

2411001102010001
EXAMINATION FEBRUARY-MARCH 2024
B.SC. (I. T.) (M.SC.(I.T.) 5 YEAR INTEGRATED COURSE)
(SECOND SEMESTER) (NEP)
MAJOR-1 FUNDAMENTAL OF PROGRAMMING
USING C – II-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) (SECOND SEMESTER) (NEP)**
 - b. Name of the Subject :**MAJOR-1 FUNDAMENTAL OF PROGRAMMING USING C – II - LEVEL 1**
 - c. Subject Code No : **2411001102010001**
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 Attempt any Ten

10

- 1) Write a syntax to create array of pointers.
- 2) How do we declare a pointer to a pointer?
- 3) What is the difference between `int *a[5];` and `int (*a)[5];` ?
- 4) _____ is used to release allocated memory in C.
- 5) What is the use of `rewind ()`?
- 6) _____ is used to declare a Macro in C.
- 7) The size of the union variable is the total number bytes occupied by all the Union members. (True or False)

8) Which of the following statements are invalid for pointer operations on a pointer *P1?
A) P1- P2 B) P1+1
C) P1>P2 D) P1-2

9) Which of the following operator is called indirection operator?
A) % B) *
C) + D) /

10) What will be output of the following code?

```
#include <stdio.h>
int main()
{
    int arr[5]={ 10,20,30,40,50};
    int *p=arr;
    printf("%d",*p);
    return 0;
}
```

11) Which of the following statements is true.

1. ++(*ptr) increments the value pointed by ptr.
2. *(ptr++) evaluates the value currently pointed by ptr and increments the value of ptr.

12) Bit fields can be declared as part of a structure only. (True/False)

Q.2 (A): Answer following questions (Any Two)

10

- 1) Explain fopen() with different File opening modes.
- 2) What is a Structure? Explain creating, declaring, initializing and accessing a structure with an appropriate example. How is it different from Union?
- 3) Write a note on Dynamic Memory allocation.

- Q.2 (B): Answer following question (Any One) 4**
- 1) Explain slack byte and bit field in C.
 - 2) Differentiate between call by value & call by reference
- Q.3 (A): Answer following questions: (Any Two) 10**
- 1) Explain storage classes in C with example.
 - 2) What is pre-processing? How it can be accomplished in C? Explain conditional compilation in C with proper example.
 - 3) Explain recursion with example.
- Q.3 (B): Answer following questions: (Any One) 4**
- 1) Write a note on: Function pointer
 - 2) Write a note on command line arguments in C.
- Q.4 Attempt any three of the following: 12**
- 1) Write user-defined function to calculate factorial of an integer using recursion.
 - 2) Write C program to create a structure Student with members Roll No, Name, Percentage. Read at least 5 records and display the records.
 - 3) Write C program to copy content of one text file into another text file.
 - 4) Write user defined function to calculate length of a string using pointer.

2411001102030001
EXAMINATION FEBRUARY-MARCH 2024
B. SC. (I. T.) (M. SC. (I. T.) 5 YEAR INTEGRATED COURSE)
(SECOND SEMESTER) (NEP)
MINOR-INTRODUCTION TO DBMS - 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) (SECOND SEMESTER) (NEP)**
 - b) Name of the Subject: **MINOR-INTRODUCTION TO DBMS LEVEL 3**
 - c) Subject Code No: **2411001102030001**
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 in Short (Any 10)

10

1. What is composite attribute?
2. Explain replace() string function.
3. What do you mean by Mapping Cardinality?
4. What is Big Data?
5. Define: Data Models.
6. Define: Schema & Instance
7. What is Data Redundancy?
8. What is weak entity set?
9. What is Transaction?
10. Write the difference between DROP & DELETE.
11. What is FLOOR() function?
12. What will be the output for following query?
Select max(salary) from employee group by depname;

Q.2 [A] Attempt the following (Any 2)

10

1. Write a Short note on: Database Languages.
2. Draw an ER Model for Online Library Management System.
3. Explain Specialization and Generalization with proper example.

