

w.e.f. Session 2019-20
UPDATED SCHEME & SYLLABI FOR B.Sc. (Hons.)-I.T.
Course: B.Sc. (hons.) Information Technology
Examination Scheme

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:
40+10* = 50 marks of 3 hours duration for each Theory Paper.
- * For each paper question paper will be of 40 marks and 10 marks in each theory paper is awarded through internal assessment in each semester.
5. Workload -3 periods per week per theory paper

II. Practical Paper (Annual Examination System)

- i) The practical examination will be held at the end of Even semester in one sitting of three hours.
- ii) A candidate is required to perform minimum of 7 experiments out of the list provided during course of study in odd semester & even semester of the corresponding session as the case may be and is required to perform one experiment in examination.
- iii) Distribution of Marks: As per details given in each Practical Paper separately,
- iv) Maximum 10 students in one group during course of study and also in examination.
- v) Workload – 3 periods per week per group per practical paper

**B.Sc. (Hons) Information Technology-II Examination Scheme
(Proposed w.e.f Session: 2019-20)**

Sem.	Paper Code	Nomenclature Of Paper	Internal Assessment	Max. Marks	Total Marks	Pass Marks	Exam Duration	Exam System
III	BSIT - 301	Circuit Analysis & Digital Electronics-II	10	40	50	20	3 Hrs	Sem.
	BSIT - 302	Transistor and Linear Integrated Circuits	10	40	50	20	3 Hrs	
	BSIT - 303	Telecommunication & Networking-I	10	40	50	20	3 Hrs	
	BSIT - 304	Microprocessor Architecture and Programming-I	10	40	50	20	3 Hrs	
	BSIT - 305	Operating System - I	10	40	50	20	3 Hrs	
	BSIT - 306	Computer Programming with C – I	10	40	50	20	3 Hrs	
IV	BSIT-401	Digital Electronics-III	10	40	50	20	3 Hrs	Sem.
	BSIT-402	Oscillators and Multivibrators	10	40	50	20	3 Hrs	
	BSIT-403	Telecommunication & Networking-II	10	40	50	20	3 Hrs	
	BSIT-404	Microprocessor Architecture and Programming-II	10	40	50	20	3 Hrs	
	BSIT-405	Operating System - II	10	40	50	20	3 Hrs	
	BSIT-406	Computer Programming with C – II	10	40	50	20	3 Hrs	
Common for Sem III & Sem IV	BSIT-407	Analog Electronics (I.T Lab-V)	-	50	50	20	3 Hrs	Annual
	BSIT-408	Digital Electronics (I.T Lab-VI)	-	50	50	20	3 Hrs	
	BSIT-409	Electronics & Microprocessor (IT Lab-VII)	-	50	50	20	3 Hrs	
	BSIT-410	Programming in C (IT Lab-VIII)	-	50	50	20	3 Hrs	

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Semester-III

Course: B.Sc. (Hons) IT

Paper Code: BSIT-301

Nomenclature: -Circuit Analysis & Digital Electronics-II

Max. Marks: 40+10*

Time: 3hrs.

Unit-I

Network Theorems-I: Kirchhofs Voltage Law, Kirchhofs Current Law, Mesh Analysis, Nodal Analysis, Source Transformation Technique, Star-Delta Transformation, Superposition Theorem, Thevenin's Theorem.

Unit-II

Network Theorems-II: Norton's Theorem, Reciprocity Theorem, Compensation Theorem, Maximum Power Transfer Theorem, Duals and Duality, Tellegen's Theorem, Millman's Theorem.

Unit-III

Combinational Logic Design: Combinational Circuit design procedure, Half adder, full adder, half subtractor, full subtractor, parallel binary adder, 2'S complement adder/ subtractor, multiplexer and demultiplexer, Decoder, Encoder, Code Converter.

Unit-IV

Sequential Circuits: 1 Bit memory cell, RS Flip-Flop, Clocked RS FF, JK-FF, Race around condition, MASTER SLAVE JK T-FF, D-FF, Excitation table of Flip Flop, Conversion of Flip Flops. Applications of Flip Flops (Idea Only).

