STANDARD X

COMPUTER SCIENCE & INFORMATION TECHNOLOGY

EXAMINATION FOCUS POINTS-(2021-2022)

CHAPTER	FOCUS POINTS	WEIG HTAG E(Focus+ non focus)
1. CPU	Components-functions Registers-Accumulator,PC,MAR, MBR, IR,I/O Instruction-parts(opcode & operand),eg IC-fetch,decode,execute processor-wordlength,clockspeed eg.of 64 processor from Intel,AMD	12
2.Programming in C	Structure of C program #include, #define errors-syntax,logical Tokens-identification constants-classification identifiers-valid/invalid declaration-Assigning correct data types Operators-arithmetic,relational,logical,conditional, ++/ pre,post evaluation of expressions using hierarchy format strings-%d,%c,%f,%s getchar(),getch(),putchar()	13
3. Control Statements	Simple programs-odd/even,largest of 2 nos,positive/negative/zero if, if else,ladder if-switch(syntax,examples) entry controlled/exit controlled while,dowhile > for (conversions),syntax programs-print first n numbers, sum of first n numbers, break,continue-comparison	14
4. Arrays	Declaration, initialisation, memory requirement programs-input and print an array, linear search an element, sum of elements in an array	10

	<pre>string functions-strlen(),strcpy(),strcmp(),strcat() program-read and print a name, gets() vs scanf(),puts() vs printf() program-input and print 2x3matrix</pre>	
5. Functions	Use of functions Prototype, call, definition Write function if prototype given(factorial, sum of 2 numbers) Actual/formal arguments-comparison Library function vs user defined function header files for functions- arithmetic and character functions(math.h,ctype.h)	11
6. Structure and Union	Structure-use, definition, memory requirement Structure/array comparison, Union definition Define given structure structure / Union comparison	7
7. Network	Advantages of n/w LAN/WAN comparison internet-www, browser,search engine-examples MODEM-modulation/demodulation-working	8

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X-CS&IT LAB

LAB QUESTIONS

1.	Write a program to	check whether	a given	number i	s even or odd	l
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- Write a program to check whether a given number is positive , negative or zero
- 3. Write a program to find the largest of 3 numbers
- 4. Write a program to print first 10 numbers
- 5. Write a program to accept the day number and print the day in words
- 6. Write a program to find the factorial of number
- 7. Write a program to input a character and check whether it is vowel.
- 8. Write a program to read 10 numbers into an array and print it.
- 9. Write a program to read and print a 3X4 matrix
- 10. Write a program to print the pattern
 - 1
 - 2 2
 - 3 3 3
- 11. Write a program to find the sum of 2 numbers using function
- 12 Write a program to accept the student details such as name, regno, mark using structure and print it.

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ELECTRICAL TECHNOLOGY – Focus Points

Unit 1 – ILLUMINATION

- Working of incandescent lamps
- Properties of metal used as filament
- Halogen lamp Working and advantages
- Discharge Lamps working principle
- Fluorescent lamp Connection diagram and working
- Solid state lighting Advantages of LED Lighting

Unit 2 – ELECTRICAL MEASURING INSTRUMENTS

- Classification of electrical measuring instruments with examples
- Essentials of indicating instruments 3 torques
- Necessity of Controlling torque
- Methods for providing controlling torque Brief description of spring control and Gravity control methods
- Necessity of Damping torque
- Methods for providing damping torque Brief description of Air friction and Eddy current damping
- Classification of secondary instruments Moving iron and Moving coil type instruments.
- Working of attraction type and repulsion type MI instruments.
- Working principle of PMMC instruments
- Connection diagram of ammeter and voltmeter

Unit 3 – SIMPLE AC CIRCUITS

- Basic terms Cycle, Time period, Frequency, Amplitude, Peak to peak value, RMS value, Average value and form factor
- Equation for instantaneous value Simple problems
- Phase and Phase difference Representation of signals using waveforms and equations
- AC through resistor, AC through inductor and AC through capacitor Waveforms and equations.
- RL, RC and RLC series circuits Circuit representation, Equations for Impedance and circuit current
- Power in AC circuits Definition and equation of True power

• Simple problems involving the calculations of Impedance, Circuit current, Power consumed and Power factor in RL, RC and RLC circuits.

