Scheme of Examination
B. Sc. (Electronics) I to II Semester w.e.f. 2016-17

Semester-I

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-101	Basic Electronics	50	10	40
EL-102	Network Theory	50	10	40
EL-103	Practical-I	50	-	50

Semester-II

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-201	Electronic Devices and Circuits-I	50	10	40
EL-202	Digital Principles and Applications	50	10	40
EL-203	Practical-II	50	-	50

B. Sc. (Electronics) III to IV Semester w.e.f. 2017-18

Semester-III

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-301	Electronic Devices and Circuits-II	50	10	40
EL-302	Combinational and Sequential Circuits	50	10	40
EL-303	Practical-III	50	-	50

Semester-IV

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-401	Amplifier and Oscillator Circuits	50	10	40
EL-402	Electronic Devices and Circuits-III	50	10	40
EL-403	Practical-IV	50	-	50

Scheme of Examination

B. Sc. (Electronics) Semester V & VI for the session 2018-19

Semester-V

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-501	Computer Fundamentals-I	50	10	40
EL-502	Communication Electronics-I	50	10	40
EL-503	Practical-V	50	--	50

Semester-VI

Paper No.	Title	Total Marks	Internal Assessment	Max. Marks
EL-601	Computer Fundamentals-II	50	10	40
EL-602	Communication Electronics-II	50	10	40
EL-603	Project Work-VI	50	--	50

B.Sc. ELECTRONICS
Semester-I
Paper I- EL 101
Basic Electronics

Max. Marks : 40
Internal Assessment : 10
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

Classification of Solids on the basis of energy band diagram, conductors, Insulators, Semi-conductors, Types of semi-conductors, current in semi-conductors, ideal diode, V-I Characteristics of ideal diode, PN junction diode, Diasing of PN junction diode, junction-capicitance, Current in PN junction diode. Application of PN junction diode as a switch as rectifiers-Half wave rectifier, Full wave rectifier and bridge rectifier, Clamper and clipping circuits, Filter circuits, L,C, L-C, PIE section filters, Zener diode, Multiplier circuits.

Unit II

Bipolar Junction Transistor (BJT), Four regions of operation of BJT, Transistor current component, Transistor as an amplifier, BJT in CE, CB, CC configurations, I/P and O/P characteristics, I/P resistance, O/P resistance, Current gain, Voltage gain, Power gain.

Unit III

Transistor at low frequencies, Graphical analysis of CE configuration, Transistor hybrid model, conversion formulate for the parameters of the three transistor configuration.

References

1. Electronics for Scientist and Engineers by Vishwanathan, Mehta and Rajaraman (Prentic-Hall, India)
2. Electronics Fundamentals and Applications (5^{th} addition) by John, D. Ryder (Prentice-Hall, India)
3. Introduction to Electronics by L.K.Brauson (Prentice-hall, India).
4. Digital Principles and Application by Malvine and Leach (Tata MC Graw hill)
5. Electronic Devices and Circuits by Motershed.
6. Electronic Devices and Circuit-Discrete and Integrated by Y.N. Bapat.
7. Semiconductor Electronics by A.K.Sharma (New Age Internationals Pvt. Ltd., India)

B.Sc. ELECTRONICS
Semester-I
Paper II- EL 102
Network Theory

Max. Marks : 40
Internal Assessment : 10
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

Ideal voltage source, Open circuit, voltage, Short circuit current, Thevenin's theorem, Norton's Theorems, Super Position Theorem, Reciprocity Theorem, Millman's Theorem, Equivalent network analysis using Kirchoff's laws by Node method and Loop method. Maximum Power Transfer Theorem.

Unit II

Sinusoidal Voltage applied across a combination of circuit elements, Low pass filter, High pass filter, Band pass and Band Rejection filters, step impulse and ramp functions, Differentiating and integrating circuits.

Unit III

Characterization of two ports, Impedence, Admittance and Hybrid parameters, Transformation of parameters, Dependent sources, Voltage and current amplifier, ideal transformer reciprocity, Impendence Convertor.

References

1. Electronics for Scientist and Engineers by Vishwanathan, Mehta and Rajaraman (Prentic-Hall, India)
2. Electronics Fundamentals and Applications (5^{th} addition) by John, D. Ryder (Prentice-Hall, India)
3. Introduction to Electronics by L.K.Brauson (Prentice-hall, India).
4. Digital Principles and Application by Malvine and Leach (Tata MC Graw hill)
5. Electronic Devices and Circuits by Motershed.
6. Electronic Devices and Circuit-Discrete and Integrated by Y.N. Bapat.