Reference Books:

1. Modern Digital Electronics by R.P. Jain.
2. Circuits and Networks by A. Sudhakar, Shyammoan
3. Network Analysis, Publication Khanna By G.K. Mithal
4. Network Analysis, Publication Pearson India By M.E. Van Valkenburg

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 - 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: 40+10.

* Each theory question paper will be of 40 marks of 3 hours duration and 10 marks in each theory paper are to be awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper

Semester-III
Course: B.Sc. (Hons) IT
Paper Code: BSIT-302
Nomenclature: -Transistor and Linear Integrated Circuits

Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

Transistor at Low Frequencies: Transistor hybrid model, h parameters, Analysis of transistor amplifier circuit using h- parameters, Emitter follower, Comparison of transistor configurations, Simplified common emitter hybrid model.

UNIT-II

Integrated Circuit-I: Basics of Integrated Circuit Technology, Monolithic fabrication technique, Different Fabrication Processes: Crystal growth, Epitaxial growth, Oxidation, Masking and Etching, Diffusion of Impurities, Metallization, Classification of ICs (SSI, MSI, LSI and VLSI).

UNIT-III

Integrated Circuit-II: Transistors for Monolithic Circuits (NPN & PNP), Monolithic Diodes, Integrated Resistors, Integrated Capacitors and Inductors, JFET, MOSFET fabrication (Qualitatively), Monolithic Circuit Layout.

UNIT-IV

Operational Amplifier-I: DC Coupled Amplifier, Double ended differential Amplifier, differential gain. Common-mode gain, CMRR, ideal operational amplifier, Basic Concept of Feedback in Op amp, Inverting & non-inverting configuration, Buffer, Summing and Difference amplifier.

Reference Books:

- 1) Electronics for Scientist & Engineers by Vishvanathan.
- 2) Op. amp. and Linear Integrated Circuit by Ramakant A. Gayakward
- 3) Integrated Electronics by Millman & Halkias
- 4) Linear Integrated Circuits by Roy Choudhury & Shail Jain

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Semester-III
Course: B.Sc. (Hons) IT
Paper Code: BSIT-303
Nomenclature: -Telecommunication & Networking-I

Max. Marks: 40+10*

Time: 3hrs.

UNIT-I

Introduction to Telephone System: Data communication and its components, Topology, Transmission mode. Structure of the telephone system, local loop: Transmission Impairments Modems, Multiplexing: FDM, WDM and TDM.

UNIT-II

Switching and ISDN: Types of Switching, Circuit Switching, Space division switch, Time division switch, Crossbar switch.

Narrowband ISDN: ISDN Services, ISDN system architecture, ISDN interface. Perspective on N-ISDN.

UNIT-III

Computer Networks: Introduction to computer network, data transmission mode, network types, LAN topologies with its merits and demerits. Network Models: Client/ server network and Peer-to-peer network, OSI, TCP/IP, layers and functionalities.

UNIT-IV

Frame Relay: Architecture, Layers, Congestion Control & quality of service.

ATM: Design goals, Problems, Architecture, Switching, ATM layers.

Reference Books

1. Computer Networks, Prentice Hall, by Andrew S. Tanenbaum.
2. Data Communication and Networking, Tata McGraw Hill, by Behrouz A. Forouzan.

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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.
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 - * Each theory question paper will be of 40 marks of 3 hours duration and 10 marks in each theory paper are to be awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper

Semester-III
Course: B.Sc. (Hons) IT
Paper Code: BSIT -304

Nomenclature: - Microprocessor Architecture and Programming-I

Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

SAP-I & SAP-II: Simple As Possible computer (SAP-1), Architecture, Instruction Set, Programming SAP-1, Fetch Cycle, Execution Cycle, SAP-II Architecture, Memory Reference instructions, Register Instructions, Jump and Call instructions, Logic instructions.

UNIT-II

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.

