

W.E.F. SESSION 2013-2014

Course: B. Sc. 3rd Year Electronics Scheme of Examination for Semester 5 & 6

Semester - 5

S.No.		Paper	Marks	Marks	Exam. Duration
			Internal Assessment	External Marks	
1.	Paper-I	Microprocessor Architecture & Programming-I	10*	40	3 hours
2.	Paper-II	Electronic Communication	10*	40	3 hours

Semester - 6

S.No.		Paper	Marks	Marks	Exam. Duration
			Internal Assessment	External Marks	
3.	Paper-I	Microprocessor Architecture & Programming-II	10*	40	3 hours
4.	Paper-II	Introduction to C and its Programming	10*	40	3 hours
5.	Paper-III	Practical (Sem 5 & Sem 6)	-----	100	6 hours (two sessions morning & evening)

* 10% on the basis of two hand written assignments, 5% on the basis of one class test & 5% on the basis of attendance of the student.

Note:- Maximum number of students should not exceed ten in one group during practical and project work in the laboratory

W.E.F. SESSION 2013-2014
Course: Bachelor of Science (B.Sc.)
Subject: Electronics
Examination Scheme for Semester V & VI

I. Theory Papers (Semester System of Examination)

1. Syllabus in each Theory Paper is divided in 4 units.
 - i. A Student is required to attempt 5 questions in all.
 - ii. Question No 1 is compulsory, consisting of short answer type questions based on all the 4 units.
 - iii. Two questions will be set from each unit. A student is required to attempt one question from each unit.
 - iv. All questions carry equal marks.
2. Use of simple calculator is permissible.
3. Instructions should be imparted using SI system of units. Familiarity with CGS system of units should also be ensured.
4. Distribution of Marks:

Paper I – 40+10*= 50 marks of 3 hours duration.

Paper II – 40+10*=50 marks of 3 hour duration.

* For each paper question paper will be of 40 marks and 10 marks in each theory paper are awarded through internal assessment in each semester.

II. Practical Paper (Annual Examination System)

- i) The Practical classes will be held during both V & VI semesters, however, the Practical examination will be held at the end of 6th semester in two sittings of three hours each with First sitting starting in the evening session of the first day and second sitting in the following morning session.
- ii) A candidate is required to perform minimum of 6 experiments in Section A and prepare /design one project out of the list provided in section B during course of study in Semester V and Semester VI and is required to perform one experiment from section A in the annual examination in one Sitting and demonstrate the project work in Second Sitting.
- iii) Distribution of Marks:
Paper III – 100 Marks of 3+3 Hours duration
Lab Record/ Project Report: 10+10
Experiments/ Project Demonstration: 20 + 20
Viva/Voce (Experiments/ Project): 20+20
- iv) Maximum 10 students in one group during course of study and also in Examination.

Semester-V
Course: B.Sc. (Electronics)
Paper Code: Paper- I
Nomenclature: - Microprocessor Architecture and Programming-I
Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

Simple Idea of three state switch & three state bus ,SAP-I (Simple as Possible) Computer, Architecture, Instruction Set, Programming SAP-1, Fetch Cycle, Execution Cycle

Ref: 1 Digital Computer Electronics- A P Malvino (2nd Edition)

UNIT-II

SAP-II Architecture, Instruction set of SAP –II Computer (Memory Reference instructions, Register Instructions, Jump and Call instructions, and Logic instructions) Machine Cycle and Instruction Cycle, Addressing Modes, Instruction Types.

Ref:

- 1 Digital Computer Electronics- A P Malvino (2nd Edition)
2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar

UNIT-III

Delay Calculations, SAP-III programming Model, MOV & MVI, arithmetic instructions, increments, decrements and rotates, logic instructions, Arithmetic and logical immediates, jump instructions, extended register instructions, indirect instructions, stack instructions

Ref:

- 1 Digital Computer Electronics- A P Malvino (2nd Edition)
2. Microprocessor Architecture, programming and application with the 8085 by RS Gaonkar

UNIT-IV

Architecture of 8085 Microprocessor, Pin Description of 8085, Instruction set of 8085, Fetching and Executing Instructions, Idea of fetch execute overlap.

Ref:

- 1 Digital Computer Electronics- A P Malvino (2nd Edition)
2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar

Semester-V
Course: B.Sc. (Electronics)
Paper Code: paper II
Nomenclature: Electronic Communication

Max. Marks: 40+10*

Time: 3hrs.

UNIT-I

Modulation & demodulation : Principle of modulation , amplitude modulation ,percent modulation ,upper & lower side frequencies ,upper & lower side bands, mathematical analysis of a modulated carrier wave, power relations in an AM wave, simple idea about different forms of amplitude modulation. A) DSB-SC B) SSB-TC C) SSBSC, amplitude modulating amplifier circuit , AM generation plate , and grid modulated system,.

Ref:

Radio engineering, vol: 2, G.K. Mittal

UNIT-II

Frequency modulation , FM Sidebands, modulation index and number of side bands, mathematical expression for FM wave, Demodulation, diode detector for AM signals.FM detector , Limited and phase shift detectors, comparison between AM & FM.

