

2411001103010001
EXAMINATION DECEMBER 2024
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)
(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 5
YEAR INTEGRATED COURSE) (NCF_NEP)
(THIRD SEMESTER)
MAJOR-1-DATA STRUCTURES - 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) (THIRD SEMESTER)**
 - b. Name of the Subject: **MAJOR-1-DATA STRUCTURES - LEVEL 1**
 - c. Subject Code No: **2411001103010001**
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 [A] Define the following terms [Any Five]

5

- (1) Double Pointer
- (2) Skew in Hashing
- (3) POP operation
- (4) Time Complexity
- (5) Column major order
- (6) Degree of a node

[B] Answer following questions in short [Any Five]

5

- (1) Convert $C + J * K / J$ into postfix without using stack method.
- (2) What is left ary binary tree?
- (3) What is zig-zig case in splay tree?
- (4) What is the task of malloc function?
- (5) How to count total number of nodes in binary tree?
- (6) Why stack works in LIFO manner?

Q.2 [A] Answer the following questions in detail [Any Two] 10

- (1) Write an algorithm for insert a node by position number in doubly linked list.
- (2) What is the hashing technique? Explain hashing with example of hash function and distribution of key value to bucket addresses.
- (3) What is an AVL tree? Explain LR and RL case with an example.

[B] Answer the following questions in brief [Any Two] 6

- (1) Create the max heap tree for values: 5, 10, 20, 2, 1,6
- (2) Write an algorithm for simple queue deletion.
- (3) Perform shell sort on following values: 10, 30, 40, 35, 63, 18

Q.3 [A] Answer the following questions in detail [Any Two] 10

- (1) Create a splay tree for these values: 30, 100, 20, 10, 60, 5, 25, 80, 35
- (2) What is a priority queue? Write an algorithm to insert data in multiple priority queue.
- (3) Convert this infix expression into postfix notation with stack method.
 $(C+K) - (L+K/T*V)/G *N$

[B] Answer the following questions in brief [Any Two] 6

- (1) What is hash table? How to resolve hash collision?
- (2) Evaluate this postfix expression: 15, 10, +, 4, *, 5, /
- (3) Write simple steps to display all node values from last to first in doubly linked list

Q.4 [A] What is a binary search? Search 30 from following set of values: 10, 20, 30, 40, 60, 70, 80, 90, 100. Show all steps. 5

OR

[A] Explain linked storage and threaded binary storage representation.

[B] How to solve tower of hanoi 3-disc problem with 3 tower? 3

OR

[B] What is Big-Oh notation? Which algorithm of sorting gives minimum time execution?

2411001103040001
EXAMINATION DECEMBER 2024
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)
(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 5
YEAR INTEGRATED COURSE)(NCF-NEP)(THIRD SEMESTER)
MDC-FUNDAMENTAL OF ELECTRONICS - 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) (THIRD SEMESTER)**
- b. Name of the Subject: **MDC-FUNDAMENTAL OF ELECTRONICS - LEVEL 4**
- c. Subject Code No: **2411001103040001**

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.

10

[A] Define the following terms [Any Five]

5

- (1) "ONE WATT"
- (2) "ONE HERTZ"
- (3) "MUTUAL INDUCTANCE"
- (4) "PERMEABILITY"
- (5) "CAPACITANCE"
- (6) "CONDUCTOR"

[B] Answer following questions in short [Any Five]

5

- 1) _____ ohm is the resistance value for resistor color band "green, green, red, yellow, silver"
- 2) What is the usage of amplifier?
- 3) In semiconductor _____ valance electrons are in the valance orbit.
- 4) What is the full form of "MOSFET"?

- 5) _____ is the majority charge carrier in N-Type extrinsic semiconductor.
- 6) What is the Boolean equation of Exclusive- OR (X-OR) gate?

Q.2 Answer the following questions in detail 16

[A] Answer the following questions in detail [Any Two] 10

- 1) Write short note on Full wave rectifier.
- 2) Why NAND gate and NOR gate is called as universal gate?
- 3) Explain Common Emitter transistor configured circuit in detail.

[B] Answer the following questions in brief [Any Two] 6

- 1) What is ohm's law?
- 2) Describe Bubbled AND gate in detail.
- 3) Explain and kirchoff's voltage law with the help of necessary circuit diagram and equations.

Q.3 Answer the following questions in detail 16

[A] Answer the following questions in detail [Any Two] 10

- 1) Write short note on SR flip flop
- 2) Explain Parallel input serial output shift register with the help of necessary circuit diagram, timing diagram and example
- 3) Explain internal structure of PN junction diode and its Reverse biased characteristics.

[B] Answer the following questions in brief [Any Two] 6

- 1) Draw circuit diagram of 16 to 1 multiplexer.
- 2) Write short note on light emitting diode (LED).
- 3) Explain AND gate.