UNIT-III

8085 Microprocessor: Block diagram, Pinout diagram, Instruction set of 8085, Fetching and Executing, Instructions of 8085, Fetch execute overlap. Instruction word size, Addressing modes.

UNIT-IV

Interrupts: The 8085 interrupt Circuit, 8085 vectored interrupts, Interrupt Instructions, Restart instructions, Concept of DMA.

Reference Books:

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

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 - 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: 40+10.
* Each theory question paper will be of 40 marks of 3 hours duration and 10 marks in each theory paper are to be awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper

Semester-III
Course: B.Sc. (Hons) IT
Paper Code: BSIT -305
Nomenclature: - Operating System – I

Max. Marks: 40+10*
Time: 3hrs.

Unit-I

Operating System - Functions and Structure: Introduction to Operating System, Historical evolution of Operating System, Different services of Operating System, Types of Operating Systems, Operating System Architecture, Concept of System Calls, Virtual Machine and Booting.

Unit-II

Process Management: Process Concept, Process States, Process Control Block, Process Scheduling, Context Switching, Schedulers, Operation of Processes

Scheduling: Basic concepts, Scheduling criteria, Scheduling Algorithms: FCFS, SJF, Priority, RR, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling. Multiprocessor Scheduling and Real-Time Scheduling.

Unit-III

Inter-process Communication and Synchronization: Cooperating Processes, Inter-process Communication: Producer Consumer Problem, Process Synchronization: Critical Section, Hardware supported solutions, Software solutions.

Unit-IV

Deadlocks: Deadlocks, Graphical representation of a Deadlock, Deadlock Prerequisites, Methods for handling Deadlocks: Prevention, Avoidance, Detection and Recovery.

References:

1. Operating System Concepts John Wiley & Sons, Inc by Peterson & Silberschetz:
2. Operating Systems Tata McGraw Hill by Achyut S Godbole
3. Operating System Mc Graw Hill by Madnick & Donomen
4. Operating system by A.S. Tanenbaum

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5. Work load – 3 periods per week per theory paper

Semester-III
Course: B.Sc. (Hons) IT
Paper Code: BSIT -306
Nomenclature:- Computer Programming with C – I

Max. Marks: 40+10*

Time: 3hrs.

Unit-I

Introduction: History of C, Importance of C, C Character Set, Identifiers & Keywords, data types, Qualifiers, Constants & Variables and their declarations, Symbolic Constants, Comments in C, expressions & statements, Structure of a C Program, Console I/O (printf, scanf). Escape Sequences.

Unit-II

Operators in C: Arithmetic, logical, relational & bitwise operators, Assignment and Conditional Operators, Increment and Decrement Operators, operator hierarchy & associativity. sizeof operator, Type conversion and cast operator, Library functions in C.

Decision Making in C: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, Programming examples using if Structure.

Unit-III

Decision Making in C: Switch statement, goto statement. Programming examples using switch and goto Structures.

Looping in C: While, do-while & for loops, break & continue statements, Programming examples using loop Structures.

Unit-IV

Arrays: 1-D & 2-D arrays, Creating and Processing Arrays, Applications of arrays in searching, sorting, merging & matrices. Character I/O functions: getchar(), getch(), getche(), putchar().

Reference Books:

1. Programming with C, Tata McGraw Hill, by Byron Gottfried.
2. Let Us C, BPB publications, by YashwantKanetkar.
3. C The Complete Reference, Tata McGraw Hill, by Herbert Schildt.
4. Programming in ANSI C, Tata McGraw Hill, by E. Balagurusamy.

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Semester-IV

Course: B.Sc. (Hons) IT

Paper Code: BSIT-401

Nomenclature:-Digital Electronics-III

Max. Marks: 40+10*

Time: 3hrs.

UNIT -I

Sequential Circuits-II : Counters: Asynchronous Counters- Mod-N or divided by N Counter. Synchronous Counter-Modulo Counters, Decade Counter. UP-Down Counters, Basic principle of digital clock.

