & -1 \\ 5 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}$ then express matrix A as the sum of symmetric and skew-symmetric matrix.

3. Show that the relation R defined for a set A of all triangles as

$R = \{(T_1 T_2): T_1 \text{ is similar to } T_2\}$ is an equivalence relation.

B. ATTEMPT ANY TWO.**6**

1. Find the inverse of the matrix $A = \begin{bmatrix} 1 & 2 & -1 \\ -2 & 6 & 3 \\ 0 & -4 & 3 \end{bmatrix}$.
2. If $A = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix}$, $B = [1 \ 3 \ -6]$ then verify that $(AB)^T = B^T A^T$
3. If $A = \begin{bmatrix} 8 & 0 \\ 4 & -2 \\ 3 & 6 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -2 \\ 4 & 2 \\ -5 & 1 \end{bmatrix}$ then find the matrix X , such that $2A + 3B = 5X$.

Q.2 A. ATTEMPT ANY TWO.**6**

1. Let A be a square matrix. Then prove that
 - a) $A + A^T$ is a symmetric matrix.
 - b) $A - A^T$ is skew-symmetric matrix.
 - c) AA^T and $A^T A$ are symmetric matrix.
2. Find the row-equivalent canonical form of $A = \begin{bmatrix} 1 & -2 & 1 \\ 2 & 1 & 1 \\ 0 & 5 & -1 \end{bmatrix}$.
3. Define the following terms with an illustration
 - a) Inverse function
 - b) Onto function
 - c) Many-one function.

B. ATTEMPT ANY TWO.**6**

1. Define congruence relation and prove that congruence relation is equivalence relation.
2. Define multiplication of two matrices and if possible, find the value of

$$(AB)C \text{ and } BA \text{ for } A = \begin{bmatrix} 3 & -2 \\ -1 & 0 \\ 4 & 6 \end{bmatrix} \text{ and } B = \begin{bmatrix} 3 & 4 & 7 \\ -1 & 4 & -3 \end{bmatrix},$$

$$C = \begin{bmatrix} 3 & 2 & -1 \\ 1 & 0 & 4 \\ 5 & -5 & 7 \end{bmatrix}$$

3. If $A = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 3 & 5 \\ 3 & 4 & 2 \end{bmatrix}$ then find 1) $|A|$, 2) $\text{adj } A$, also show that

$$\frac{A \cdot (\text{adj } A)}{|A|} = \frac{(\text{adj } A) \cdot A}{|A|}.$$

Q.3 A. ATTEMPT ANY TWO.

6

1. Write the merits and demerits of Mean and median.
2. Find the Mean, median, mode from the following data.

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	4	6	20	10	7	3

3. If X is Poisson variance such that $P(x = 2) = 9 \cdot P(x = 6)$ then find
i) Parameter ii) coefficient of skewness.

B. ATTEMPT ANY TWO.

6

1. Define conditional probability. Let A and B be two mutually exclusive events such that $P(A) = 0.4$ and $P(B) = 0.3$ then find $P(A'|B')$.
2. Calculate D_8 and P_{60} from the following data.

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	5	12	15	8	5	5

3. Define Geometric mean and find the Geometric mean of given data:
45,60,48,100,65.

Q.4 A. ATTEMPT ANY TWO.

6

1. If a pair of dice is thrown and X denote the sum of numbers obtained on them, then find $E(X)$.
2. For binomial distribution, if $n = 8$ and $10P(X = 4) = P(X = 2)$, then find p .
3. define the following terms I) Random variable
II) Mutually exclusive events
III) Sample space

B. ATTEMPT ANY TWO.**8**

1. 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.
2. Find the geometric mean, D_6 , P_{20} , and P_{100} from the following data.

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	5	8	21	8	5	4

3. For Poisson Distribution, $P(X = 0) = P(X = 1)$, then find $P(X = 2)$ and $P(X = 5)$.

2311001101050001
EXAMINATION MARCH 2025
B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE)
(NCF-NEP) (FIRST SEMESTER)
AEC-101- COMMUNICATION SKILLS IN ENGLISH –
LEVEL 5

[Time: As Per Schedule]

[Max. Marks: 25]

Instructions:

1. Fill up strictly the following details on your answer book

- a. Name of the Examination : **B.SC. (I.T.) (M.SC. (I.T.) 5 YEAR INTEGRATED COURSE) (NCF-NEP) (FIRST SEMESTER)**
 - b. Name of the Subject : **AEC-101- COMMUNICATION SKILLS IN ENGLISH - LEVEL 5**
 - c. Subject Code No : **2311001101050001**
2. Sketch neat and labelled diagram wherever necessary.
 3. Figures to the right indicate full marks of the question.
 4. All questions are compulsory.

Seat No:

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Student's Signature

Q.1 Answer the following questions : (Any 2)

5

1. How are proxemics and chronemics important to communication?
2. Discuss different ways to handle diversity at the workplace.
3. At which phase of listening does understanding start?
4. Why is critical listening important to professionals? Explain with examples.