Q.4 Answer the following questions in detail 8

[A] Draw and explain Asynchronous Up-counter circuit with the help of necessary Timing diagram and Truth table. 5

OR

- [A] Write short note on Karnaugh-map(K-MAP) with the help of example **5**
- [B] Explain product of sum concept with the help of Example **3**

OR

- [B] Explain half adder concept with the help of necessary circuit diagram and Truth table. **3**

2411001103050001
EXAMINATION DECEMBER 2024
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)
(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 5
YEAR INTEGRATED COURSE) (NCF_NEP) (THIRD SEMESTER)
AEC-IT BUSINESS COMMUNICATION - I - 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) (THIRD SEMESTER)**
 - b. Name of the Subject : **AEC-IT BUSINESS COMMUNICATION - I - LEVEL 5**
 - c. Subject Code No : **2411001103050001**
2. Sketch neat and labelled diagram wherever necessary.
 3. Figures to the right indicate full marks of the question.
 4. All questions are compulsory.

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Student's Signature

Q.1 Answer the following Questions (Any 2)

10

1. Which traits are assessed by the organizations in a group discussion?
2. List the expressions used for keeping the discussion on track during a meeting.
3. State the different ways of denying requests to the clients in a polite way.
4. Discuss the major essentials to develop Professional work ethics.

Q.2 Attempt any 2 of the following:

10

1. Based on the given scenarios draft the major points of discussion during a meeting.
 - (a) Giving information about a new start-up
 - (b) Addressing the issues related to automation
2. Draft a conversation between the web-designer and the client for his requirement regarding the new web-site.
3. Draft a Group-discussion on the given topic:-
Gender Justice: Addressing the Equality challenge at the workplace.

Memo

FROM: Chief Information Officer

TO: All staff

DATE: 16th June, 2024

SUBJECT: IT Security

As you know, many new staff have joined us at XBM Digital recently, so now is a good time for a reminder about some of our rules. Security is important, and these rules will help us to keep our IT systems and data secure.

Firstly, passwords are important for keeping the network secure. Don't use common words or numbers as passwords, such as birthdays or names of your children. Passwords must be alphanumeric and be at least eight characters long. You need to change your password every month or more frequently. Also, you should not share it with anyone, including your colleagues.

1. Person in charge of IT:- _____
2. Information such as numbers and details about people:- _____
3. A group of connected computers:- _____
4. Having only letters and numbers:- _____
5. People you work with:- _____

2411001103060001
EXAMINATION DECEMBER 2024
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)
(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 5
YEAR INTEGRATED COURSE) (NCF_NEP)
(THIRD SEMESTER)
SEC-COMPUTER NETWORK - LEVEL 6

[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) (THIRD SEMESTER)**
- b. Name of the Subject : **SEC-COMPUTER NETWORK - LEVEL 6**
- c. Subject Code No : **2411001103060001**

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 following questions (Any three)

21

- a. Discuss satellite communication in detail.
- b. Discuss components of data communication. Explain data flow direction in detail.
- c. Discuss OSI model in detail.
- d. Discuss various types of security threats with example in detail.
- e. Discuss virtual Private networks in detail.

Q.2 Discuss IEEE 8.2 Standards in detail.

4

2411001103070001
EXAMINATION NOV-DEC - 2024
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)
(MASTER OF SCIENCE (INFORMATION TECHNOLOGY)
5 YEAR INTEGRATED COURSE) (NCF-NEP)
(THIRD SEMESTER)
VAC-BHARATIYA GYAN PARAMPARA - 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

- a. Name of the examination : **B.SC. (IT) (M.SC. (IT)) (NCF-NEP) (SEM. III)**
b. Name of the Subject : **VAC-BHARATIYA GYAN PARAMPARA - LEVEL 7**
c. Subject Code No : **2411001103070001**
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 happened to the Indian textile industry after the British colonization?
(A) It flourished and expanded
(B) It was preserved and modernized
(C) It was deliberately destroyed, and the skilled workers were oppressed
(D) It was outsourced to other countries
2. What is the name of the world's oldest gold mine still in use, located in India?
(A) Kolar (B) Hutti
(C) Raichur (D) Hampi

3. According to 'Krishi Parashara', how much rainwater is an 'Adhaka'?
- (A) The amount in an area 100 yojanas wide and 300 yojanas high
(B) 4 Dronas
(C) 6.4 cm
(D) 1 finger width
4. How many plays of Bhasa were found in the monastery in Travancore state?
- (A) 5 (B) 10
(C) 13 (D) 20
5. Which Indian deity is associated with music and the veena?
- (A) Lakshmi (B) Durga
(C) Saraswati (D) Parvati
6. Which Indian philosophical schools focus on logic and epistemology?
- (A) Nyaya and Vaisheshika (B) Sankhya and Yoga
(C) Mimamsa and Vedanta (D) Yoga and Vedanta
7. What is considered as the main form of Indian knowledge in its verbal form?
- (A) Upanishads (B) Puranas
(C) Vedas (D) Shastras