Unit- II

Registers: Shift Registers, Serial-in serial out (SISO), serial-in-parallel out (SIPO), parallel-in-serial-out (PISO) parallel-in-parallel-out (PIPO), bi-directional shift register, Universal Shift Register Applications of shift register – Ring counter, Twisted Ring Counter, Sequence Generator.

Unit -III

Digital Memories : Memory System Parameters, ROM, PROM, EPROM, EEPROM, RAM (Static and dynamic), PLA's, Expanding Memory Size.

Unit -IV

D/A and A/D converters : Digital and Analog representation, D/A Converters: Weighted Resistor DAC, R-2R Ladder Type DAC, Specification of DAC. A/D converters: Single slope A/D converter, Dual slope A/D converter, Successive approximation A/D converter, Specification of ADC.

Reference Books:

- 1) Digital Electronics & Micro computers - R. K. Gaur (4 th edition).
- 2) Modern Digital Electronics by R.P. Jain.

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 - I. A Student is required to attempt 5 questions in all.
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 - IV. All questions carry equal marks.
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3. Instructions should be imparted using SI system of units. Familiarity with CGS system of units should also be ensured.
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5. Work load – 3 periods per week per theory paper

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code: BSIT-402
Nomenclature: - Oscillators and Multivibrators

Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

Operational Amplifier-II: Offset Voltages and currents, input bias Current, input offset voltage, error introduced by offset voltage, integrating and differentiating circuit using opamp, multiplication, division, Schmitt Trigger, Active filters using opamp (1st order)

UNIT-II

Feedback in Amplifier:- Classification of Amplifiers (voltage, current, Transconductance, Transresistance amplifier), Feedback concept, calculation of transfer gain in degenerative and regenerative feedbacks, Feedback topologies, Effect of negative feedback on gain, Non-linear distortion, Frequency response, Effect of negative voltage shunt feedback on input and output resistance, Effect of negative voltage series feedback on input and output resistance, Effect of negative current shunt feedback on input and output resistance, Effect of negative current series feedback on input and output resistance.

UNIT-III

Oscillators: Principle of oscillations, condition for sustained oscillation, Principal, working and frequency calculation of RF oscillators (Hartley oscillator, Colpitts oscillator, crystal oscillator) and AF Oscillators (Wein Bridge oscillator, Phase-shift oscillator)

UNIT-IV

Multivibrators: Astable Multivibrator, Bistable Multivibrator, Monostable Multivibrator using BJT, Triangular waveform generator, The 555 Timer, Block diagram of 555 and its application as Astable & Monostable Multivibrator.

Reference Books:

1. Basic Electronics Solid state by B.L. Theraja.
2. Opamp and linear circuits by Ramakant A Gayakward.
3. Electronics for Scientist & Engineers by Vishvanathan & Mehta.
4. Integrated Electronics by Millman & Halkias

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5. Work load – 3 periods per week per theory paper

Semester-1V
Course: B.Sc. (Hons) IT
Paper Code: BSIT-403
Nomenclature: -Telecommunication & Networking-II

Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

Network Devices: NIC, repeaters, hub, bridge, switch, gateways, router, connectors and transceivers. Network Design Issues and Protocols, connection-oriented and connectionless services.

Transmission Media: Introduction, Guided Media: Twisted pair, Coaxial cable, Optical fiber. Unguided media: Microwave, Radio frequency propagation, Satellite.

UNIT-II

Evolution and Challenges of Wireless Networks: Cellular Networks: Concept, Call Set up, Frequency Reuse, Channel Assignment, Handoff, Mobility Management. GSM and IS-95 architecture, channels, and Call Establishment, Wireless Data Service, 3G and 4G Cellular Systems.

UNIT-III

Fiber Optic Communication-I: Light Wave Communication Systems, Fiber Optic System, Applications & Benefits of Fiber Optics, Working of Fiber Optic Cables, Construction of Fiber Optic Cables.

