Bharati Vidyapeeth
(Deemed to be University)
College of Engineering, Pune, Maharashtra, India

B.Tech. (Computer Science and Engineering) (NEP – 2023 Course) SEM II

UNIT TEST: I

SUBJECT: Discrete Mathematical Structures

Day: Friday
Date: 7/3/25

Max. Marks: 20 Marks
Time: 1:30-2:30 PM

N.B
1) All Questions are **COMPULSORY**
2) Figures to right indicate **FULL Marks**
3) Assume suitable data if necessary.
4) Draw neat diagrams wherever necessary.

Que. No.	Question	Marks	CO No.	BL
Q1.	Show that: $1^2+2^2+3^2+n^2 = \frac{n(n+1)(2n+1)}{6}$ for $n \geq 1$ by mathematical Induction.	(07)	1	3
Q2.	Let A, B, C be the set show that a) $(A \cup B) \subseteq (A \cup B \cup C)$ b) $(A-B)-C \subseteq (A-C)$ c) $(B-A) \cup (C-A)=(B \cup C)-A$ Use Suitable Assumptions /Venn diagram to prove.	(07)	2	3
Q3.	Explain what relation matrix & diagraph is. for A= {1,2,3,4} & R={a≤b∈ R} Draw a diagraph for relation R. Also Derive the relation matrix.	(06)	3	2

Note:
CO No.: Course Outcome Number
BL: Blooms Level number (1: Remember, 2: Understanding, 3: Apply, 4: Analyse, 5: Evaluate, 6: Create)

Bharati Vidyapeeth
(Deemed to be University)
College of Engineering, Pune, Maharashtra, India

B.Tech. (Computer Science & Engineering) (CBCS – 2023 Course) SEM II

UNIT TEST: I

SUBJECT: Linear Data Structure

Day: Saturday

Date: 8/3/25

Max. Marks: 20 Marks

Time: 9:30 – 10:30 AM

N.B
1) All Questions are **COMPULSORY**
2) Figures to right indicate **FULL Marks**
3) Assume suitable data if necessary.
4) Draw neat diagrams wherever necessary.

CO 1 Use appropriate data structure to solve a particular problem

CO 2 Demonstrate the use of linked list and compare it with array.

CO 3 Demonstrate the use of stack as an ADT.

Que. No.	Question	Marks	CO No.	BL
Q1.	Write a program to insert an element in array at Start	(07)	1	3
Q2.	Write a note on: Doubly Linked List Circular Linked List	(07)	2	2
Q3.	Explain why Stack is an Abstract Data Type and also explain stack overflow and underflow conditions.	(06)	3	4

Note:
CO No.: Course Outcome Number
BL: Blooms Level number (1: Remember, 2: Understanding, 3: Apply, 4: Analyse, 5: Evaluate, 6: Create)

BHARATI VIDYAPEETH (DEEMED TO BE UNIVERSITY)
COLLEGE OF ENGINEERING, PUNE-411043

Unit Test No. 1
B. Tech (All Branches) SEM - II
Sub: Engineering Physics

Time: 1 hour
Day: Thursday

Maximum marks: 20
Date: 06/03/2025
Time: 1.30 to 2.30

N. B.
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Use of non-programmable electronic pocket calculator is allowed.
4. Assume suitable data, if necessary.

	Course Outcomes
CO1	Analyze the properties of charged particles to develop modern instruments such as electron microscopy
CO2	Understand the problems associated with architectural acoustics and give their remedies and use ultrasonic as a tool in industry for non destructive testing
CO3	Apply quantum physics problems to micro level phenomena and solid state physics

Q No.	Question	Marks	CO	BL
1	With neat and labelled diagram, explain separation of isotopes using Bainbridge mass spectrometer.	7	1	2,3
2	What is reverberation and reverberation time? Discuss basic requirements for acoustically good hall.	7	2	1,2
3	What is phase and group velocity? Derive relationship between them.	6	3	2,3

BL-Blooms Levels: 1-Remember, 2-Understand, 3-Apply, 4-Analyse, 5-Evaluate, 6-Create

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BHARATI VIDYAPEETH
(DEEMED TO BE UNIVERSITY)
COLLEGE OF ENGINEERING, PUNE

B. Tech. (All Branches) Sem -II

Unit Test No. - I

Subject: -Engineering Mathematics -II

Time: 1 Hour **Maximum Marks: 20**

Day: Thursday **Date:** 6/3/2025 **Time:** 10-30 to 11-30

N.B. :-

1. All questions are compulsory.
2. Neat diagrams must be drawn wherever necessary.
3. Use of non-programmable electronic pocket calculator is allowed.
4. Assume suitable data, if necessary.

Course Outcome	Statement
CO1	Solve differential equations by different methods.
CO2	Apply different laws to solve Simple Harmonic Motion, One–Dimensional Conduction of Heat.
CO3	Solve integral calculus and Fourier series.

Ques. No.		Marks	CO mapping	BTL
Q.1.	Solve: $(x + 4y - 1)dx - (y - 4x + 3)dy = 0$	(07)	CO1	5
Q.2.	A metal rodat temperature 70^0C is placed in a room whose temperature is 15^0C and cools to 50^0C in 6 minutes. Find its temperature after a further interval of 3 minutes.	(07)	CO2	3
Q.3.	Find Fourier series for $f(x) = x^2 \quad (0 < x < \pi)$	(06)	CO3	5

BTL-Blooms Taxonomy Levels: 1-Remember, 2-Understand, 3-Apply, 4-Analyse, 5-Evaluate, 6-Create

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BHARATI VIDYAPEETH
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COLLEGE OF ENGINEERING, PUNE

B. Tech. (Computer Science Engineering) Sem -II

Unit Test No. -I

Subject: -Electrical Technology

Time: 1 Hour **Maximum Marks: 20**

Day: Friday **Date:** 7/8/25

Time: 10:30 AM - 11:30 AM

N.B. :-

1. All questions are compulsory.
2. Neat diagrams must be drawn wherever necessary.
3. Use of non-programmable electronic pocket calculator is allowed.
4. Assume suitable data, if necessary

Course Outcome	Statement
CO1	Apply knowledge of basic concepts and calculate current in electrical network using Kirchoff's laws.
CO2	Analyze response of electrical DC circuit using network theorems.
CO3	Define and understand basic terms of single phase A.C. circuit and supply systems.

Que. No.	Question	Marks	CO Mapping	BTL
Q.1.	Relate Kirchhoff's current law and Kirchhoff's voltage law.	(07)	CO1	3
Q.2.	State Norton's Theorem. Explain the procedure to solve the given network using Norton's theorem with neat sketch.	(07)	CO2	1, 3
Q.3.	Explain the terms: 1) Waveform 2) form & peak factor 3) Average and RMS Value 4) Sketch the phasor diagram and wave diagram for the pure resistive, inductive and capacitive circuit.	(06)	CO3	1, 3

BTL-Blooms Taxonomy Levels: 1-Knowledge, 2-Understand, 3-Apply, 4-Analyse, 5-Evaluate, 6-Create

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