Unit 4 – AC GENERATORS

- Working principle of AC generator
- Single loop AC generator Diagram and working
- Relation between speed, frequency and number of poles of an alternator Equation and simple problems
- Parts of practical alternator Brief description only
- Importance of three phase systems
- Phase sequence in three phase systems
- Star and Delta interconnections Representation
- Line voltage, Line current, Phase voltage and Phase current in Star and Delta interconnections
- Important features of Star and Delta interconnections

Unit 5 – DC GENERATORS

- Working principle of DC generator
- Single loop DC generator Diagram and working
- Types of DC generator Separately excited and different types of self-excited DC generators Simple line diagrams of series shunt and compound generators
- EMF equation (No derivation needed)
- Simple problems based on the emf equation
- Simple problems on generated emf and terminal voltage

Unit 6 – DC Motors

- Working principle of DC motor
- Back emf in DC motors
- Voltage equation of a DC motor
- Simple problems based on voltage equation
- Factors affecting speed
- Factors affecting torque
- Types of DC motors Series, Shunt and Compound motors Descriptions with simple line diagrams
- Stepper motors and servomotors Brief description and Applications.

Unit 7 – AC MOTORS

- Working of induction motors
- Advantages of Induction motors
- Classification of induction motors Single Phase and Three Phase induction motors
- Expression for slip in induction motors

- Simple problems on slip
- Single phase induction motors Brief description and diagrams of Resistance start, Capacitor start induction run and Capacitor start and run Split phase induction motors
- Brief description of Synchronous motor

Unit 8 – GENERATION AND DISTRIBUTION OF ELECTRICITY

- Conventional and non-conventional energy sources Examples
- Brief description of hydroelectric power stations
- Renewable energy sources Solar, Wind, Tidal, Biomass and Hydel Basic concepts
- Single Line diagram of Transmission and Distribution
- Advantages of High Voltage Transmission Systems

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<u>Std X – Electronics Trade Theory - Focus Area</u>

No	Unit	Focus Area	Weightage of Marks (Total Marks including choices -75)
1	Electrical Fundamentals	Series and parallel combinations of resistors and capacitors (Simple problems) - Kirchhoff's Current Law (Statement & Simple Problems) - Kirchhoff's Voltage Law (Statement only)	8
2	Transistor as an amplifier	CE Transistor configuration- Current gain - Input and output characteristics - Significance of CE configuration - Q- point (definition only) - Need for biasing - RC coupled amplifier (Circuit, Input & Output waveforms) - Frequency response, gain and band width - Transistor as a switch (Circuit & working)	19
3	Special type electronics devices	JFET – Structure and symbol - JFET drain characteristics - JFET parameters - Depletion type and enhancement type MOSFETS (Symbols only) - Symbol and applications of LDR, Photo diode and Photo voltaic cell.	11
4	Oscillators	Barkhausen Criteria - RC phase shift oscillator (Circuit and Working) - Astable Multivibrator (Circuit diagram and wave form only) - Concept of Crystal Oscillator – Piezoelectric effect.	11

5	Digital Electronics	Realization of basic gates using universal gates - Boolean Algebra (Boolean identities only)- De-Morgans theorem (Statement, truth table & circuit implementation using gates) - Boolean expressions and its implementation using logic gates - RS and D Flip-flop (Circuit and truth table only)	14
6	Applications of Electronics	Simple block diagram of Inverter - Different generations in mobile technology - Comparison of Microprocessor and Microcontroller- ECG (Block diagram only)	10
7	Environmental Impacts of Electronics	Basic concept of environmental impacts of electronics & E-Waste management.	2