Department of Electrical Engineering
II Year IVth Semester

4EE2-01: Biology

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1. Discuss classification based on cellularity -unicellular and multicellular?	BLT-1	CO-1
2. Discuss molecular taxonomy.	BLT-2	CO-1
3. Explain model organism C.elegance?	BLT-3	CO-1
4. Discuss classification based on energy and carbon-utizationautotrophs, heterotrophs,lithotrophs.	BLT-1	CO-1
5. Discuss ultrastructure of prokaryotes and eukaryotes.	BLT-2	CO-1

ASSIGNMENT-II

1. Comparison between eye and camera.	BLT-3	CO-2
2. Discuss classification based on habitat – aquatic and terrestrial.	BLT-2	CO-2
3. Discuss Brownian motion.	BLT-2	CO-2
4. Classification based on ammonia excretion-aminotelic,uricotelic,ureotelic?	BLT-3	CO-2
5. Discuss biological observations of 18th century?	BLT-2	CO-2

ASSIGNMENT-III

1. What are biomolecules?Explain its functions with examples	BLT-2	CO-3
2. Distinguish between DNA and RNA	BLT-3	CO-3
3. Define enzymes and classify it	BLT-1	CO-3
4. Discuss the mechanism of enzyme action	BLT-2	CO-3
5. What is peptide bond?	BLT-1	CO-3

ASSIGNMENT-IV

1. Explain central dogma	BLT-1	CO-4
2. Explain protein structure and function	BLT-2	CO-4
3. Explain exothermic and endothermic reaction	BLT-2	CO-4
4. What is genetic code?	BLT-1	CO-4

ASSIGNMENT-V

1. Describe Kreb's cycle with a diagram.	BLT-1	CO-5
2. Define metabolism and explain first and second law of thermodynamics.	BLT-1	CO-5
3. How will you identify and classify micro-organism.	BLT-2	CO-5
4. What do you mean by sterilization	BLT-1	CO-5
5. How many ATP release during glycolysis?	BLT-1	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester

4EE1-02: Technical Communication

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1	Differentiate between General and Technical communication?	BLT-3	CO-1
2	Differentiate between oral and written communication?	BLT-3	CO-1
3	What is technical communication?	BLT-1	CO-1
4	Explain technical communication skills? Why are these skills useful?	BLT-2	CO-1
5	What are the forms of technical communication? Explain importance of technical communication?	BLT-2	CO-1

ASSIGNMENT-II

1	Explain types of summaries?	BLT-2	CO-2
2	What are the three methods of note making?	BLT-1	CO-2
3	What are the stages of writing an effective summary?	BLT-1	CO-2
4	Explain the methods of primary data collection ?	BLT-1	CO-2
5	Give the factors affecting document design?	BLT-2	CO-2

ASSIGNMENT-III

1.	Name and explain any 3 punctuation marks?	BLT-2	CO-3
2.	Name and explain 5 kinds of Technical Writing?	BLT-3	CO-3
3.	Give 6 principles of Technical Writing?	BLT-2	CO-3
4.	You are the manager of 24x limited, write a memo to the sales team congratulating them for their exceptional work in the month of May, also encourage them to continue with same efforts in the month of June.	BLT-4	CO-3

ASSIGNMENT-IV

1 Write the characteristics of technical reports and technical proposals?	BLT-1	CO-4
2 With the help of a table explain types of reports?	BLT-2	CO-4
3 Name and explain Job application, e-mail tips?	BLT-1	CO-4

ASSIGNMENT-V

1 Differentiate between Resume & CV?	BLT-2	CO-5
2 What are the 5 purposes of a technical report?	BLT-1	CO-5
3 Write a letter to kaliyaan (Clothing Manufacturer) in Jaipur (Rajasthan) to place other worth rupees 1,00,000.Also mention that you are sending the cheque to clear the dues of last purchase you	BLT-3	CO-5

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Department of Electrical Engineering
II Year IVth Semester
4EE3-04: Electronic Measurement and Instrumentation
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1	The inductance of a moving iron ammeter with a full-scale deflection of 90 degree at 1.5 A, is given by the expression L=(200+40θ−4θ2−θ3) μH, where θ is the deflection in radian from the zero position. Estimate the angular deflection of the pointer for a current of 1.0 A.	BLT-4	CO-1
2	Discuss the available errors in wattmeter and their adjustments.	BLT-2	CO-1
3	Explain the testing and calibration of single-phase energy meter by phantom loading	BLT-1	CO-1
4	Briefly explain torque equation of electrodynamic instruments.	BLT-2	CO-1
5	Explain the construction and working of Induction type meters.	BLT-2	CO-1