Ref:

Radio engineering, vol: 2, G.K. Mittal

UNIT-III

TV fundamentals: elements of TV system (625 lines), Aspect ratio, scanning, progressive and inter-laced scanning, number of scanning lines and vertical resolution, Kell factor, horizontal resolution and video band width, factors affecting video band width, composite video signals (concept only)

Ref:

Monochrome & colour T.V. by R.R. Gulati

UNIT-IV

Block diagram of monochrome TV transmitter and receiver, Videocon camera tube.
Color TV: Compatibility, three color theory, luminance, Hue and saturation, generation of luminance and color difference signals, chrominance signals.

Ref:

Monochrome & colour T.V. by R.R. Gulati

Semester-VI
Course: B.Sc. (Electronics)
Paper Code: Paper I
Nomenclature: - Microprocessor Architecture and Programming-II
Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

Interrupt: Methods of Input/output operations, Data transfer Schemes, software Interrupts, Hardware interrupts, Interrupt control circuits, Interrupt instructions.

Ref:

1. Digital Computer Electronics- A P Malvino (2nd Edition)
2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar

UNIT-II

Programmable Peripheral Interface 8255: operational modes of 8255, control word format for 8255, programming in Mode 0, programming in Mode 1, programming in Mode 2, BSR mode.

Ref:

1. Digital Computer Electronics- A P Malvino (2nd Edition)
2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar

UNIT-III

Programmable Interval Timer 8253: Block diagram of 8253, control word format for 8253, Interfacing & programming of 8253, Programming of 8253 in various modes.

Ref:

1. Digital Computer Electronics- A P Malvino (2nd Edition)
2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar

UNIT-IV

Direct Memory Access Controller 8257: Block diagram, Programming of 8257, Applications to illustrate the use of Microprocessor in:

1. Traffic light
2. Temperature control
3. Stepper Motor control
4. Washing machine control.

Ref: 1. Digital Computer Electronics- A P Malvino (2nd Edition)

2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar

Semester-VI
Course: B.Sc (Electronics)
Paper Code: paper II
Nomenclature: - Introduction to C & its Programming

Max. Marks: 40+10*

Time: 3hrs.

UNIT-I

C. Fundamentals: The character set, identifiers & keywords, data types, constants, variables & arrays declaration, expressions statements, symbolic constants. Operators and expressions: Arithmetic operators, unary operators, relational and logical operators, assignment operators, conditional operators.

Ref:

Schaum's Outline series: Theory and problems of programming with C by Byron S. Gottfried

UNIT-II

Data input and output: Entering input data- The scanned function, Writing output data- The print function. Control statements: While statement, Do-while statement, for statement, If-else statement, switch statement, break statement, continue statement.

Ref:

Schaum's Outline series: Theory and problems of programming with C by Byron S. Gottfried

UNIT-III

Function: Defining a Function, Accessing a Function, passing arguments to a Function, specify arguments, data types.

Ref:

Schaum's Outline series: Theory and problems of programming with C by Byron S. Gottfried

UNIT-IV

Arrays: Defining an Array, processing an Array, Passing arrays to a function, Multidimensional arrays, arrays and strings. Pointers: Fundamentals, pointer declaration, passing pointers to a function, pointers and one dimensional array, operations on pointers.

Ref: Schaum's Outline series: Theory and problems of programming with C by Byron S. Gottfried

Course B.SC(ELECTRONICS)
Semester V & VI
Paper Code III (Practical)

Total Marks: 100
Time: 3+ 3 Hours

Practical: 50 (Experiment: 20, Viva-Voce: 20, Practical Work Book: 10)

Project: 50 (Demonstration: 20, Viva-Voce: 20, Project Work Book: 10)

Each Student is to perform at least six experiments from Section-A and prepare one project from Section-B.

Section-A

1. (a) Addition of Two 16 Bit Numbers or microprocessor-Kit.
(b) Subtraction of two 16 Bit numbers on Microprocessor-Kit.
2. Multibyte Addition/Subtraction of two numbers by repetitive addition/subtraction on Microprocessor-kit.
3. Division of two 8-Bit numbers by repetitive subtraction on microprocessor-Kit.
4. Multiplication of Two 8-Bit Numbers on Microprocessor –Kit.
5. Find the smallest/largest number from a give series of numbers on Microprocessor-Kit.
6. To sort a given series of unsigned numbers in Ascending/ descending order on Microprocessor-kit.
7. Generate a time delay through software on Microprocessor-Kit.
8. Check even parity/add parity of binary number on microprocessor-Kit.
9. Program to generate Square, Sine and triangular waves using Microprocessor-Kit.
10. Computer Programming in C using if, else, for, while statements.
11. Computer Programming in C using arrays and pointers.

Section-B

1. Digital Frequency meter.
2. Digital Voltmeter.
3. Digital Clock.
4. Infrared Switch
5. Inverter 20/40W. 230 V A.C
6. Up-Controlled Time Switch.
7. Up-Controlled A/D Converter.
8. Up-Controlled Running Light
9. Up-Controlled D/A Converter.
10. Pc Base Switch
11. Up-Controlled Traffic Light
12. Stereo Amplifier
13. Super Heterodyne Radio Receiver
14. F.M. Receiver
15. FM based Remote Switch.
16. Event Counter