

**2311001101010001**  
**EXAMINATION DECEMBER 2024**  
**BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)**  
**(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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: **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) (MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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) What will be output of the following program?

```
int main()
{
    int x=15;
    printf("\n%d %d %d", x != 15, x = 20, x < 30 );
    return 0;
}
```

- 2) default block is compulsory in switch statement. True or False.

- 3) The expression  $x = 4 + 2 \% - 8$  evaluates to \_ \_ \_ \_ \_.

- 4) What will be output of the following code?

```
int main()
{
    int x = 10, y = 20;
    x == 20 && y != 10 ? printf("True") : printf("False");
    return 0;
}
```

5) What will be output of the following code?

```
int main()
{
    int a[5]= {5, 1, 15, 20, 25 };
    int i, j, k = 1, m;
    i = ++a[1];
    j = a[1]++;
    m = a[i++];
    printf("\n%d %d %d", i, j, m); return 0;
}
```

6) \_\_\_\_\_ character is appended at the end of the string for terminating the string.

7) What is the difference between the 5's in these two expressions?

```
int num[5];
num[5] = 11;
```

8) In the statement `int a[5] = {2, 11, 4};` the remaining 2 elements `a[3]` and `a[4]` will have the values

- (A) 0,0                      (B) Garbage, Garbage  
(C) -1, -1                  (D) Statement gives error

9) If an integer occupies 2 bytes, what will be range of signed integer?

10) What is difference between `&` and `&&` operator in C.

11) Point out error in the following code.

```
int main()
{
    int n = 9;
    (n == 9 ? printf("You are correct"); printf("You are wrong" ) );
    return 0;
}
```

**Q.2 (A) Attempt any two:**

**[10]**

- 1) What is Loop? Explain nested loop with appropriate example.
- 2) Write a note on problem solving methodology
- 3) Explain Nested If and switch case statement with example.

**(B) Differentiate between break and continue statement with appropriate example.**

**[4]**

**Q.3 (A) Attempt any two:**

**[10]**

- 1) What is character array? Explain any four string function in C with example.
- 2) What is an algorithm? List out characteristics of a good algorithm. Also discuss how it can be converted into a flowchart with an example.
- 3) Write a note on Compiler and Interpreter in detail.

**(B)** What is jumping? Explain forward jumping and backward jumping with an example.

**[4]**

**Q.4 Attempt any three of the following:**

**[12]**

- 1) Write a C Program to find out positive, negative, even and odd numbers in the array of 25 integers.
- 2) Write a C program to reverse a string without using any in built function.  
E.g. I/p: Hello            O/p: olleH
- 3) Write a C Program to sort an array of 10 integers.
- 4) Write a C Program to check whether a given number is prime or not.

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**2311001101030001**  
**EXAMINATION DECEMBER 2024**  
**BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)**  
**(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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 : **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) (MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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. What is primary memory?
2. What is a binary number?
3. Differentiate: Single user and Multiuser System.
4. List out various Linux operating system.
5. What is transition?
6. What is DVD?
7. Convert  $(55)_{10} = (?)_2$
8. What is EEPROM?
9. How to protect an open office file?
10. What is Port?
11. What is System Software?
12. What is Hotspot?

**Q.2 Answer in detail (Any 2) 14**

1. Write a note on computer software.
2. Explain in detail single processor and multi-processor system.
3. Write a note on storage devices.

**Q.3 Answer in detail (Any 2) 12**

1. What is Linux operating system? Write Features of Linux
2. Write a note on slide transition.
3. Discuss Printers.

**Q.4 Answer Any Two 8**

1. Explain How to connect Internet via Hotspot and Wi-Fi?
2. Explain following commands: who, chmod, wc.
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.  $(3AD)_{16} = (?)_8$
3.  $(2325)_8 = (?)_{10}$
4.  $(DAC)_{16} = (?)_2$
5.  $(CA2.B3)_{16} = (?)_{10}$

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**2311001101040001**  
**EXAMINATION DECEMBER 2024**  
**BACHELOR OF SCIENCE (INFORMATION**  
**TECHNOLOGY) (MASTER OF SCIENCE**  
**(INFORMATION TECHNOLOGY) 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: **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) (MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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) Identity matrix (2) skew symmetric matrix (3) Transpose of a matrix.
2. If  $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ , then show that  $A^2 - (a + d)A = (bc - ad)I$ .
3. Find the value of  $5^2 + 6^2 + 7^2 + 8^2 + 9^2 + \dots + 16^2$ .

**B. ATTEMPT ANY TWO.**

**6**

1. Find the inverse of the matrix  $A = \begin{bmatrix} 5 & 6 & 9 \\ 4 & 3 & 8 \\ 9 & 4 & 3 \end{bmatrix}$  using elementary row transformation.

2. Show that the matrices  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$  and  $B = \begin{bmatrix} 6 & 4 \\ 5 & 11 \end{bmatrix}$  are commutative.
3. Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  be a function defined as  $f(x) = 2x + 1$  and  $g: \mathbb{R} \rightarrow \mathbb{R}$  defined as  $g(x) = x^2$  then find  $(f \circ g)$  and  $(g \circ f)$ .