UNIT-IV

Fiber Optic Communication-II: Types of Cables: Cable Variations, Cable Attenuation, Optical Transmitter & Receivers, Fiber Optic Data Communication Systems.

Reference Books

1. Computer Networks, Prentice Hall, by Andrew S. Tanenbaum.
2. Data Communication and Networking, Tata McGraw Hill, by Behrouz A. Forouzan.
3. Communication Electronics, Tata McGraw Hill, by Frenzel.
4. Mobile Computing, Oxford Higher Education, by Raj Kamal.

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 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.
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5. Work load – 3 periods per week per theory paper

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code: BSIT-404

Nomenclature: -Microprocessor Architecture and Programming-II

Max. Marks: 40+10*

Time: 3hrs.

UNIT-I

Interfacing Devices-I: Interfacing an 8-bit DAC with 8085, Interfacing 8-bit ADC with 8085. General purpose programmable peripheral devices: block diagram of 8255, Modes of operation of 8255-Mode0, BSR mode, Mode1, mode2.

UNIT-II

Interfacing Devices-II: 8254(8253) Programmable interval timer, block diagram of 8254, Modes of operation of 8254- Mode0 to Mode5, 8257 DMA controller.

UNIT-III

Microprocessor 8086-I: 8086 internal architecture, Introduction to programming the 8086, Program development steps. Addressing Modes of 8086, Instruction Set of 8086. Data Copy/Transfer Instruction (MOV, PUSH, POP, IN, OUT). Arithmetic Instructions (ADD, ADC, INC, DEC, SUB, SBB, CMP, DAA, DAS, MUL, IMUL, DIV, IDIV). Logical Instructions (AND, OR, NOT, XOR).

UNIT-IV

Microprocessor 8086-II: Constructing the machine codes for 8086 instructions, Simple sequence program, Jumps, flags and conditional jumps, if-then, if -then –else and multiple if-then-else program, while-do programs, Repeat –Until programs.

Reference Books:

1. Microprocessors and Interfacing (Programming and Hardware) by Douglas V. Hall.
2. Microprocessor Architecture, programming and application with the 8085 by R S Gaonkar.
3. Advanced Microprocessors & Peripherals Architecture, Programming & Interfacing By Ray & Bhurchandani (Tata McGraw Hill)

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5. Work load – 3 periods per week per theory paper

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code: BSIT -405
Nomenclature: - Operating System-II

Max. Marks: 40+10*
Time: 3hrs.

Unit-I

Memory Management: Logical versus physical Address Space, Overlays, Swapping, Contiguous Memory Management: Single memory management, Fixed partition memory management, Variable Partition memory management, Non Contiguous Memory Management: Paging, H/W support for paging, protection & sharing, Segmentation, H/W support for segmentation, protection & sharing, Segmented Paging.

Unit-II

Virtual Memory: Introduction to Virtual Memory, Demand Paging, Page Replacement policies, Trashing, Cause of Thrashing.

Unit-III

File Management: File Concept, File Attributes, File Operations, File Types, Access methods, Directory Structure.

File System Implementation: File system structure, allocation methods, Free-space management, directory implementation, efficiency & performance, recovery, Directory systems & operations.

Unit-IV

Protection: Goals of Protection, Protection Mechanisms.

Security: The security problem, User Authentication, Program Threats, System Threads, Cryptography.

References:

1. Operating System Concepts John Wiley & Sons, Inc by Peterson & Silberschetz:
2. Operating Systems Tata McGraw Hill by Achyut S Godbole
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4. Operating system by A.S. Tanenbaum

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marks in each theory paper are to be awarded through internal assessment in each semester.

5. Work load – 3 periods per week per theory paper

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code: BSIT -406
Nomenclature:- Computer Programming with C – II

Max. Marks: 40+10
Time: 3hrs.

Unit-I

Preprocessor Directives: The Preprocessor, File inclusion directives, Macro substitution directives, compiler control directives, other directives.

Strings: Strings and String functions. String I/O functions: gets(), puts().