Q.2. Write Following Answers (15)

Q.2. (a) Short Notes (Any 1 out of 2) (05)

1. Explain: Gandharvaveda and Sthapatyaveda
2. Textile industry of ancient India

Q.2. (b) Short Notes (Any 1 out of 2) (05)

1. Veterinary Medicine in Indian Knowledge Tradition
2. Deindustrialization by the British

Q.2. (c) Short Notes (Any 1 out of 2) (05)

1. Briefly discuss the six Vedangas of India.
2. Ashtadasha Vidyasthan

પ્ર.૧.

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

(10)

1. બ્રિટિશ વસાહતીકરણ પછી ભારતીય કાપડ ઉદ્યોગનું શું થયું?
 - (A) તે વિકસ્યું અને વિસ્તર્યું
 - (B) તે સાચવવામાં આવ્યું હતું અને આધુનિકીકરણ કરવામાં આવ્યું હતું.
 - (C) તેનો ઈરાદાપૂર્વક નાશ કરવામાં આવ્યો હતો, અને કુશળ કામદારો પર જુલમ ગુજારવામાં આવ્યો હતો.
 - (D) તે અન્ય દેશોમાં આઉટસોર્સ કરવામાં આવ્યું હતું.
2. ભારતમાં આવેલી વિશ્વની સૌથી જૂની સોનાની ખાણનું નામ શું છે?
 - (A) કોલાર
 - (B) હટ્ટી
 - (C) રાયચુર
 - (D) હમ્પી
3. 'ઋષિ પરાશર' અનુસાર, 'અઢક' એટલે કેટલું વરસાદી પાણી કહેવાય?
 - (A) 100 યોજન પહોળા અને 300 યોજન ઊંચા વિસ્તારમાં જથ્થો
 - (B) 4 દ્રોણ
 - (C) 6.4 સે.મી
 - (D) 1 આંગળીની પહોળાઈ
4. ત્રાવણકોર રાજ્યના મઠમાં ભાસના કેટલા નાટકો જોવા મળ્યા?
 - (A) 5
 - (B) 10
 - (C) 13
 - (D) 20
5. સંગીત અને વીણા સાથે કયા ભારતીય દેવી સંકળાયેલા છે?
 - (A) લક્ષ્મી
 - (B) દુર્ગા
 - (C) સરસ્વતી
 - (D) પાર્વતી

6. કઈ ભારતીય ફિલોસોફિકલ શાખાઓ તર્ક અને જ્ઞાનશાસ્ત્ર પર ધ્યાન કેન્દ્રિત કરે છે?
- (A) ન્યાય અને વૈશેષિક (B) સાંખ્ય અને યોગ
(C) મીમાંસા અને વેદાંત (D) યોગ અને વેદાંત
7. ભારતીય જ્ઞાનનું મુખ્ય સ્વરૂપ તેના મૌખિક સ્વરૂપમાં કોને માનવામાં આવે છે?
- (A) ઉપનિષદો (B) પુરાણો
(C) વેદો (D) શાસ્ત્રો

પ્ર.ર. નીચેના જવાબો લખો (15)

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

1. સમજાવો: ગાંધર્વવેદ અને સ્થાપત્યવેદ
2. પ્રાચીન ભારતનો વસ્ત્રઉદ્યોગ

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

1. ભારતીય જ્ઞાન પરંપરામાં પશુચિકિત્સા
2. અંગ્રેજો દ્વારા બિનઔદ્યોગિકરણ

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

1. ભારતના છ વેદાંગની સંક્ષિપ્તમાં ચર્ચા કરો.
2. અષ્ટાદશ વિદ્યાસ્થાન

***** END *****

2511001104077001
EXAMINATION MAR-APR - 2025
BACHELOR OF SCIENCE (I.T.) (M.SC. (I.T.)
5 YEAR INTEGRATED COURSE)
(NCF-NEP) (FOURTH SEMESTER)
VAC-BHARATIYA MULYA PARAMPARA
- II - 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. (I.T.) (M.SC. (I.T.)) (NCF-NEP) (SEM. IV)**
b. Name of the Subject : **VAC-BHARATIYA MULYA PARAMPARA - II - LEVEL 7**
c. Subject Code No : **2511001104077001**
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. In which chapter of *Shrimad Bhagavatam* is the story of Yayati mentioned?