[B] Explain in detail ACID properties of transaction. **4**

Q.3 [A] Attempt the following (Any 2) 10

1. Discuss NoSQL database in detail.
2. List out various Aggregate function. Explain any four with proper examples.
3. Explain various datatypes of MySQL.

[B] Discuss limitations of Traditional File Management System. **4**

Q.4 Attempt the following (Any 3) 12

1. **Explain in short:**

- a) MongoDB
- b) Distributed Database

2. Explain Primary Key & Foreign Key with Example.

3. Consider table Employee (empid, ename, hiredate, salary, comm, deptno).

- a) List department-wise maximum salary.
- b) Increase salary by 5000 whose deptno is 35.

4. Consider table Employee (empid, ename, hiredate, salary, comm, deptno).

- a) Write a query to display details of employees whose name starts with 'N' and ends with 'a'.
- b) Write a query to delete employees who works deptno 30.

2411001102040001
EXAMINATION MARCH-APRIL 2024
B. SC. (I. T.) (M. SC. (I. T.) 5 YEAR INTEGRATED
COURSE) (SECOND SEMESTER) (NEP)
MDC-MATHEMATICS - II - 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) (SECOND SEMESTER) (NEP)**
 - b. Name of the Subject : **MDC-MATHEMATICS - II - LEVEL 4**
 - c. Subject Code No : **2411001102040001**
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 five questions in this questions paper

Seat No:

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Student's Signature

Q.1 Attempt any seven.

10

- | | |
|-------------------|---------------------|
| 1. Eccentricity | 5. Circuit |
| 2. Finite graph | 6. Branch |
| 3. Pendent Vertex | 7. Walk |
| 4. Complete graph | 8. Non-planar graph |

Q.2 (a) Prove that a given connected graph G is an Euler graph iff all vertices of G Are of even degree.

4

OR

(a) Prove that in a complete graph with $n(\geq 3)$ vertices, there are $(n - 1)/2$ edge Disjoint Hamiltonian circuits where n is an odd number.

(b) Attempt any Two. **6**

1. State the necessary conditions for two graphs to be isomorphic.
2. Discuss utilities problem.
3. Using an example prove that intersection of graphs is commutative.

Q.3 (a) What is the minimum possible height of an n - vertex binary tree? **4**

OR

(a) Can you construct a graph if you are given all its spanning trees? How?

(b) Attempt any Two. **6**

1. Show that the distance between vertices of a connected graph is a metric.
2. Prove that if a tree has two centers then those two centers must be adjacent.
3. Prove that any circuit in a graph G must have at least one edge in common

With a chord set.

Q.4 (a) Prove that a simple graph with n vertices and k components can have at most $(n - k)(n - k + 1)/2$ edges. **4**

OR

(a) State and prove Euler's formula.

(b) Attempt any Two. **6**

1. Discuss the Seating Problem.
2. Draw simple graph with one, two, three and four vertices.
3. Draw and discuss the Kuratowski's graphs.

Q.5 (a) Prove that Kuratowski's second graph is non-planar.

4

OR

(a) Prove that Kuratowski's first graph is non-planar.

(b) Attempt any Two.

6

1. Sketch all the spanning tree of the following graph. Also for one of them, show that rank and nullity theorem holds.



2. Discuss observations about path matrix.
3. Discuss observations about adjacency matrix.

2411001102050001
EXAMINATION FEBRUARY-MARCH 2024
B. SC. (I. T.) (M. SC. (I. T.) 5 YEAR INTEGRATED COURSE)
(SECOND SEMESTER) (NEP)
AEC-BUSINESS COMMUNICATION SKILLS IN ENGLISH -
LEVEL 5

[Time: As Per Schedule]

[Max. Marks: 25]

Instructions:

- 1. 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) (SECOND SEMESTER) (NEP)**
 - b. Name of the Subject: **AEC-BUSINESS COMMUNICATION SKILLS IN ENGLISH - LEVEL 5**
 - c. Subject Code No: **2411001102050001**
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 Draft a conversation on any one of the following **5**

- A. Draft a meaningful conversation between the team leader and team members regarding the use of an emerging technology for a project.
- B. Draft a meaningful conversation between the web-designer and the client regarding the requirements for a new website.

