Davangere University

Shivagangothri, Davangere- 577007

SYLLABUS and COURSE STRUCTURE

of

ELECTRONICS

as per the Choice Based Credit System (CBCS) designed in accordance with of State Education Policy (SEP-2024)

Bachelor of Science (B. Sc. Electronics)

w.e.f.

Academic Year 2024-25 and onwards

Chairman
Board of Studies
Department of Physics
Davangere University
Shivagangotri, Davangere-07

Dr. U.S. MAHABALESHWAR
M.Sc., M.Phil., Ph.D.
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Davangere University

Bachelor of Science (B. Sc.)

Curriculum Structure for Undergraduate Programme for 2024-25

Sl. No.	Course/Paper Code	Title of the Paper	Subject Category	Teaching Hours/ week	Semester End Exam.	Internal Assessment	Total Marks	Credits	Examination Duration
1	2	3	4	5	6	7	8	9	10
Semester-I									
1	24SEP-ELET-I	Fundamentals of Electronics	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELEP-I	Fundamentals of Electronics Lab	**MC-P**	04	40	10	**50**	02	3 Hrs.
	Total			**08**	**120**	**30**	**150**	**05**	---
Semester-II									
2	24SEP-ELET-II	Semiconductor Devices and Circuits	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELEP-II	Semiconductor Devices and Circuits Lab	**MC-P**	04	40	10	**50**	02	3 Hrs.
	Total			**08**	**120**	**30**	**150**	**05**	---
Semester-III									
3	24SEP-ELET-III	Oscillators and Digital Electronics	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELEP-III	Oscillators and Digital Electronics Lab	**MC-P**	04	40	10	**50**	02	3 Hrs.
	24SEP-ELEOE-IIIA 24SEP-ELEOE-IIIB Open Elective (Optional)	a) Basics of Electronics b) Domestic equipment maintenance	**EL/OP-I**	02	40	10	**50**	02	2 Hrs.
	Total			**10**	**160**	**40**	**200**	**07**	---
Semester-IV									
4	24SEP-ELET-IV	Linear Integrated Circuits	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELEP-IV	Linear Integrated Circuits Lab	**MC-P**	04	40	10	**50**	02	3 Hrs.
	24SEP-ELEOE-IVA 24SEP-ELEOE-IVB Open Elective (Optional)	a) Industrial Electronics b) Consumer electronics	**EL/OP-II**	02	40	10	**50**	02	2 Hrs.
	Total			**10**	**160**	**40**	**200**	**07**	---
Semester-V									
5	24SEP-ELET-V	Digital Electronics and C-Programming	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELET-VI	Electronic Communication-I	**MC-T**	04	80	20	**100**	03	3 Hrs.

	24SEP-ELEP-V	Digital Electronics and C-Programming Lab	**MC-P**	04	40	10	**50**	02	3 Hrs.
	Total			**12**	**200**	**50**	**250**	**08**	---

Semester-VI									
6	24SEP-ELET-VII	Microcontroller and Applications	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELET-VIII	Electronic Communication-II	**MC-T**	04	80	20	**100**	03	3 Hrs.
	24SEP-ELEP-VI	Microcontroller and Applications Lab	**MC-P**	04	40	10	**50**	02	3 Hrs.
	24 SEP-ELEP-VII	Project	**MC-P**	04	40	10	**50**	04	3 Hrs.
	Total			**16**	**240**	**60**	**300**	**10**	---
	Grand Total			**64**	**1000**	**250**	**1250**	**44**	---

MC: *Major Course*; **MC-T:** *Major Course Theory*; ***MC*-P:** *Major Course Practical*;
El/Op: *Elective/Optional*; ***AEDP*:** *Apprenticeship Embedded Degree Programme*.

*In Semester-III and Semester-IV open elective papers are offered. There shall be 02 elective papers offered during each semester (Semester-III and Semester-IV) by every major subject offering Department, where a student shall choose/select/opt 01 elective paper out of two to study in each semester (Semester-III and Semester-IV).

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DAVANAGERE UNIVERSITY

THEORY PAPER

SEMESTER-III

Program Name	B.Sc. Electronics	Semester	III
Course Title	Oscillators and Digital Electronics		
Course Code:	24SEP-ELET-III	No of credits	03
Contact hours	56 Hours	Duration of SEA/Exam	03 Hours
Formative Assessment marks	20	summative Assessment marks	80

Program Objectives:

- To understand basic function of oscillator, types, construction, working and applications.
- To study the binary arithmetic and logic systems.
- To acquire the knowledge of basic, universal and special purpose logic gates.
- To study the basic logic design and implementation of Boolean equation.
- To acquire the knowledge of Karnaugh map (K-Map) and simplify the K-Map using SOP and POS forms of 3 & 4 variables.