(A) 18

(B) 17

(C) 19

(D) 20

2. What was Yamaraj like?

(A) Sipagya

(B) Sarvagya

(C) Weak

(D) Huge

3. To whom Savitri did defeat with her intelligence?
(A) Pigeon (B) Yama
(C) Karma (D) Buddha
4. What is narrow-mindedness?
(A) Greed (B) Anger
(C) Desire (D) Short-mind
5. What is considered a *Dharma* in the Kaliyuga?
(A) Donation (B) Sacrifice
(C) Penance (D) Worship
6. What was the name of Savitri's husband?
(A) Drona (B) Kripacharya
(C) Satyavan (D) Vidur
7. What is control over the senses?
(A) *Titiksha* (B) *Sanyama*
(C) *Dhriti* (D) *Kshama*

Q.2. Write Following Answers (15)

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

1. What secret did Yaksha finally reveal?
2. Describe in detail what happened in Yudhishtira's assembly?

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

1. Write a short note about 'third blessing' and what Yama said in response to the Nachiketa.
2. Write the story of 'selflessness and sacrifice' in short.

Q.2. (c) Translation and Short exploitation of Shloka. (Any 1 out of 2) (05)

1. विद्या विवादाय धनं मदाय शक्तिः परेषां परिपीडनाय।
खलस्य साधोः विपरीतमेतद् ज्ञानाय दानाय च रक्षणाय
2. सुखस्य मूलं धर्मः। धर्मस्य मूलमर्थः।
अर्थस्य मूलं राज्यम्। राज्यस्य मूलम् इन्द्रियजयः।
इन्द्रियजयस्य मूलं विनयः। विनयस्य मूलं वृद्धोपसेवः।
वृद्धोपसेवया विज्ञानम्। विज्ञानेन आत्मानं संपादयेत्।
संपादितात्मा जितात्मा भवति। जितात्मा सर्वार्थैः संयुज्येत।

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

1. શ્રીમદ્ ભાગવતના કયા અધ્યાયમાં યયાતિની વાત આવે છે?
(A) ૧૮ (B) ૧૭
(C) ૧૯ (D) ૨૦
2. યમરાજ કેવા હતા?
(A) અલ્પજ્ઞ (B) સર્વજ્ઞ
(C) કમજોર (D) વિશાળ
3. સાવિત્રી એ પોતાની બુદ્ધિમતાથી કોને પરાજિત કર્યા?
(A) કબુતર (B) યમ
(C) કર્ણ (D) બુદ્ધ
4. સંકુચિત માનસિકતા એટલે શું?
(A) લોભ (B) ક્રોધ
(C) કામ (D) ટુંકુમન
5. કળીયુગમાં કોને ધર્મ માનવામાં આવે છે?
(A) દાન (B) યજ્ઞ
(C) તપ (D) પૂજા

6. સાવિત્રીના પતિ નું નામ શું હતું?

(A) દ્રોણ

(B) કૃપાચાર્ય

(C) સત્યવાન

(D) વિદુર

7. જ્ઞાનેન્દ્રિય પર નો અંકુશ એટલે શું?

(A) તિતિક્ષા

(B) સંયમ

(C) ધીરજ

(D) ક્ષમા

પ્ર.ર. નીચેના જવાબો લખો

(15)

પ્ર.ર. (અ) ટૂંકનોંધ લખો (૨ માંથી કોઈ પણ ૧)

(05)

1. યક્ષે છેલ્લે કયું રહસ્ય ઉજાગર કર્યું?

2. યુધીષ્ઠીરની સભામાં શું બન્યું તેનું સવિસ્તાર વર્ણન કરો.

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

(05)

1. નચિકેતાનાં ત્રીજા વરદાનનાં સંદર્ભમાં યમની પ્રતિ ક્રિયા જણાવો.

2. નિઃસ્વાર્થ વૃત્તિ અને ત્યાગની વાર્તા ટૂંકમાં લખો.

प्र.२. (५) श्लोकानुं भाषांतर अने टूंकुं शोषण. (२ भांथी कोठ पण १)

(05)

1. विद्या विवादाय धनं मदाय शक्तिः परेषां परिपीडनाय।
खलस्य साधोः विपरीतमेतद् ज्ञानाय दानाय च रक्षणाय
2. सुखस्य मूलं धर्मः। धर्मस्य मूलमर्थः।
अर्थस्य मूलं राज्यम्। राज्यस्य मूलम् इन्द्रियजयः।
इन्द्रियजयस्य मूलं विनयः। विनयस्य मूलं वृद्धोपसेवः।
वृद्धोपसेवया विज्ञानम्। विज्ञानेन आत्मानं संपादयेत्।
संपादितात्मा जितात्मा भवति। जितात्मा सर्वार्थैः संयुज्येत।

***** END *****