Q.2 A) Answer the following questions (Any one) **5**

1. Discuss the five major persuasive strategies in business with examples.
2. Which points will you keep in mind while drafting the web-content. Explain with an example.

5

B) Give 3 expressions each:

1. Initiating a group discussion
2. Emphasizing important points in a presentation and summarizing the presentation

Q.3 A) Give the meanings of the following Business idioms and use them in sentences. 5

1. Go the extra mile
2. On the same page
3. Raise the bar

5

B) Draft E-Content for the website: (Any 2)

1. Website selling computer accessories
2. Website selling smartphones
3. Website dealing in sale of laptops

2411001102070001

Examination March-April - 2024

Bachelor of Science (IT) / Master of Science (IT) (NEP)

5 Year Integrated Course (Second Semester)

VAC-Value Education in Bharatiya Knowledge System -
Level 7

[Time: As Per Schedule]

[Max. Marks: 25]

Instructions:

1. નીચે દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.

Fill up strictly the following details on your answer book

- Name of the examination : **B.Sc. (IT) / M.Sc. (IT) (Sem. II)**
 - Name of the Subject : **VAC-Value Education in Bharatiya Knowledge System - Level 7**
 - Subject Code No : **2411001102070001**
- Sketch neat and labelled diagram wherever necessary
 - Figures to the right indicate full marks of the question.
 - All questions are compulsory.

Seat No:

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Student's Signature

પ્ર.૧. (અ) 8 – MCQ (દરેકનો ૧ માર્કસ) (૮ માંથી કોઈ પણ ૬)

(06)

Q.1. (A) 8 – MCQ (1 Mark each) (Any 6 out of 8)

1. શિયાળનું શરીર વાદળી રંગમાં કેવી રીતે રંગાઈ ગયું?

How did the jackal's body get dyed in blue color?

(A) તે નદીમાં પડી

It fell into a river

(B) તે કાદવના ખાબોચિયામાં વળેલું હતું

It rolled in a mud puddle

(C) તે વાદળી રંગના પીપમાં ફૂટી ગયો

It jumped into a vat of blue dye

(D) તે પોતાને વાદળી રંગ થી દોરે છે

It painted itself with blue paint

2. ત્રીજા ધુતારા એ બકરી શું હોવાનો દાવો કર્યો?

What did the third crook claim the goat to be?

(A) એક કૂતરો

(B) મૃત વાછરડું

A dog

A dead calf

(C) ગધેડો

(D) એક પવિત્ર ગાય

A donkey

A sacred cow

3. सत्यकामना गुरु कोण हता?

Who was the Guru of Satyakama?

(A) गौतम

(B) उद्दालक

Gautama

Uddalaka

(C) भारद्वाज

(D) विश्वामिता

Bhardwaja

Vishvamita

4. उद्दालक अश्वेतकेतुने योग्य दिशां मार्गदर्शन आपवा माटे शुं सूचव्युं?

What did Uddalaka suggest to guide Shvetaketu in the right direction?

(A) तेने तीर्थयात्रा पर मोकलो

Send him on a pilgrimage

(B) तेने लग्न करवा प्रोत्साहित करो

Encourage him to marry

(C) ज्ञानकार गुरुनी नीचे अभ्यास करो

Study under a knowledgeable guru

(D) सभत शारीरिक व्यायाममां व्यस्त रहे

Engage in rigorous physical exercises

5. राजा अने लाकडा अकत्र करती स्त्रीने पहली वार जंगलमां केवी रीते मळ्या?

How did the king and the firewood woman first meet in the forest?

(A) जंगलनी शोधण करती वप्तते राजाने ते अन्यासे मळी हती.

The king stumbled upon her while exploring the woods.

(B) स्त्री मडड मांगवा माटे राजा पासे पहोयी.

The woman approached the king to seek help.

(C) राजा अने तेना गावना अवाजने अनुसर्यो.

The king followed the sound of her singing.

(D) तेयो बालपणना मित्रो हता जेयो जंगलमां इरी लेगा थया हता.