Course Outcomes:

On successful completion of the course, the student will able to:

- Study and analyze the various types of oscillators used in various applications.
- Explain the importance of binary arithmetic, 1's and 2's complements and logic system operations.
- Analyze the basic logic design and implementation of Boolean expressions.
- Understand the basic logic gates, concept of Boolean algebra and techniques to reduce/simplify Boolean expressions using K-Map.
- Perform experiments for studying the behavior of semiconductor devices and ICs.

Contents	56 hours
Unit-1	14 hours

Oscillators:

Chapter: 1 Introduction: Basic theory of oscillator, condition for oscillators (Barkhausen Criterion), Classification of oscillators.

Chapter: 2 Types of oscillators: LC oscillators-Hartley and Culprit's oscillators- construction, working and expression for frequency.

RC Oscillators- Phase shift and weinbridge Oscillators- construction, working, and expression for frequency.

Crystal Oscillator- working, equivalent circuit and applications.

Chapter: 3 Relaxation Oscillators: Types, working of Astable, Monostable and Bistable multivibrators, waveforms, expression for frequency and applications.

Unit-2	14 hours

NUMBER SYSTEMS:

Chapter: 4 Binary, Octal and Hexadecimal number systems:

Binary number system-Definition, binary to decimal, decimal to binary conversions.

Octal number system- Definition, octal to decimal, decimal to octal , octal to binary, binary to octal conversions.

Hexadecimal number system- Definition, hexa to binary , binary to hexa, hexa to decimal, decimal to hexa, octal to hexa and hexa to octal conversions.

Chapter: 5 Binary Arithmetic: Binary addition, subtraction, multiplication and division with examples. 1's and 2's Complements- Definitions, 1's and 2's Complements subtraction methods.

Chapter: 6 Logic Systems: Positive and Negative Logics, Boolean algebra, proof of Boolean identities using Boolean laws, De-Morgan's theorems and examples.

Unit-3	14 hours

LOGIC GATES :

Chapter: 7 Basic logic gates: Introduction, types, definitions, OR, AND, NOT gates-symbols, constructions, working using diodes, transistors and resistors and truth tables.

Chapter: 8 Universal logic gates: Types, NAND and NOR gates – symbol, construction, working using basic gates and truth tables. NAND and NOR gates as universal gates.

Chapter: 9 Special Purpose gates: Types, definitions, symbols, construction, working using basic and universal gates and truth tables.

Unit-4	14 hours

BASIC LOGIC DESIGN:

Chapter: 10 Implementation of Boolean equations: Using basic and universal logic gates, implementation for 2 input variables and 3 input variables, simplification of Boolean expressions using Boolean laws.

Chapter: 11 Minterms and Maxterms: Definition of minterm and maxterm with examples, SOP and POS forms, minterm and maxterm notations, conversions of SOP and POS forms into standard forms.

Chapter: 12 Karnaugh-Map (K-map): Introduction of K-map, definition of Pair, Quad, Octate. Solving an expression using K- map, SOP and POS forms of 2,3 and 4 variables K-map, simplification of expressions and truth table using K- map with don't care conditions.

Reference Books:

1	Principles of Electronics by V.K Mehta and Rohit Mehta 11th edition, S.Chand and Co LTD 2009.
2	Basic electronics by B.L Theraja , 7th edition, S.Chand and Co 2007.
3	Electronic devices and circuits by G J Mithal , 20th edition, Khana publishers , New delhi - 2014.
4	Digital fundamentals by Floyd T.L, 9th edition Pearson education- 2005.

Program Name	B.Sc. Electronics	Semester	III
Course Title	**Oscillators and Digital Electronics lab**		
Course Code:	**24SEP-ELEP-III**	No of Credits	**02**
Viva Voice marks	**10**	Experimentation marks	**30**
Attendance marks	**05**	Record marks	**05**
		Total Marks	**50**

Practical Content

List of Experiments to be performed in the Laboratory (Minimum of 8 Experiments)

1. Hartley oscillator using transistors.
2. Colpitt's oscillators using transistors.
3. Phase shift oscillators using transistors.
4. Astable multivibrator using transistors.
5. Wein bridge oscillators using transistors.
6. Basic gates using discrete components.
7. Universal gates using discrete components.
8. Realization of basic and universal gates using IC 7400.
9. Realization of basic and universal gates using IC 7402.
10. Realization of Boolean expressions using ICs.