B.Sc. ELECTRONICS
Semester-I
Paper III- EL 103
Practical-I

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 both the external examiners. 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.

1. Familiarization with CRO, Multi-meter, Bread board etc.
2. Measurement of time period, Voltage and phase shift using CRO
3. Electronic Volt-ohm meter, measurement of peak average and r.m.s. values of given signal, effect of wave form and signal frequency.
4. Junction transistor characteristics for Common Base configuration V_e I_e and V_E I_E and to calculate transistor parameters from graph.
5. Junction transistor parameter to measure common Emitter, h-parameter using various circuit arrangements.
6. Transistor amplifier configuration comparison of a Common Base Common Emitter and Common Corrector configuration of a given transistor.
7. Transistor bias stabilization, familiarization method for stabilization of transistor.
8. Study of half wave and full wave rectifier, Measurement of ripple factor.
9. Measurement of resistance, Using a multi-meter, Fabrication of potential divider circuit.

References

1. Experiments in electronics, by W.H. Events (Prentice-Hall, India)
2. Methods of Experimental Physics Vol.2, Electronic Method (Academic Press).

B.Sc. ELECTRONICS
Semester-II
Paper I- EL 201
Electronic Devices and Circuits-I

Max. Marks : 40
Internal Assessment : 10
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

Emitter follower, comparison of transistor amplifier configuration, Linear analysis of CE transistor amplifier configuration, Liner analysis of CE transistor circuit, Miller's Theorem, Cascading transistor amplifier.

Unit II

Transistor biasing and thermal stabilization, the operating point, stability, Self bias of emitter bias, stabilization against variations of ICE, VEB & Beta, Bias compensation, Thermal runway, Thermal stability.

Unit III

Junction Field Effect Transistor (JFET), Pinch off voltage, JFET V-I characteristics and transfer characteristics, FET small signal model, Low frequency common source and common drain amplifier, Biasing of FET, FET as voltage variable resister, MOSFET, depletion and Enhancement mode.

References:-

1. Semiconductor Electronics by A.K.Sharma (New Age Internationals Pvt. Ltd., India)
2. Electronic Devices and Circuits by Motershed
3. Electronic Devices and Circuit – Discrete and integrated by Y.N.Bapat
4. Electronics Fundamentals and Applications (5^{th} Edition) by John D. Ryder (Prentice-Hall, India)

B.Sc. ELECTRONICS
Semester-II
Paper II- EL 202
Digital Principles and Applications

Max. Marks : 40
Internal Assessment : 10
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

Binary numbers, Decimal to binary conversion, Binary to Decimal conversion, Binary addition, Subtraction, Multiplication, Division, 1's 2's, 9's, 10's compliments. 2's compliment addition and subtraction, Octal numbers octal to binary conversion, Vice-Versa, Hexa-Decimal number and conversion.

Unit II

BCD Code, 8-4-2-1, 2-5-2-1, excess three codes, Cyclic codes, Gray codes. Digital logic, +ve and –ve logic, Basic Logic gates – AND OR NOT gates, Boolean functions Duality Principle.

Unit III

Demorgans laws, Laws and theorems of Boolean Algebra, Precedence of Operators, Venn diagram, Truth table, Simplification of Boolean's function by Voolean algebra, K-map and its application (Four variables).

References

1. Electronics for Scientist and Engineers by Vishwanathan, Mehta and Rajaraman (Prentic-Hall, India)
2. Electronics Fundamentals and Applications (5^{th} addition) by John, D. Ryder (Prentice-Hall, India)
3. Introduction to Electronics by L.K.Brauson (Prentice-hall, India).
4. Digital Principles and Application by Malvine and Leach (Tata MC Graw hill)
5. Electronic Devices and Circuits by Motershed.
6. Electronic Devices and Circuit-Discrete and Integrated by Y.N. Bapat.

B.Sc. ELECTRONICS
Semester-II
Paper III- EL 203
Practical-II

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 both the external examiners. 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.

1. Draw the characteristics of a PN Junction diode for various voltages.
2. Junction field effect transistor characteristic. T plot V and I characteristics of JFET.
3. To study the effect of R.C. Time constant when various driving voltages (Square, Triangular and rectifier sine wage) are applied across a series of RC Circuits.
4. To study the performance of a diode as clipper and sketch the output wave form using a calibrated oscilloscope.
5. To study the performance of a diode as clamper and sketch the output wave form using a calibrated oscilloscope.
6. To design a basic logic gate and verify its truth table.
7. To design a battery eliminator having the given specifications.
8. To design a low pass RC and high pass RC filter of given specifications.
9. Study of RC circuit as differentiator and trace the o/p at different values of i) frequencies ii) R and C
10. Study of RC circuit as Integrator and trace the o/p at different values of (i) frequencies (ii) R and C.