ASSIGNMENT-II

1	What is Blondel's Theorem? Explain two wattmeter method of measurement of power in the three-phase system with balanced load.	BLT-2	CO-2
2	Draw the phasor diagram for a C.T. Derive an expression for phase angle error. Justify the statement "the secondary of a C.T should never be open circuited".	BLT-4	CO-2
3	Two wattmeters connected to measure the input to a balanced three phase circuit indicate 2000 W and 500 W respectively. Find the power factor of circuit a) When both the readings are positive b) When latter reading is obtained after reversing the connections to the current coil of first instrument.	BLT-3	CO-2
4	What is the use of potential transformer? Derive relationship, transformation ratio and phase angle for PT.	BLT-2	CO-2
5	Write short note on measurement of reactive power in a three-phase circuit. Make phaser diagram also.	BLT-3	CO-2

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester
4EE3-04: Electronic Measurement and Instrumentation
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-III

1. What is a volt-ratio box? Explain its construction, working and application?	BLT-1	CO-3
2. Describe the construction and working of co-ordinate type AC potentiometer.	BLT-2	CO-3
3. Describe with the help of suitable diagrams, how a DC potentiometer can be used for a) Calibration of a voltmeter b) Calibration of ammeter c) Determination of an unknown resistance	BLT-3	CO-3
4. What do you mean by calibration and standardization of potentiometer? Draw circuit diagram of Crompton potentiometer and explain its working in detail.	BLT-2	CO-3
5. A simple slide wire is used for the measurement of current in the circuit, the voltage drop across a standard resistor of 0 .1 ohm is balanced at 75 cm. Find the magnitude of the current if the standard cell of 1.5 volt is balanced at 50 cm.	BLT-4	CO-3

ASSIGNMENT-IV

1. Draw the circuit of a Wheatstone Bridge and derive the conditions of balance.	BLT-2	CO-4
2. Describe the substitution method of measurement of medium resistance. List the factors on which the accuracy of the method depends.	BLT-3	CO-4
3. Describe the construction and working of an earth tester. Explain how it can be used for measurement of resistance of an earthing electrode.	BLT-3	CO-4
4. What are the different problems associated with measurement of low resistance. Explain the principle of working of a Kelvin's double bridge and explain how the effect of contact resistance and resistance of leads is eliminated(derivation).	BLT-3	CO-4
5. Describe the fall of potential method for measurement of earth resistance.	BLT-1	CO-4

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester
4EE3-04: Electronic Measurement and Instrumentation
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-V

1. Derive the equations of balance for Anderson Bridge. Draw the phasor diagram for conditions under balance. Discuss the advantages and disadvantages of the bridge.	BLT-4	CO-5
2. Derive the general equations for balance for an ac bridge. Prove that the two conditions, that is, for magnitude and phase have to be satisfied if an ac bridge is to be balanced unlike a DC Bridge wherein only the magnitude conditions is to be satisfied.	BLT-4	CO-5
3The four arms of Maxwell's inductance capacitance bridge at balance are: Arm ab: Unknown inductance of L1 and inherited resistance of R1 Arm bc: Non inductive resistance of 1000 ohm Arm cd: A capacitor of 0.5 μF in parallel with a resistance of 1000 ohm Arm da: Unknown inductive resistance of 1000 ohm Determine the value of R1 and L1.	BLT-3	CO-5
3. Explain the function and working of Wagner device	BLT-1	CO-5
4. What are the sources of error in bridge measurement? List down the precautions.	BLT-1	CO-5

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Department of Electrical Engineering
II Year IVth Semester
4EE4-05 Electrical Machine-II
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1	What is the difference between concentrated and distributed winding?	BLT-3	CO-1
2	What is the difference between closed and open winding?	BLT-3	CO-1
3	Prove the expression for the pitch factor and short pitch coil.	BLT-4	CO-1
4	What do you mean by two-layer winding in AC machines?	BLT-1	CO-1
5	Derive the expression for distribution factor or breadth factor.	BLT-4	CO-1

