Scheme of Examination

B. Sc. (Electronics) Semester V & VI w.e.f. 2011-13 only

Semester-V

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-501	Computer Fundamentals-I	50	5	45
EL-502	Communication Electronics-I	50	5	45
EL-503	Practical-V	50	--	50

Semester-VI

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-601	Computer Fundamentals-II	50	5	45
EL-602	Communication Electronics-II	50	5	45
EL-603	Project Work-VI	50	--	50

B.Sc. ELECTRONICS
Semester-V
Paper I- EL 501
Computer Fundamentals-I

Max. Marks : 45
Internal Assessment : 5
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five questions in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit I

Random-Access Memories, Linear-Select Memory Organization, Decoders, Dimensions of Memory Access, Connecting Memory Chips to a Computer Bus, Random Access Semiconductor Memories, Static Random-Access Memories, Dynamic Random-Access Memories, Read Only Memories, Magnetic Disk Memories, Flexible-Disk Memories, Flexible-Disk Storage Systems- The Floppy Disk, Magnetic Tape, Tape Cassettes and Cartridges, Magnetic Bubble and CCD Memories.

Unit-II

Simple as possible Computer (SAP-I), Architecture Instruction Set, Programming SAP-I, Fetch cycle Execution cycle, SAP-2 Architecture, Memory reference instruction, Register instructions, JUMP & Call instructions Logic instructions.

Unit-III

SAP-3 Programming model, MOV & MVT, arithmetic instructions, increments, Decrements, and rotates, Logic instructions, Arithmetic and Logic immediate jumps instruction, Extended register instructions, indirect instructions set of 8005 timing diagrams.

References:-

1. Digital Computer Electronics by A. P. Malvino
2. Digital Computer Fundamentals by Thomas C. Bartee

B.Sc. ELECTRONICS
Semester-V
Paper II- EL -502
Communication Electronics-I

Max. Marks : 45
Internal Assessment : 5
Time : 3 Hrs.

NOTE :
1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Modulation and Demodulation: Principles of modulation, Amplitude modulation, percent modulation, Upper and lower side Frequencies, Upper and Lower side bands, mathematical analysis of a modulated, carrier wave, power relations in an AM wave, simple idea about different forms of amplitude modulation, Basic circuit for generation and detection of AM/FM signals.

Unit-II

Basic television aspect ratio, vertical resolution, Kellfactor, Horizontal resolution and video band width, interlaced scanning composite video signal, video modulation and vestigial side hand transmissions, Television camera tubes, The image orthicon, The Videocon, frequency band and resolution.

Unit-III

Monochrome Television transmitter, Television receiver, Receiver Sweep circuit and their synchronization, colour Television, Fundamental concepts of a three colours systems, colour television transmitter, colour television receiver.

References:-
1. Monochrome and Colour Television by R. K. Gulati
2. T. V. Engineering by Arvind Dhaka
3. Electronic Theory and Applications by S. L. Kulkarni & K. C. Bhandari

B.Sc. ELECTRONICS
Semester-V
EL -503
Practical-V

Max. Marks : 50
Time : 3 Hrs.

Note for Practical papers:-

The practical examination will be of 3 hours.
Distribution of marks:

Experiments	30 marks
Lab. Record	8 marks
Viva-Voce	12 marks

The laboratory record will be assessed by the external examiner. Distribution of marks of each experiment, Lab record and Viva-voce, oral examination, concerning the experiments in the syllabus are indicated above.

Use of simple (non-programmable) calculator is permissible.

Note : five experiments are to be performed by each student

i **F**amiliarization with microprocessor kit.

ii Study the instruction set of 8085 on microprocessor kit.

Iii Programme writing with simple arithmetic operation.

iv To study the operation of decade counter/7 segment decoder.

v To identify and study the main parts of a monochrome TV receiver.

vi Computer Programming in FORTRAN language (using the statements) READ, WRITE, IF THEN ELSE, DO TO DO LOOPS.

vii Computer Programming in FORTRAN Language (using arrays and subscribed variables).

viii Study the operation of J-K, Flip Z Flop, D & T flip flops.

ix To Study the operation of Shift resister.

x To design the D to A converters (Ladder type) and study the operation of A to D convertor.

xi Circuit simulation using PSPICE

References:-
1. The SPICE Book by Anderi Valadimirescu
2. Principles of Computer Programming FORTRAN 77 IBNPC
3. Semiconductor device modeling with SPICE by P. Angognet & G. Mossobroj
4. Digital Computer Fundamentals by Thomas C. Bartee

B.Sc. ELECTRONICS
Semester-VI
Paper I- EL 601
Computer Fundamentals-II

Max. Marks : 45
Internal Assessment : 5
Time : 3 Hrs.

NOTE :
1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Input-Output Statements, Simple Computer programmes, Control statements.

Unit-II

Format specifications function and subroutines, Fortran progrmme example, Additional Fortran 77, Features, Simulation of circuits using P SPICE

Unit-III

Interconnecting System Components, Interfacing-Buses, Bus Formats and Operation, Isolated and Memory-Mapped Input-Output, Interfacing a Keyboard, Program Control of Keyboard Interface, Interfacing a Printer, Interrupts in Input-Output Systems, A Standard Bus Interface.

References:-
1. Monochrome and Colour Television by R. K. Gulati
2. T. V. Engineering by Arvind Dhaka
3. Digital Electronic Practice by using IC's by M. S. Anand and R. I. Jain
4. Electronics Theory and Applications by S. L. Kulkarni & K. C. Bhandari

B.Sc. ELECTRONICS
Semester-VI
Paper II- EL 602
Communication Electronics-II

Max. Marks : 45
Internal Assessment : 5
Time : 3 Hrs.

NOTE :
1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Television antennas, horizontal dipole, folded dipole, Yagianteena, Colour Television camera, the Luminance and colour difference signals, shadow mask colour picture tube, PAL-D colour television system, block diagram of PAL-D encoder, block diagram of PAL- D television receiver.

Unit-II

Detailed Design Principle of following:
(I) Digital Frequency matter (ii) Super heterodyne receiver (iii) Time base generator for C. R. O. (iv) Stabilized power supply usual output 0-15 Volt, 1 Amp. Using IC regulators (v) Digital voltmeter (vi) Digital Clock (vii)   Stereo amplifier

Unit-III

Volt Meter (VTVM), Signal Generator, Free Space Radar Range Equation, Basic Pulsed Radar System, Indicator, Applications of Radar.

Max. Marks : 50
Time : 3 Hrs.

Note for Practical papers:-
      The practical examination will be of 3 hours.
      Distribution of marks:
      Project demonstration   30 marks
      Project Report   8 marks
      Viva-Voce   12 marks
      The Project Report will be assessed by the external examiner. Distribution of marks of each experiment, project report and Viva-voce oral examination, concerning the experiments in the syllabus are indicated above.
Use of simple (non-programmable) calculator is permissible.

 One project to be based on one of the following topics:
   i.Digital Frequency meter.
  ii.Digital Volt meter.
 iii.Digital Clock
 iv.Stereo Amplifier.
   v.Super heterodyne receiver.
 vi.Inverter with given specifications
vii.Stabilized power supply
viii.Digitally adjustable tier.
 ix.Temperature Controller