SEMESTER-III

Program Name	B. Sc. Electronics	Semester	III
Course Title	**Basics of Electronics**		
Course Code:	**24SEP-ELEOE-IIIA**	No of Credits	**02**
Contact hours	**32 Hours**	Duration of SEA/Exam	**02 Hours**
Formative Assessment marks	**10**	summative Assessment marks	**40**

Program Objectives:

- To understand basic function of passive components and transformers.
- To study the basics of semiconductors, types and semiconductor diodes, characteristics and applications.
- To acquire the knowledge of bipolar junction transistors and field effect transistors.
- To study the basics of binary number system and conversions.
- To acquire the knowledge of basic and universal logic gates and De-Morgan's theorems.

Course Outcomes:

On successful completion of the course, the student will able to:

- Build simple electronic circuits.
- Describe the behavior of basic semiconductor devices.
- Reproduce I-V characteristics of diode, BJT and FET.
- Understand and represent binary number system and converting one form into other, carry out simple arithmetic operations.
- Understand the basic and universal logic gates.

Contents	32 hours
Unit-1	**8 hours**

Passive components: Resistor, Capacitor and Inductor, types, Resistor color coding and uses.

Transformers: Principle, construction and working, turns ratio, types of transformer (step-up & step down)

Unit-2	8 hours

Semiconductors: Intrinsic and extrinsic semiconductors, P-type and N-type semiconductors.

Diodes: PN-junction diode, Zener diode, LED -construction, working, characteristics and applications.

Unit-3	8 hours
Transistors: Definition, types, symbols, configurations, CE transistor characteristics, RC-coupled amplifier. **Field Effect Transistor:** Definition, types, symbols, Construction of N-channel and P- channel FET, N-channel FET characteristics, comparison of BJT and FET.	
Unit-4	**8 hours**
Digital Electronics: Binary Number Systems, Binary Addition and subtraction, Binary to decimal and decimal to binary conversion. **Logic gates:** AND, OR and NOT gates using diodes, symbols, Truth tables, NAND and NOR gates-symbols and truth tables. De-Morgan's theorems.	

References:

1. Principles of Electronics by V.K Mehta and Rohit Mehta 11th edition, S. Chand and Co LTD 2009.
2. Electronic devices and Circuits by David A. Bell,5th edition, Oxford higher education 2008.
3. Basic electronics by B.L Theraja , 7th edition, S. Chand and Co 2007.
4. Digital Principles and applications by Malvino and Leach 6th edition Tata McGraw-Hill 2006.

SEMESTER-III

Program Name	B. Sc. Electronics	Semester	III
Course Title	**Domestic Equipment Maintenance**		
Course Code:	**24SEP-ELEOE-IIIB**	No of Credits	**02**
Contact hours	**32 Hours**	Duration of SEA/Exam	**02 Hours**
Formative Assessment marks	**10**	summative Assessment marks	**40**

Program Objectives:

- To understand basic concepts about Geyser, types, faults and trouble shootings.
- To study the Induction cooker construction, working, types and faults.
- To acquire the knowledge of Microwave oven.
- To study the Kitchen chimney and make the students able to repair and service of home appliances.

Course Outcomes:

On successful completion of the course, the student will able to:

- Understand the geyser working, common faults and trouble shootings.
- Understand the construction, working, common faults and trouble shootings of induction cooker.
- Understand the principle, key components, and different types of kitchen chimney.
- Understand the construction, working, types and faults arising in maintenance of microwave oven.

Contents	32 Hours
Unit-1	**8 hours**

Geyser: Construction and working, parts of geyser, types, common faults and troubleshooting, dripping geysers overflow, overheating and water leaking, no hot water, water not hot enough and poor hot water pressure.

Unit-2	8 hours

Induction cooker: construction and working, types, common faults, fuse blown, buttons not working, cook top shuts off, and food not cooked overheating and uneven heating, display flashing, crackling, fan noise, humming sound.

Unit-3	8 hours

Microwave oven: Construction, working, types, common faults-Does not heat, runs then stops, buttons do not work, plate do not spin, bulb does not turn ON, sparking inside, shuts OFF after few seconds.