References

1. Experiments in electronics, by W.H. Events (Prentice-Hall, India)
2. Methods of Experimental Physics Vol.2, Electronic Method (Academic Press)

B.Sc. ELECTRONICS
Semester-III
Paper-I EL 301
Electronic Devices and Circuits-II

Max. Marks : 40
Internal Assessment : 10
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

Classification of IC's (mono-lithic and Thin Film Imonolithic Fabrication techniques; crystalgrowth diffusion, epitaxy, Photolithography, metallization isolation, crossovers (detailed discussions). Monolithic devices BJT (npn. pnp), JFET MOSFET, Diodes Resistors, Capacitors (simple idea only)

Unit-II

Differential amplifier, Differential gain, Common mode gain, CMPR, ideal operational amplifier, Feed back in Op-Amp in inverting and non-inverting configuration, Buffer, summer, input bias current input offset voltage. Error introduced by offset voltage, integrating and Differentiating circuits using OPAMP, difference, Multiplication, division, Threshold discrimination.

Unit-III

Principle of voltage regulation, shunt regulators Zener diode Shunt regulator, BJT shunt regulator Series Voltages regulator, feed back regulator, Power Supply regulation, using OPAMP, Load regulation Stability, Zener diode regulator, short circuit protection, current regulation, using op.amp. regulators (IC 723 and three terminal regulators)

References:

1. Electronics for Scientists & Engineers by Vishwanathan Mehta and Rajaraman (Prentice hall India.
2. Electronic instrumentation and measurement techniques by WD Copper and AD Halfrick
3. Electronic Fundamental and applications IVth Edition by John D.Ryder.
4. Integrated Electronics by Millman & Halkias.
5. Electronic Devicies & circuit by Mottor shed.
6. Semiconductor Electronics by A.K.Sharma (New Age Internationals Pvt. Ltd., India)

B.Sc. ELECTRONICS
Semester-III
Paper – II EL 302
Combinational and Sequential Circuits

Max. Marks : 40
Internal Assessment : 10
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

Saturated and non-saturated logics, Resistor, Transistor Logic (RTL), Diodetransistor logic (DTL), Transistor Transistor logic (TTL), Emitter coupled logic, (EGL), integrated Injunction logic (IIL), Complimentary Metal Oxide Semi-conductor (CMOS), Logic, current sinking and sourcing, logic circuit Parameters-Propagation delay, number of levels, Fan in, Fan out, Loading Noise margin, Combination circuit design procedure analog to digital converter, realization of Boolean expression with NAND/NOR gate, Design of a railway track switching system.

Unit-II

Half adder, Full adder, a parallel binary adder 8-4-2-1 adder or excess 3 adder, half substractor, full substractor, 2's compliment adder/substractor, multiplexer and their use in combinational logic design, Demultiplexer, Decoder and their use in combinational design, Parity generator/Checker, Coade convertor.

Unit-III

Basics of sequential circuits, Asynchronous & synchromous sequential circuits, flip-flops, R-S, J-K-M, asterslave JK, T&D type flip-flops, Counters binary counter, Ripple counter and synchronous counter, Up and down counters.

References:

1. Electronics for Scientists & Engineers by Vishwanathan Mehta and Rajaraman (Prentice hall India.
2. Electronic instrumentation and measurement techniques by WD Copper and AD Halfrick
3. Electronic Fundamental and applications IVth Edition by John D.Ryder.
4. Integrated Electronics by Millman & Halkias.
5. Electronic Devicies & circuit by Mottor shed.

B.Sc. ELECTRONICS
Semester-III
Paper-III EL 303
Practical-III

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 both the external examiners. 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.

1. To study & design Hartley oscillator & measure its frequency.
2. To study & design colpits oscillator & measure its frequency for two values of inductance & with ferrite core.
3. To study and design of phase shift oscillator and measure its frequency.
4. To study the condition for sustained oscillation for Wein bridge oscillator.
5. Operational amplifier
   1. Unity gain buffer 2. Inverting amplifer 3. Non-inverting amplifier
6. Operational Amplifier
   1. Summing amplifier 2. difference amplifier.
7. Measurement of offset voltage and bias currents & CMPR of an operational amplifier
8. Integrating & differentiating circuits using Op-amp.
9. To study the 555 IC timer and its application as monostable and astabel multivibrator.
10. To study the working of Schmitt trigger using operational amplifier.