ASSIGNMENT-II

1	What do you mean by constant magnetic field and pulsating magnetic field?	BLT-1	CO-2
2	What are the advantages of distributed winding in rotating machine.	BLT-2	CO-2
3	Compare the closed, open and semi-open slots in AC machines.	BLT-3	CO-2
4	Which material is used in laminations of core?	BLT-1	CO-2
5	Develop the MMF waveform in distributed winding with single phase supply	BLT-4	CO-2

ASSIGNMENT-III

1	What are the constructional differences between squirrel cage and slip ring induction motor?	BLT-2	CO-3
2	What is the relationship between rotor copper loss and rotor input power in 3 phase induction motor? Derive it.	BLT-4	CO-3
3	Draw the equivalent circuit and phasor diagram of 3 phase induction motor at standstill and at full load.	BLT-3	CO-3
4	What are the speed control methods of 3 phase induction motor? Explain in brief	BLT-1	CO-3
5	Explain the torque-slip characteristics for 3 phase induction motor with suitable figures and derivation.	BLT-3	CO-3

ASSIGNMENT-IV

1	Draw and explain the equivalent circuit of single-phase induction motor based upon double field revolving theory.	BLT-3	CO-4
2	What are the speed control methods of 1 phase induction motor? Explain in brief	BLT-2	CO-4
3	Why is the single-phase induction motor not self-starting?	BLT-2	CO-4
4	What is working principle of 1 phase induction motor?	BLT-2	CO-4
5	What is the construction of 1 phase induction motor?	BLT-1	CO-4

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester
4EE4-05 Electrical Machine-II
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-V

1A 3-phase star connected alternator supplies a load of 10 MW at power factor of 0.85 lagging and at 11 KV terminal voltage. Its resistance is 0.1 ohm per phase and synchronous reactance is 0.66 ohm per phase. Calculate the line voltage of emf generated.	BLT-5	CO-5
2What are advantages of rotating field winding over stationary field winding in alternator?	BLT-4	CO-5
3Explain the construction of a cylindrical rotor synchronous machine with a neat diagram.	BLT-2	CO-5
4What is voltage regulation of synchronous generators? What are the methods to calculate voltage regulation?	BLT-3	CO-5
5 What are the main applications of synchronous generators?	BLT-1	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester
4EE4-06 Power Electronics
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1. Explain the I-V characteristics of SCR with diagrams.	BLT-3	CO-1
2. Explain Two transistor Model of SCR.	BLT-1	CO-1
3. Explain Voltage Commutation method of SCR.	BLT-1	CO-1
4. Explain Reverse Recovery Characteristics of Power Diode.	BLT-1	CO-1
5. Explain the working of Power MOSFET with the help of diagram.	BLT-3	CO-1

ASSIGNMENT-II

1. A single-phase half wave SCR circuit feeds power to the RL load, draw waveforms for the source voltage, load voltage, load current, voltage source across SCR firing angle. Derive the expression for the average and rms load voltages and load current.	BLT-4	CO-2
2. A single-phase full wave bridge circuit feeds power to the RL load, draw waveforms for the source voltage, load voltage, load current, voltage source across SCR firing angle.	BLT-3	CO-2
3. A single Phase 230V, 1kW heater is connected across 1-phase, 230V, 50 Hz supply through an SCR. For firing angle delays of 45° and 90° , calculate the power absorbed in the heater element.	BLT-4	CO-2
4. A 3-phase Full bridge converter is feeding the power to RL Load. Draw the output voltage waveforms and deduce the expression of output voltage for firing angle $\alpha < 60°$.	BLT-3	CO-2
5. Write down the advantageous of Free-wheeling Diode.	BLT-3	CO-2

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester
4EE4-06 Power Electronics
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-III