Unit-4	8 hours

Kitchen chimney: principle, suction and air intake, filtration, exhaust or recirculation maintenance. Key components- Motor, Filters, Fan/blower control panel, Duct or recirculation system size and design. Different types and benefits.

References:

1. Electronic instruments and systems by R G Gupta, Tata McGraw Hill
2. Modern Electronic equipment by Khandpur
3. Electronic fault diagnosis by G C Loveday

SEMESTER-IV

Program Name	B.Sc. Electronics	Semester	IV
Course Title	Linear Integrated Circuits		
Course Code:	24SEP-ELET-IV	No of credits	03
Contact hours	56 Hours	Duration of SEA/Exam	03 Hours
Formative Assessment marks	20	summative Assessment marks	80

Program Objectives:

- Aimed to learn about basics of op-amp.
- Students will be made familiar about the IC 741 used in industries.
- Students aim to build small projects using 741 IC.
- Aimed to prepare for competitive exams questions on Op-amp.

Course Outcomes: On successful completion of the course, the student will able to:

- Study the differential amplifier circuits widely used in analog ICs.
- Get enough knowledge about linear ICs 741, which is used, in most all amplifier circuits and oscillators.
- Students will be realizing how to design op-amp active filters used in different communication systems.
- Complete working on how to have mathematical operations on voltages will be learnt.
- Students will learn how design oscillators, voltage regulators specifically IC regulators.
- Students will be able go through the manufacturing process of ICs in the field of microelectronics.

Contents	56 hours
Unit-1	14 hours

Differential amplifiers:

Chapter: 1 Introduction: Basic differential amplifier circuit and working different configurations.

Chapter: 2 Modes of differential amplifier: Dual input balanced output differential amplifier circuit diagram and working, modes- common mode of operation and differential mode of operation.

. **Chapter: 3 Introduction to op-amp:** Definition, block diagram and working of op-amp, symbolic representation of op-amp, pin diagram of op-amp and description.

Unit-2	14 hours

Operational amplifier basics:

Chapter: 4 Op-amp parameters: Input offset voltage, Input offset current, output offset voltage and current, input and output impedance, CMRR, slew rate and ideal characteristics of op-amp.

Chapter: 5 Op-amp Inverting mode: Inverting amplifier circuit diagram and derivation of voltage gain expression $\frac{Rf}{Ri}$, some examples.

Chapter: 6 Op-amp Non-inverting mode: Non-inverting amplifier circuit diagram and derivation of voltage gain expression $1+\frac{Rf}{Ri}$, some examples , concept of virtual ground.

Unit-3	14 hours
Op-Amp applications and filters: **Chapter: 7 Mathematical operations:** Op-Amp as differential amplifier, adder, subtractor and multiplier. **Chapter: 8 Converters:** Current to voltage and voltage to current converters, op-amp integrator and differentiator –circuit, operation, expression for output voltage. **Chapter:9 Filters:** Active and Passive filters- advantages of active filters over passive filters , low pass and high pass filter circuits -working , expression for cut off frequency, band pass and band stop filters circuits and working.	
Unit-4	**14 hours**
Oscillators, Regulators and basics of IC's: **Chapter: 10 Op-amp oscillators:** phase shift and Wein bridge oscillator-construction, working and expression for frequency. **Chapter: 11 Op-amp voltage regulators:** Definition, types, positive output voltage regulator series - 78XX, negative output voltage regulator series – 79XX. **Chapter: 12 Integrated circuits:** Introduction, advantages of ICs, scale of integration, classification, fabrication of monolithic ICs and components – resistors, diodes and transistors.	

Reference Books:

1	R.A. Gayakwad, op-amps and linear IC, Pearson education (2003).
2	Electronic devices and circuits by Thomas L Floyd, Pearson;8th edition 2007.
3	B.C Sarkar and S Sarkar, analog electronics devices and circuits (revised edition), damodar group (publishers), burdvan, ISBN: 978-93-85775-15-4 (2019).
4	Timer, op-amp and optoelectronic circuits and projects, Forrest M .Mims, master publishing Inc.
5	BC Sarkar and S Sarkar , digital electronics : circuits and systems , SUT Prakashani, Burdwan, ISBN : 978-81-88391-57-8(2018).
6	Electrical and Electronic measurements and instrumentation by A.K.Sawhney, Dhanpat Rai,19th edition 2022.
7	Op-amp and linear ICs by David A Bell 5th edition, Oxford higher education 2008