Unit-II

Functions: Creating & Using Functions in programs, return statement, Formal & Actual Arguments, Local & Global Variables, Call by value & Call by Reference, Passing arrays to functions, Recursion, command line arguments, Programming examples using functions.

Unit-III

Pointer: Introduction to Pointers, Pointer Variables, Pointer Operators, Pointer Expressions, Pointers and Arrays. User Defined Data types: Structures, Array of structures, passing Structures to functions, Structure and Pointers, Unions, Enumerated data types, typedef.

Unit-IV

Storage Classes: auto, extern, register and static Storage classes.

Files: Opening and Closing a Data File, File Pointers, Creating a Data File, Processing a Data File, Reading and writing to text and binary files.

Reference Books:

- 1 Programming with C, Tata McGraw Hill, by Byron Gottfried.
- 2 Let Us C, BPB publications, by Yashwant Kanetkar.
- 3 C The Complete Reference, Tata McGraw Hill, by Herbert Schildt.
- 4 Programming in ANSI C, Tata McGraw Hill, by E. Balagurusamy.

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 - 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: 40+10.

* Each theory question paper will be of 40 marks of 3 hours duration and 10 marks in each theory paper are to be awarded through internal assessment in each semester.

5. Work load – 3 periods per week per theory paper

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code: BSIT-407
Nomenclature of Paper- Analog Electronics (I.T Lab-V)

Note:-

1. A student is required to perform a minimum of 7 experiments from the list given below during course of study(Semester III +Semester IV).
2. Instructions for Examiners:A candidate is required to perform one experiment.
3. Maximum number of students should not exceed ten in one group during course of studies as well as annual examination.

M.M: 50

EXPERIMENT (3 hrs) : 25
PRACTICAL WORK BOOK : 15
VIVA-VOCE : 10

Time: 3 hrs

List of experiments

- I. To study op-amp as-
 - (a)Unity gain buffer stage
 - (b) Non-inverting amplifier
 - (c) Inverting amplifier
- II To Study op-amp as-
 - (a) Summing amplifier
 - (b) Difference amplifier
- (III) To study the operation of integrating/differentiating circuits using op-amplifier.

- (IV) Measurement of offset voltage, bias currents & CMRR of an operational amplifier.
- (V) To study the operation of a monostable multivibrator circuit and measure its delay time.
- (VI) To design astable multivibrator and measure its frequency.
- (VII) Study of UJT and its characteristics.
- (VIII) Design a sawtooth generator using UJT.
- (IX) To study & design Hartley Oscillator & measure its frequency.
- (X) To study & design Colpitts Oscillator & measure its frequency.
- (XI) To study the design of Phase Shift Oscillator & measure its frequency.
- (XII) To study the condition for sustained oscillation for Wein bridge Oscillator.
- (XIII) To study the working of Schmitt trigger using operational amplifier.

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code: BSIT-408
Nomenclature of Paper - Digital Electronics (I.T Lab-VI)

Note:-

1. A student is required to perform a minimum of 7 experiments from the list given below during course of study(Semester III +Semester IV).
2. Instructions for Examiners: A candidate is required to perform one experiment.
3. Maximum number of students should not exceed ten in one group during course of studies as well as annual examination.

M.M: 50

EXPERIMENT (3 hrs)	: 25
PRACTICAL WORK BOOK	: 15
VIVA-VOCE	: 10

Time: 3 hrs

List of Experiments:-

1. Half adder/Full adder.
2. Multiplexer and Demultiplexer Circuit (4: 1)
3. JK, D & T Flip-Flops.
4. Divide by N Counter.
5. Shift register
6. DAC
7. Ripple' binary counter.
8. Synchronous binary-counter.
9. Up. Down counter
10. Code Converter.
11. Parity generator
12. C. MOS Decade Counter

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code : BSIT-409

Nomenclature of Paper: Electronics & Microprocessor (I.T Lab-VII)

Note:-

1. A student is required to perform a minimum of 7 experiments from the list given below during course of study(Semester III +Semester IV).
2. Instructions for Examiners: A candidate is required to perform one experiment.
3. Maximum number of students should not exceed ten in one group during course of studies as well as annual examination.