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

**6**

1. Solve the system of linear equations.

$$\begin{aligned} x + 3y - 2z &= 0 \\ 2x - y + 4z &= 0 \\ x - 11y + 14z &= 0 \end{aligned}$$

2. Find  $5^2 + 6^2 + 7^2 + 8^2 + \dots + 14^2$ .
3. For  $A = \{1,2,3\}$  and  $B = \{5,8,10\}$ , if  $R = \{(1,5), (1,8), (2,8), (2,10), (3,8)\}$  and  $S = \{(1,8), (2,10), (3,8)\}$  then evaluate (i)  $R'$ , (ii)  $R \cap S$ , (iii)  $R \cup S$ , (iv)  $R^{-1}$ .

**B. ATTEMPT ANY TWO.**

**6**

1. Solve the system of linear equations:

$$\begin{aligned} x + y - 2z &= 3 \\ 3x + y - z &= 8 \\ 2x - y + z &= 0 \end{aligned}$$

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

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

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

**Q.3 A. ATTEMPT ANY TWO.****6**

1. If  $X$  is Poisson variance such that  $P(x = 2) = 9$ .  $P(x = 6)$  then find i) Parameter ii) coefficient of skewness.
2. Find the Mean, median, mode from the following data.

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

3. A bag containing 9 discs of which 4 are red, 3 are blue, 2 are yellow. The discs are similar in size and shape. A disc is drawn random from the bag. Calculate probability that it will be  
(I) Blue                      (II) Not blue                      (III) Either blue or red

**B. ATTEMPT ANY TWO.****6**

1. Find Harmonic mean.

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

2. 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  $P(A' \cap B)$ .
3. For Poisson distribution if  $P(x = 1) = P(x = 4)$  then find  $P(x \leq 1)$ .

**Q.4 A. ATTEMPT ANY TWO.****6**

1. If  $A, B, C$  are three events defined on sample space such that,  
 $P(A) = P(C) = \frac{1}{3}$ ,  $P(B) = \frac{1}{4}$ ,  $P(A \cap C) = P(B \cap C) = 0$  then find 1)  $P(A \cap B')$ , 2)  $P(A' \cap B)$ , 3)  $P(A \cup B)$ , 4)  $P(A' \cap B' \cap C')$
2. State the probability function of binomial distribution and obtain its variance.
3. Let  $X \sim B(n, p)$  then  
I) if  $p = 0.6$ ,  $E(x) = 6$  then find  $n$  and  $var(x)$ .  
II) if  $n = 25$ ,  $var(x) = 6$  then find  $E(x)$  and  $p$ .

**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. For the following data

X	0	1	2	3
P(x)	4k	8k	k	14k

Find: I) constant k

II) probability for  $x = 3$ 

3. Calculate coefficient of variation from the following data

Age(in years)	0-9	10-19	20-29	30-39	40-49	50-59
No. of persons	13	38	67	76	22	4

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**2311001101050001**  
**EXAMINATION DECEMBER 2024**  
**BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)**  
**(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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 : **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) (MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 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

<b>Q.1</b>	<b>Answer the following questions: (Any 2)</b> <ol style="list-style-type: none"> <li>1 Explain the different communication skills in english.</li> <li>2 How does communication help in team-building? - Elaborate.</li> <li>3 Discuss the Business etiquette of Japan and UK.</li> <li>4 'Listening precedes speaking' - Substantiate.</li> </ol>	<b>5</b>
<b>Q.2</b>	<b>Attempt any 2</b> <ol style="list-style-type: none"> <li>1. Write an email to your team leader requesting him/her to extend the deadline of the project.</li> <li>2. Draft a conversation with a client about the new IT software developed for their firm.</li> <li>3. Interpret the given news headline: "<u>New Vaccine Shows Promise against Emerging Virus Strain.</u>"</li> </ol>	<b>10</b>
<b>Q.3</b>	<b>Write short notes on :(Any 2)</b> <ol style="list-style-type: none"> <li>1. Interpersonal and Intra personal skills with examples</li> <li>2. Ways to highlight your public speaking skills in your resume.</li> <li>3. Role of Emotions in communication.</li> <li>4. Writing skills for a culturally different audience with examples.</li> </ol>	<b>10</b>

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**2311001101070001**  
**EXAMINATION NOV-DEC - 2024**  
**BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)**  
**(MASTER OF SCIENCE (INFORMATION TECHNOLOGY)**  
**5 YEAR INTEGRATED COURSE) (NCF\_NEP)**  
**(FIRST SEMESTER)**  
**VAC-IKS-BHARATIYA KNOWLEDGE SYSTEMS -**  
**AN INTRODUCTION - LEVEL 7**

[Time: As Per Schedule]

[Max. Marks: 25]

**Instructions:**

1. नीचे दशविव विगतो उत्तरवडी पर अवश्य लखवी.