Program Name	B.Sc. Electronics	Semester	IV
Course Title	**Linear Integrated Circuits Lab**		
Course Code:	**24SEP-ELEP-IV**	No of Credits	**02**
Viva Voice marks	**10**	Experimentation marks	**30**
Attendance marks	**05**	Record marks	**05**
		Total Marks	**50**

Practical Content

List of Experiments to be performed in the Laboratory (Minimum of 8 Experiments)

1. Determination of input biased current, input offset and output offset voltage.
2. Op-amp inverting and non-inverting gain (DC).
3. Op-amp as adder.
4. Op-amp inverting amplifier frequency response.
5. Op-amp non-inverting amplifier frequency response.
6. Op-amp as integrator.
7. Op-amp as differentiator.
8. Determination of CMRR and slew rate.
9. Active low pass filter.
10. Active high pass filter.
11. Phase shift Oscillator using op-amp.
12. Weinbridge oscillator using op-amp.

SEMESTER-IV

Program Name	B. Sc. Electronics	Semester	IV
Course Title	**OE-Industrial Electronics**		
Course Code:	**24SEP-ELEOE-IVA**	No of Credits	**02**
Contact hours	**32 Hours**	Duration of SEA/Exam	**02 Hours**
Formative Assessment marks	**10**	summative Assessment marks	**40**

Program Objectives:

- To understand the basic function of timers, types, construction, working & applications.
- To study the Phase locked loop.
- To understand basics of Op-Amp and its applications.
- To study the active filters using Op-Amp.
- To acquire the knowledge of D/A and A/D converters and their characteristics.

Course Outcomes:

On successful completion of the course, the student will able to:

- Study and analyses the various types of timer circuits and applications.
- Understand the PLL Block diagram and different types of circuits.
- Understand the basics of op-amp and applications.
- Analyze the designing of filters using op-amp.

Study and analyze the D/A and A/D converters and their characteristics.

Contents	32 hours
Unit-1	**8 hours**

Timers: Functional block diagram of 555 timer, Astable, Monostable, Bistable multivibrators – Constructions, working and applications.

Phase locked loop: Functional block diagram – phase detector/comparator, voltage controlled oscillator.

Unit-2	8 hours

Operational amplifier basics: Block diagram of op-amp, characteristics of an ideal op-amp, op-amp parameters, open & closed loop configuration,

Op-amp inverting and non-inverting: Definition, construction, working and gain of inverting and non-inverting amplifier, frequency response and virtual ground.

Unit-3	8 hours

Op-amp applications: Op-amp as adder, subtractor, multiplier, differentiator, integrator and comparator.

Filter: Advantages of active filters over passive filters, low pass and high pass filter circuits -working , expression for cut off frequency, band pass and band stop filters circuits and working.

Unit-4	8 hours
A/D and D/A converters: **D/A converters:** Definition, types, binary weighted resistor type and R-2R ladder network- construction, working and characteristics. **A/D convertors:** Definition, types, tracking type, counter type and SAR – Construction, working and characteristics.	

References:

1. B.C Sarkar and S Sarkar , analog electronics ; devices and circuits (revised edition), damodar group (publishers), burdvan,ISBN:978-93-85775-15-4 (2019).
2. R.A. Gayakwad , op-amps and linear IC , Pearson education (2003).
3. Timer, op-amp and optoelectronic circuits and projects, Forrest M . Mims, master publishing Inc.
4. Bc Sarkar and S Sarkar , digital electronics : circuits and systems , SUT Prakashani, Burdwan, ISBN : 978-81-88391-57-8(2018).
5. Electrical and Electronic measurements and instrumentation by A.K.Sawhney, Dhanpat Rai,19th edition 2022.

SEMESTER-IV

Program Name	B. Sc. Electronics	Semester	IV
Course Title	**OE-Consumer Electronics**		
Course Code:	**24SEP-ELEOE-IV**	No of Credits	**02**
Contact hours	**32 Hours**	Duration of SEA/Exam	**02 Hours**
Formative Assessment marks	**10**	Summative Assessment marks	**40**

Program Objectives:

- To understand audio / video systems and their requirements.
- To study the TV, display systems and projectors.
- To acquire the knowledge of mobile phones, smart phones, smart watch, Bluetooth etc.
- To acquire the knowledge of office components – scanners, printers, Xerox etc.
- To understand the electronic gadgets and domestic appliances.