1. Describe Buck Converter with relevant circuit diagram and waveform.	BLT-2	CO-3
2. Explain the various control strategies used in chopper for varying duty cycle.	BLT-2	CO-3
3. For type-A chopper of Fig. 7.2 (a), de source voltage = 230 V, load resistance =10 Ω. Take a voltage drop of 2V across chopper when it is on. For a duty cycle of 0.4, calculate (a) average and rms values of output voltage and (b) chopper efficiency.	BLT-4	CO-3
4. Describe Boost Converter with relevant circuit diagram and waveform.	BLT-1	CO-3
5. A step-up chopper has input voltage of 220 V and output voltage of 660 V. If the non-conducting time of thyristor-chopper is 100 s, compute the pulse width of output I voltage. In case pulse width is halved for constant frequency operation, find the new output voltage.	BLT-3	CO-3

ASSIGNMENT-IV

1. Explain the Operating principle of Single-phase full Bridge Inverters with neat and clean diagrams and waveforms.	BLT-3	CO-4
2. Explain the working of Full-bridge converter for unipolar PWM with neat and clean diagrams and waveforms.	BLT-3	CO-4
3. Explain the working of Full-bridge converter for bipolar PWM with neat and clean diagrams and waveforms.	BLT-3	CO-4
4. Define the Total Harmonic Distortion and Modulation Index.	BLT-1	CO-4
5. Design a bipolar PWM inverter that will produce a 75-Vrms 60-Hz output from a 150-V dc source. The load is a series RL combination with R =12 Ω and L= 60 mH. Select the switching frequency such that the current THD is less than 10 percent.	BLT-6	CO-4

ASSIGNMENT-V

1. Explain the Operating principle of Three-phase 180° mode Voltage Source Inverters with neat and clean diagrams and waveforms.	BLT-3	CO-5
2. A three-phase bridge inverter delivers power to a resistive load from a 450 V dc source. For a star-connected load of 10 Ω per phase, determine for both (a) 180° mode and (b) 120° mode; (1) rms value of load current (2) rms value for thyristor current (3) load power.	BLT-5	CO-5
3. Explain the PWM switching for Three-Phase Inverters with suitable waveforms.	BLT-3	CO-5

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Department of Electrical Engineering
II Year IVth Semester
4EE4-07: Signals& Systems
Note: Each Assignment of Maximum marks10.All question carries equal marks.

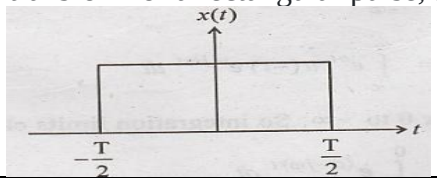
ASSIGNMENT-I

Q1. Differentiate between Even and Odd Signals.	CO-1	BLT-1
Q2. Define the unit impulse sequence.	CO-1	BLT-2
Q3. What is LTI system?	CO-1	BLT-1
Q4. What do you mean by Causal and Non-causal systems?	CO-1	BLT-1
Q5. Write the condition of the stability of the system.	CO-1	BLT-2

ASSIGNMENT-II

Q1. Find the convolution of the two continuous time functions s(t)= $e^{-t}2$ & h(t)=$3t^2$ for all t.	CO-2	BLT-5
Q2. Find the convolution of the two continuous time LTI systems h(t) = e^{-at} u(t) and x(t) = e^{at} u(-t) , a>0	CO-2	BLT-5
Q3. Obtain the state transition matrix of the system matrix is given as A = [0 1] −2 −3	CO-2	BLT-4
Q4. Determine the following system is linear or not 5 $\frac{dy(t)}{dt}$ + $y(t)$ = $5x(t)$	CO-2	BLT-3
Q.5. Explain the function of low-pass filter in sampling.	CO-2	BLT-2

ASSIGNMENT-III

Q.1. Determine the z-transform of the following discrete time signals. Also find the ROC for $x(n) = 2\left(-\frac{1}{2}\right)^n u(n) - 4(2)^n u(-n-1)$	CO-3	BLT-5
Q.2. Determine the Z transform for $x(n) = 2^n u(n-2)$	CO-3	BLT-4
Q.3 Obtain the Fourier transform of x(t) = 1	CO-3	BLT-4
Q.4. Obtain the Fourier transform of a rectangular pulse, as shown in Fig 	CO-3	BLT-3
Q.5. Determine the Laplace transform and ROC for $x(t) = e^{-at}u(t)$	CO-3	BLT-2

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
II Year IVth Semester
4EE4-07: Signals & Systems
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-IV