Fill up strictly the following details on your answer book

- a. Name of the examination : B.SC. (IT) (M.SC. (IT))  
(NCF\_NEP) (SEM. I)  
b. Name of the Subject : VAC-IKS-BHARATIYA  
KNOWLEDGE SYSTEMS - AN INTRODUCTION -  
LEVEL 7  
c. Subject Code No : 2311001101070001  
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

**English Version**

[Max. Marks: 25]

**Q.1. 7 – MCQ (2 Marks each) (Any 5 out of 7) (10)**

1. What is India's contribution to world from the costal route and trading?  
(A) Science (B) Spirituality  
(C) Art (D) Agriculture
2. What is the ultimate goal in the Hindu tradition?  
(A) Kama (B) Artha  
(C) Moksha (D) Both A and B
3. Which country gave the slogan "Vasudev Kutumbkam" for G-20 Summit?  
(A) America (B) France  
(C) India (D) Germany

4. How many types of Vidyas does Maharshi Bhrigu refer to?  
(A) 14 (B) 18  
(C) 32 (D) 64
5. Who is well known Jyotishi (Astrologer) among all?  
(A) AAryabhata (B) Vangabhata  
(C) Chanakya (D) Vrahamihir
6. According to the Indian knowledge tradition, which city is a living machine and is considered the center of the cosmic structure?  
(A) Mathura (B) Kashi  
(C) Dwarika (D) Surat
7. What is the sixth century age of India called?  
(A) Adhunik Age (B) Samprat Age  
(C) Golden Age (D) Dharmayug

**Q.2. Write Following Answers (15)**

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

1. Briefly tell about Taxila Vidyapeeth.
2. Explain the history of Indian education system.

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

1. "India is the mother of mankind?" Explain this statement.
2. Explain about Moksha Purushartha.

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

1. A tradition in Indian culture.
2. Indian Concept on the Birth Cycle

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પ્ર.૧.

7 – MCQ (દરેકનો ૨ માર્ક્સ) (૭ માંથી કોઈ પણ ૫)

(10)

1. દરિયાઈ માર્ગ અને વેપાર દ્વારા વિશ્વમાં ભારતનું યોગદાન કયા ક્ષેત્રમાં છે?
 

(A) વિજ્ઞાન	(B) આધ્યાત્મિકતા
(C) કલા	(D) કૃષિ
2. હિંદુ પરંપરામાં અંતિમ લક્ષ્ય શું છે?
 

(A) કામ	(B) અર્થ
(C) મોક્ષ	(D) A અને B બન્ને
3. કયા દેશે G-20 સમિટ માટે "વસુધૈવ કુટુમ્બકમ"નું સૂત્ર આપ્યું હતું?
 

(A) અમેરિકા	(B) ફ્રાન્સ
(C) ભારત	(D) જર્મની
4. મહર્ષિ ભૃગુ કેટલા પ્રકારની વિદ્યાઓનો ઉલ્લેખ કરે છે?
 

(A) 14	(B) 18
(C) 32	(D) 64
5. આ બધામાં જાણીતા જ્યોતિષ આચાર્ય કોણ છે?
 

(A) આર્યભટ્ટ	(B) વાંગભટ્ટ
(C) ચાણક્ય	(D) વરાહ મિહિર
6. ભારતીય જ્ઞાનપરંપરા મુજબ કયું શહેર એક જીવંત યંત્ર છે, અને બ્રહ્માંડીય સંરચનાને બંધ બેસતું છે?
 

(A) મથુરા	(B) કાશી
(C) દ્વારિકા	(D) સુરત
7. ભારતની છઠ્ઠી સદીના યુગને શું કહેવામાં આવે છે?
 

(A) આધુનિક યુગ	(B) સાંપ્રત યુગ
(C) સુવર્ણ યુગ	(D) ધર્મયુગ

- પ્ર.૨. નીચેના જવાબો લખો (15)
- પ્ર.૨. (અ) સવિસ્તાર પ્રશ્ન (૨ માંથી કોઈ પણ ૧) (05)
1. તક્ષશિલા વિદ્યાપીઠ વિશે ટૂંકમાં જણાવો.
  2. ભારતીય શિક્ષણ પ્રણાલીનો અર્વાચીન્ ઇતિહાસ સમજાવો.
- પ્ર.૨. (બ) સવિસ્તાર પ્રશ્ન (૨ માંથી કોઈ પણ ૧) (05)
1. “ભારત માનવજાતિની માતા છે?” આ વિધાન સમજાવો.
  2. મોક્ષ પુરૂષાર્થ વિશે સમજૂતી આપો.
- પ્ર.૨. (ક) ટૂંકનોંધ લખો (૨ માંથી કોઈ પણ ૧) (05)
1. ભારતીય સંસ્કૃતિમાં રહેલી પરંપરા.
  2. જન્મચક્ર વિશે ભારતીય વિચાર

\*\*\*\*\* END \*\*\*\*\*