B.Sc. ELECTRONICS
Semester-IV
Paper-I EL 401
Amplifier and Oscillator Circuits

Max. Marks : 40
Internal Assessment : 10
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

Feedback-positive and negative feedback, Effect of negative feedback on gain, Non-linear distortion, input resistance, Frequency response, Voltage series and shunt feedback, Current series feedback. Active filters using op.amp (Lowpas and highpass Band pass and Band reject).

Unit-II

Principle of oscillatoions, condition for sustained oscillation, RF Oscillators, Hartley, Colpit, Crystal Oscillator (Principle of working and frequency oscillation), AF Oscillators" Wein Bridge, Phase shift Oscillators.

Unit-III

Multivibrator (Astable, Bistable, Monostable, Schmitt Trigger, Unijunction transisitor, (UJT), Sillicon controller, Rectifier (SCR), Triac, Diac Sillicon Controller Switch (SCS), Controller rectification, pluse control of SCR Phase Control of SCR, SCR Controller circuits, UJT Sawtooth wave generator, Triangular waveform generator.

References:

1. Electronics for Scientists & Engineers by Vishwanathan Mehta and Rajaraman (Prentice hall India.
2. Electronic instrumentation and measurement techniques by WD Copper and AD Halfrick
3. Electronic Fundamental and applications IVth Edition by John D.Ryder.
4. Integrated Electronics by Millman & Halkias.
5. Electronic Devicies & circuit by Mottor shed.
6. Semiconductor Electronics by A.K.Sharma (New Age Internationals Pvt. Ltd., India)

B.Sc. ELECTRONICS
Semester-IV
Paper – II EL 402
Electronic Devices and Circuits-III

Max. Marks : 40
Internal Assessment : 10
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

Memories, memory organization and its parameters. Read only Memories (ROM), Randum Access Memory (RAM), Application of ROM, Static Rendom access memories (SRAM),Dynamic Ram, Digital to Analog conversion (D/A) Binary weight, ladder type, Serial, BCD D/A conversion, Analog to digital conversion A/D, Single slope & dual slope and their parameters.

Unit-II

Trasducers classification, Strain gauge displacement, Temperature measurement Resistance Thermometer, Thermocopuple and Thermister, Photomultiplier tubes, photovoltaic cells Photoemissive cells, Light Emitting Diode (LED) construction and working.

Unit-III

Electronic Multimeter, Basic circuit, Characteristics of Electronic instruments, accuracy, precision sensitivity, Resolution and different types of errors Cathode ray oscilloscope, Block diagram, Cathode ray tube (CRT), Electrostatic deflection, Post deflection, acceleration, Horizontal and vertical deflection system, Digital storage oscilloscope Block diagram and explain in briefly.

References:

1. Electronics for Scientists & Engineers by Vishwanathan Mehta and Rajaraman (Prentice hall India.
2. Electronic instrumentation and measurement techniques by WD Copper and AD Halfrick
3. Electronic Fundamental and applications IVth Edition by John D.Ryder.
4. Integrated Electronics by Millman & Halkias.
5. Electronic Devicies & circuit by Mottor shed.

B.Sc. ELECTRONICS
Semester-IV
Paper-III EL 403
Practical-IV

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 both the external examiners. 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.

1. To study and design DTL NAND gate using discrete components and verify its truth table.
2. To study and design TTL NAND gate using discrete components and verify its truth table.
3. To study half Adder/full adder, and verify its truth table.
4. To study and verify the truth table of JK, D&T type flip-flaps.
5. BCD Decade counter, verify its truth table.
6. Study ripple Binary counter and verify its truth table.
7. Solid State Rectifier, Study of Characteristic under forward and reverse bias conditions.
8. To study the operation of transistorized Monostable multivibrator circuit and measure its delay time.
9. To study the operation of transistorized Astable multivibrator circuit and measure its frequency.

Projects topics are:

1. Electronic Multimeter using IC
2. Solid State Power controller using thyristor.
3. Function generator using IC
4. Time base generator
5. Regulated power supply using ICs.
6. Event Counter.
7. Transistor tester (NPN, PNP)
8. Electronic Timer with Alaram
9. Design of an under/over voltage cut off circuit
10. Transformer less o/p amplifier stage.

References:

1. Experiments in electronics by W.H. Events (Prentice Hall India)
2. Method of experimental Physics Vol.2 Electronic Method (Acad Press)
3. Experimental in electronics by Ravi Taj Dudeja.

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

Max. Marks : 40
Internal Assessment : 10
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.

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

Max. Marks : 40
Internal Assessment : 10
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.

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

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

Max. Marks : 40
Internal Assessment : 10
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.

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

Max. Marks : 40
Internal Assessment : 10
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.

B.Sc. ELECTRONICS
Semester-VI
EL -603
Project Work

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