Course Outcomes:

On successful completion of the course, the student will able to:

- Understand the audio / video systems and installation.
- Study and analyze the various TVs and projectors.
- Understand the mobile phones, smart phones smart watch, Bluetooth etc.
- Study and analyze office equipment's like scanner, barcode, printers, Xerox etc .
- Understand the electronic gadgets and domestic appliances.

Contents	32 hours
Unit-1	**8 hours**

Audio Systems: PA systems, Microphones, amplifier, loudspeaker, radio receivers, AM/FM, audio recording and reproduction.

Installation of audio/ video systems, site preparation, electrical requirements, cables and connectors.

Unit-2	**8 hours**

TV and Displays:

Set top box, CATV and dish TV, LCD, Plasma, QLED, OLED and LED TV.

Projectors- DLP, Home theaters, Remote controls.

Unit-3	**8 hours**

Landline and Mobile Telephone :

Mobile phones, smart phones, smart watch, GPRS and Blue tooth, GPS navigation.

Office equipment's– scanners, barcode, printers, Xerox, multifunction units (print, scan and copy).

Unit-4	8 hours
Electronic gadgets and domestic appliances: Digital clock, digital camera, handicam, home security system, CCTV, air conditioners, refrigerators, washing machine/dish washer, vacuum cleaners, market survey of products, assembly and disassembly of system using tool kit.	

References:

1. R P Bali, consumer electronics, Pearson education(2008)
2. R G Gupta, audio and video systems Tata Mc Graw Hill(2004)

Continuous Assessment Programme/Internal Assessment/Formative Assessment

Major Courses

Sl. No.	Continuous Assessment Programme/Internal Assessment	Maximum Marks
(1)	(2)	(3)
01	Two Session Tests with proper record for assessment (5+5 = 10)	10
02	Assessment of Skill Development activities/Seminars/Group Discussion/ Assignment etc., with proper record	05
03	• Attendance with proper record	05
	TOTAL MARKS	20

Continuous Assessment Programme/Internal Assessment/Formative Assessment

Elective/Optional Papers

Sl. No.	Continuous Assessment Programme/Internal Assessment	Maximum Marks
(1)	(2)	(3)
01	Two Session Tests with proper record for assessment (2+2 = 4)	04
02	Assessment of Skill Development activities/Seminars/Group Discussion/ Assignment etc., with proper record	03
03	• Attendance with proper record	03
	TOTAL MARKS	10

THEORY EXAMINATION QUESTION PAPER PATTERN FOR MAJOR SUBJECTS
(Semesters I –VI)

B. Sc. Semester-I-IV Degree Examination; 2025-26
(Semester Scheme; New Syllabus: 2024-25)

SUBJECT: SCIENCE COURSES

Paper –_____: _____
Paper Code: _____

Time: 3 Hours **Max. Marks: 80**

Instructions to candidates:

1) All sections are compulsory
2) Draw neat and labelled diagrams wherever necessary.

SECTION-A

1. Answer **all** the following questions: **(2×10=20)**

a)
b)
c)
d)
e)
f)
g)
h)
i)
j)

SECTION-B

Answer any **SIX** of the following: **(5×6=30)**

2. From Unit-I
3. From Unit-I
4. From Unit-II
5. From Unit-II
6. From Unit-III
7. From Unit-III
8. From Unit-IV
9. From Unit-IV

SECTION -C

Answer **Any Three** of the following: **(10×3=30)**

10. From Unit-I
11. From Unit-II
12. From Unit-III
13. From Unit-IV

*****

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THEORY EXAMINATION QUESTION PAPER PATTERN FOR ELECTIVE/OPTIONAL PAPERS

(Semesters III & IV)

B.Sc. Semester-I/II/III/IV/V Degree Examination; 2025-26

(Semester Scheme; New Syllabus: 2024-25)

SUBJECT: SCIENCE COURSES

Paper – ELECTIVE/OPTIONAL III & IV _____: _____

Paper Code: _____

Time: 2 Hours **Max. Marks: 40**

Instructions to candidates:

1) All sections are compulsory
2) Draw neat and labelled diagrams wherever necessary.

SECTION-A

I. Answer **all** the following questions: **(2×5=10)**

1.
2.
3.
4.
5.

SECTION-B

II. Answer any **SIX** of the following: **(5×6=30)**

6. From Unit-I
7. From Unit-I
8. From Unit-II
9. From Unit-II
10. From Unit-III
11. From Unit-III
12. From Unit-IV
13. From Unit-IV

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