Q.1.What is Sampling? Explain it?	CO-4	BLT-1
Q.2.State Aliasing Problem.	CO-4	BLT-2
Q3. Find Inverse Z transform of $X(z)=\frac{z-4}{z^2-5z+6}$;$z>3$	CO-4	BLT-2
Q.4. What is meant by zero order hold sampling?	CO-4	BLT-1
Q.5. State and explain sampling theorem for continuous time signal.	CO-4	BLT-2

ASSIGNMENT-V

Q.1 Find the z-transform of the discrete-time sequence x[n] = $(0.5)^n$ u[n] , where u[n] is the unit step function.	CO-5	BLT-2
Q.2. Find the Nyquist rate and Nyquist interval for the following signal. $f(t)=\frac{1}{2\pi}\cos(4000\pi t)\,.\cos(1000\pi t)$ $f(t)=\left[\frac{\sin(4000\pi t}{\pi t}\right]^2$	CO-5	BLT-4
Q3. What is zero-order hold, drive the expression for transfer function of zero-order hold?	CO-5	BLT-3
Q.4 Verify Parseval's theorem for the following time sequence **x(n) = (1/2) ^{n} u(n)**	CO-5	BLT-3
Q5. Explain Aliasing Effect?	CO-5	BLT-1

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Department of Electrical Engineering

II Year IVth Semester

4EE4-08: Digital Electronics

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1	What are digital signals? What is the use of digital signals in electrical engineering?	BLT-1	CO-1
2	Explain the AND, OR, NAND, NOR gates with their truth table?	BLT-2	CO-1
3	Explain the laws of Boolean algebra?	BLT-2	CO-1
4	Convert the following. a) (456)10 = ()2 b) (586.25)10 = ()2 c) (624.26)10 = ()2 d) (10011011.1011)2 = ()10 e) (10110011)2 = ()10 f) (467)8 = ()10 g) (652.34)8 = ()10 h) (A24)16 = ()10 i) (B3D.AC)16 = ()10	BLT-4	CO-1
5	What does one's complement and two's complement and subtract the two numbers (10110110)2 and (01100110)2 with one's and two's complement?	BLT-4	CO-1

ASSIGNMENT-II

1	Minimize the function using K-map f (A, B, C, D) =Σ(2,6,7,9,11,14,15).	BLT-4	CO-2
2	Minimize the function using K-map f (A, B, C, D) =Σ(2,6,7,9,11,14,15). +d(1,8,13)	BLT-4	CO-2
3	What is multiplexer. Design 8*1 multiplexer using basic gates and give its truth table also.	BLT-6	CO-2
4	What is demultiplexer. Design 16*1 demultiplexer with basic gates and give its truth table also.	BLT-6	CO-2
5	Design 8*3 Encoder and 3*8 decoder and give its truth table also.	BLT-6	CO-2

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering

II Year IVth Semester

4EE4-08: Digital Electronics

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-III

Q1. What do you mean by latch? List differences between SR latch and SR flip flop.	BLT-2	CO-3
Q2. Design SR latch with its truth table. Explain the working with excitation table.	BLT-6	CO-3
Q3. Design JK flip flop with its truth table. What is the benefit of master-slave flip flop.	BLT-6	CO-3
Q4. Design D flip flop with its truth table. Explain the working with its excitation table.	BLT-6	CO-3
Q5. What are the types of shift register. Explain the working of each with suitable example	BLT-2	CO-3

ASSIGNMENT-IV

Q1. What are analog convertors. What is the application of analog convertor in digital processing of electronic signals.	BLT-1	CO-4
Q2. Explain the quantization and encoding of different digital signals.	BLT-2	CO-4
Q3. Explain Parallel comparator A/D convertor.	BLT-2	CO-4
Q4. Explain successive Approximation A/D convertor and illustrate with a suitable example.	BLT-2	CO-4
Q5. Explain the term accuracy and resolution for D/A convertor.	BLT-1	CO-4

ASSIGNMENT-V

Q1. Classify the different types of memory.	BLT-3	CO-5
Q2. How can we use ROM as Programmable logic Array.	BLT-2	CO-5
Q3. Write a short note on FPGA with a neat diagram.	BLT-2	CO-5
Q4. Differentiate between static RAM and dynamic RAM.	BLT-3	CO-5
Q5. Write a short on CCD memories.	BLT-2	CO-5

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