They were childhood friends reunited in the forest.

6. મંત્રી એ તપાસ કરતાં ઘોડાની તબિયત વિશે શું જાણવા મળ્યું?

What did the minister find out about the horse's health when he investigated?

(A) ઘોડો બીમાર હતો અને તેને તબીબી સારવારની જરૂર હતી.

The horse was sick and needed medical attention.

(B) ઘોડો સંપૂર્ણ સ્વસ્થ હતો.

The horse was perfectly healthy.

(C) ઘોડાને નાની ઈજા હતી જેને સારવારની જરૂર હતી.

The horse had a minor injury that required treatment.

(D) ઘોડો ગંભીર બીમારીથી પીડાતો હતો.

The horse was suffering from a serious illness.

7. શિયાળ ને ખોરાકની શોધમાં ગામમાં પ્રવેશવાનું કારણ શું હતું?

What led the jackal to enter the village in search of food?

(A) મિત્રો બનાવવાની ઇચ્છા

(B) ભારે ભૂખ

A desire to make friends

Extreme hunger

(C) ગામ વિશે જિજ્ઞાસા

(D) આશ્રય માટે શોધ

Curiosity about the village

A search for shelter

8. ગુરુએ તે શબ્દો જાહેર કર્યા તે ક્ષણે સત્યકામ માટે શું વાસ્તવિકતા બની?

What became a reality for Satyakama at the moment the Master declared those words?

(A) શ્રીમંત જમીન માલિક બનવું

Becoming a wealthy landowner

(B) તેની ઓળખ ગુમાવવી

Losing his identity

(C) જંગલમાં ખ્યાતિ મેળવવી

Gaining fame in the forest

(D) સાંસારિક જીવન જીવવું

Living a mundane life

પ્ર.૧. (બ) ટૂંકનોંધ લખો (૨ માંથી કોઈ પણ ૧) (04)

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

1. અસ્તેય

Abstinence from theft

2. તપ

Austerity

પ્ર.૨. (અ) સવિસ્તાર પ્રશ્ન (૨ માંથી કોઈ પણ ૧) (09)

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

1. ઉત્તમ બુદ્ધિવાળા અને ઉત્તમ વિજ્ઞાનવાળા મનુષ્ય પોતાનાથી વધુ બુદ્ધિશાળી શત્રુઓને પણ પરાજિત કરી શકે છે. ઉપરોક્ત વિધાનની ચર્ચા ત્રણ ધુતારા અને બ્રાહ્મણ' ના સંદર્ભમાં કરો

"Humans with great intelligence and excellent science can defeat enemies who are more intelligent than themselves". Discuss the above statement with reference to The Brahmin and the Crooks'

2. પંચતંત્ર ની વાર્તાઓમાં પ્રગટ થતા સમાજચિત્ર વિશે નોંધ લખો.

Write a note on the social life as depicted in the stories of the Panchatantra.

પ્ર.૨. (બ) સુભાષિત સમજાવો (૪ માંથી કોઈ પણ ૨) (06)

Q.2. (B) Explain Subhashit (Any 2 out of 4)

1. કુલસ્યાર્થે ત્યજેદેકમ્ ગ્રામ્સ્યાર્થે કુલંત્યજ્યેત્।
ગ્રામં જનપદસ્યાર્થે આત્માર્થે પૃથિવીં ત્યજેત્॥

2. નમન્તિ ફલિનો વૃક્ષાઃ, નમન્તિ ગુણિનો જનાઃ।
શુષ્ક કાષ્ઠશ્ચ મૂર્ખશ્ચ, ન નમન્તિ કદાચન્॥

3. સત્યં બ્રૂયાત્ પ્રિયં બ્રૂયાત્, ન બ્રૂયાત્ સત્યમ્ અપ્રિયમ્।
પ્રિયં ચ નાનૃતમ્ બ્રૂયાત્, એષ ધર્મઃ સનાતનઃ॥

4. અયં નિજઃ પરો વૈતિ ગણના લઘુ ચેતસામ્।
ઉદારચરિતાનાં તુ વસુધૈવ કુટુમ્બકમ્॥