M.M: 50

EXPERIMENT (3 hrs)	: 25
PRACTICAL WORK BOOK	: 15
VIVA-VOCE	: 10

Time: 3 hrs

List of experiments

1. Familiarization of microprocessor 8085 Kit and Key Command.
2. Addition/Subtraction of two 16 Bit numbers on Microprocessor-Kit.
2. Multiplication/ division of two 8 Bit numbers on Microprocessor- Kit.
3. Find the smallest/largest number from a given series of numbers on Microprocessor-Kit
4. To sort a give series of using of unsigned numbers in ascending/Descending order on Microprocessor-Kit.
5. Check even parity/odd parity of binary number on Microprocessor-Kit.
6. Binary to gray conversion and vice-versa.
7. To solve the logical equation using Microprocessor-Kit.
8. Find the Factorial of a Number.
9. Generate the Fibonacci Series.
10. Generate a time delay through software on Microprocessor-Kit.
11. Program to generate Square Wave using Microprocessor-Kit.
12. DAC.
13. ADC.

Semester-IV
Course: B.Sc. (Hons) IT
Paper Code :BSIT-410
Nomenclature of Paper: Programming in C (I.T Lab-VIII)

Note:-

1. Instructions for Examiners:A candidate is required to perform one experiment.
2. Maximum number of students should not exceed ten in one group during course of studies as well as annual examination.

Max. Marks: 50

EXPERIMENT (3 hrs)	: 25
PRACTICAL WORK BOOK	: 15
VIVA-VOCE	: 10

Time: 3 hrs

- 1 Program to study the behavior of data types i.e. their min & max values & their sizes.
- 2 Program to convert given distance in km to meters,feet,inches and centimeters.
- 3 Program to convert given temperature in Fahrenheit to Celsius.
- 4 Program to calculate the smallest & Largest out of given numbers using conditional operator.
- 5 Program to print roots of quadratic equation.
- 6 Program to print sum of digits of a given number.
- 7 Program to reverse the given number.
- 8 Program to check whether a given number is palindrome or not.
- 9 Program to add first seven terms of following series using for loop $1/1! + 2/2!+3/3!$
+-----
- 10 Program to evaluate the equation : $Y=x^n$
- 11 Program to print factorial of a number.
- 12 Program to print Fibonacci series till n given number using function.
- 13 Program to implement Calculator using functions.
- 14 Program to print binary equivalent of given decimal number.
- 15 Program to sort elements of array in ascending and descending order.
- 16 Program to search an element in 1-D arrays.
- 17 Program to implement multi-dimensional arrays-Multiplication of two matrices.
- 18 Program to check the orthogonality of a given matrix.
- 19 Program to calculate the transpose of a given matrix.
- 20 Write a function to find the largest element of an m by n matrix.
- 21 Program to calculate the substring of a given input string.
- 22 Program to remove blanks from a given string.
- 23 Program to sort given input strings.
- 24 Program to implement a function that compares the two input strings and returns 0 if equal, otherwise tells which comes first.
- 25 Program to calculate binomial coefficient ${}^n C_r$ using function.
- 26 Program to calculate HCF of n numbers using function.
- 27 Program to implement basic pointer arithmetic.
- 28 Program using pointers to read in an array of integers and print its elements in reverse order.

- 29 Program to create a function that receives a sorted array of integers & an integer value and inserts the value in its correct place using pointers.
- 30 Use recursive function calls to evaluate $f(x) = x - x^3/3! + x^5/5! + x^7/7! - \dots$
- 31 Program to study the behavior of struct and union elements using pointers.
- 32 Program to create a binary/text files and count the numbers of characters in them.
- 33 Program to copy a file to another using command line arguments.
- 34 Program to compare the contents of two files to determine whether they are same or not.
- 35 Program to modify and delete an existing record in a file.