Q.2 Attempt any 2

10

- 1) Write an email to your client who has asked details about the language lab software.
- 2) Draft a conversation with an employee about the delay in the development of the IT Project.
- 3) Interpret the given news outline: "New Study Finds Plastic Pollution in Remote Ocean Areas."

- 4) Draft a professional introduction to be delivered at an interview for a software developer.

Q.3 Write short notes on (Any 2)

10

1. Importance of speaking skills at workplace
2. Interpersonal skills for Teamwork
3. The 7c's of communication
4. Paragraph on 'Soft skills for IT Industry'

3. Which medical treatment technique is the one of the ancient Indian medicinal technique?
(A) Allopathy (B) Naturopathy
(C) Ayurveda (D) Jivan
4. How many Indian theistic visions are there?
(A) Five (B) Six
(C) Nine (D) Eighteen
5. Which country gave the slogan “Vasudev Kutumbkam” for G-20 Summit?
(A) America (B) France
(C) India (D) Germany
6. Who made this statement 'India is the mother of mankind'?
(A) William Jones (B) Maharishi Aurobindo
(C) Father Wallace (D) American writer Will Durant
7. Which lord is considered as founder of 64 Arts?
(A) Brahma (B) Vishnu
(C) Shiva (D) Kamadeva

Q.2. Write Following Answers (15)

Q.2. (a) Answer in Detail (Any 1 out of 2) (05)

1. Explain the global contribution of Indian knowledge tradition on the basis of mathematics.
2. Explain about Kama Purushartha.

Q.2. (b) Answer in Detail (Any 1 out of 2) (05)

1. Explain metal/metal technology in Indian knowledge tradition.
2. Explain in brief about the ancient universities of India.

Q.2. (c) Write a short note (Any 1 out of 2) (05)

1. India's glorious knowledge tradition.
2. Indian Family Structure

Gujarati Version [Max. Marks: 25]

પ્ર.૧. 7 – MCQ (દરેકનો ૨ માર્ક્સ) (૭ માંથી કોઈ પણ ૫) (10)

1. ખાગોળ વિજ્ઞાનમાં અવકાશના યુગના પિતા તરીકે કોને ગણવામાં આવે છે?

(A) આર્યભટ્ટ (B) વિક્રમ સારાભાઈ

(C) ડૉ. અબ્દુલ કલામ (D) વ્યાસ

2. વાસ્ત્યાયને કયા ગ્રંથની રચના કરી છે?

(A) કામસૂત્ર (B) બ્રહ્મસૂત્ર

(C) વાસ્તુશાસ્ત્ર (D) કલ્પસૂત્ર

3. કઈ તબીબી સારવાર પદ્ધતિ પ્રાચીન ભારતીય ઔષધીય પદ્ધતિઓમાંની એક છે?
- (A) એલોપથી (B) નેચરોપેથી
(C) આયુર્વેદ (D) જીવન
4. ભારતીય આસ્તિક દર્શનો કેટલા છે?
- (A) પાંચ (B) છ
(C) નવ (D) અઠાર
5. કયા દેશે G-20 સમિટ માટે "વસુધૈવ કુટુમ્બકમ"નું સૂત્ર આપ્યું હતું?
- (A) અમેરિકા (B) ફ્રાન્સ
(C) ભારત (D) જર્મની
6. 'ભારત માનવજાતિની માતા છે' આ વિધાન કોણે કર્યું છે?
- (A) વિલિયમ જોન્સ (B) મહર્ષિ અરવિંદો
(C) ફ્રાંચિસ વાલેસ (D) અમેરિકન લેખક બિલ ફુરાંટ
7. કયા દેવને ૬૪ કલાઓના સર્જક માનવામાં આવે છે?
- (A) બ્રહ્મા (B) વિષ્ણુ
(C) શિવ (D) કામદેવ

પ્ર.૨. નીચેના જવાબો લખો (15)

પ્ર.૨. (અ) સવિસ્તાર પ્રશ્ન (૨ માંથી કોઈ પણ ૧) (05)

1. ભારતીય જ્ઞાન પરંપરાનું વૈશ્વિક યોગદાન ગણિતશાસ્ત્રો ના આધારે સમજાવો.
2. કામ પુરુષાર્થ વિશે સમજૂતી આપો.

પ્ર.૨. (બ) સવિસ્તાર પ્રશ્ન (૨ માંથી કોઈ પણ ૧) (05)

1. ભારતીય જ્ઞાન પરંપરામાં મેટલ/ઘાતુ ટેકનોલોજી સમજાવો.
2. ભારતની વિદ્યાપીઠો વિશે ટુંકમાં જણાવો.

પ્ર.૨. (ક) ટૂંકનોંધ લખો (૨ માંથી કોઈ પણ ૧) (05)

1. ગૌરવશાળી ભારતની જ્ઞાન પરંપરા.
2. ભારતીય કુટુંબનું માળખું

***** END *****