Seat No.:		Q. Paper Code: FTC-A-026	SET	P

Fabtech Technical Campus, College of Engineering & Research, Sangola

(An Autonomous Institute)

Mechanical Engineering, Civil Engineering,Computer Science and Engineering, Artificial Intelligence and Data Science

Academic Year: -2025-26, Semester-I

Basic Electrical And Electronics Engineering (25UET11001)

Regular End Semester Examination 2025-26 [Dec./Jan.]

Class:	F. Y. B. Tech.	**Day & Date:**	Wednesday, 21/01/2026
Duration:	03 Hrs.	**Max. Marks:**	60 Marks
Time:	10:00 AM TO 01:00 PM		

Instructions:

1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in the Page No.3 of answersheet.
2) Don't forget to mention the question paper set (P/Q/R) on the top of the page 3.

Q. 1	Multiple Choice Questions (MCQs) Each question carries 1 mark	Marks: 10 CO	BL
1	The power consumed by a resistor is given by: a) (P = VI) b) (P = I^2R) c) (P = V^2/ R) d) All of the above	1	1
2	When two resistors (R1) and (R2) are connected in series, their equivalent resistance is: a) (R1 + R2) b) (R1R2 / (R1 + R2)) c) (R1 - R2) d) ((R1 + R2)/2)	1	1
3	A device that converts electrical energy into mechanical energy is called a: a)Generator b)Transformer c) Motor d)Rectifier	2	1
4	The stationary part of the motor is called: a) Rotor b) Shaft c) Stator d) Fan	2	1
5	The direction of induced current is given by: a) Ohm's law b) Lenz's law c) Faraday's law d) Coulomb's law	3	1
6	A transformer works on the principle of: a) Coulomb's law b) Faraday's law of electromagnetic induction c) Ampere's law d) Newton's law	3	1
7	A PN junction diode is formed by joining: a) Two P-type semiconductors b) Two N-type semiconductors c) P-type and N-type semiconductors d) Metal and semiconductor	4	1
8	Zener diode works mostly in: a) Forward bias b) Reverse bias c) No bias d) AC supply	4	1
9	The three terminals of a BJT are: a) Anode, Cathode, Gate b) Source, Drain, Gate c) Emitter, Base, Collector d) Gate, Source, Collector	5	1

10	What is the full form of FET? a) Field Electron Transistor c) Fast Energy Transistor	b) Field Effect Transistor d) Flux Effect Transistor	5	1

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4) Make suitable assumptions if necessary and state it clearly.
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Q. No.	Questions	Marks	CO	BL
Q. 2	**Attempt any two of the following**	**10**		
1	Differentiate between AC and DC Circuits.	**5**	1	3
2	Define the following terms:- a)Register b) Inductor c)Capacitor d) Conductor e)Ohms law	**5**	1	2
3	Explain Steady state analysis of RLC circuit.	**5**	1	2
Q. 3	**Attempt any two of the following**	**10**		
1	Draw schematic diagram of DC motor and write construction and working principle.	**5**	2	2
2	Explain the construction of three-phase induction motor.	**5**	2	2
3	Explain the types of DC Generator.	**5**	2	2
Q. 4	**Attempt any two of the following**	**10**		
1	Define and explain following terms: i) Magneto motive force ii) Magnetic field strength iii) Reluctance iv) flux v) flux density	**5**	3	2
2	Explain Faraday's Laws of electromagnetic induction and Lenz's law.	**5**	3	2
3	Derive the induced emf equation for a single phase transformer.	**5**	3	3
Q. 5	**Attempt any two of the following**	**10**		

1	Draw and Explain VI Characteristics of PN Junction Diode	**5**	4	2
2	Explain working of Half wave rectifier with neat circuit diagram.	**5**	4	2
3	Explain the formation of Depletion Region across PN Junction Diode.	**5**	4	2
Q. 6	**Attempt any two of the following**	**10**		
1	Explain construction of PNP and NPN transistor.	**5**	5	2
2	With neat diagram explain the working principle of CMOS.	**5**	5	2
3	Compare CB, CC, and CE configurations of transistors	**5**	5	3

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3	Zener diode works mostly in: a) Forward bias b) Reverse bias c) No bias d) AC supply	4	1
4	The three terminals of a BJT are: a) Anode, Cathode, Gate b) Source, Drain, Gate c) Emitter, Base, Collector d) Gate, Source, Collector	5	1
5	What is the full form of FET? a) Field Electron Transistor b) Field Effect Transistor c) Fast Energy Transistor d) Flux Effect Transistor	5	1
6	The power consumed by a resistor is given by: a) (P = VI) b) (P = I^2R) c) (P = V^2/ R) d) All of the above	1	1
7	When two resistors (R1) and (R2) are connected in series, their equivalent resistance is: a) (R1 + R2) b) (R1R2 / (R1 + R2)) c) (R1 - R2) d) ((R1 + R2)/2)	1	1
8	A device that converts electrical energy into mechanical energy is called a: a)Generator b)Transformer c) Motor d)Rectifier	2	1
9	The stationary part of the motor is called: a) Rotor b) Shaft c) Stator d) Fan	2	1

10	The direction of induced current is given by: a) Ohm's law b) Lenz's law c) Faraday's law d) Coulomb's law	3	1

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1	Define and explain following terms: i) Magneto motive force ii) Magnetic field strength iii) Reluctance iv) flux v) flux density	**5**	3	2
2	Explain Faraday's Laws of electromagnetic induction and Lenz's law.	**5**	3	2
3	Derive the induced emf equation for a single phase transformer.	**5**	3	3
Q. 5	**Attempt any two of the following**	**10**		

1	Draw and Explain VI Characteristics of PN Junction Diode	**5**	4	2
2	Explain working of Half wave rectifier with neat circuit diagram.	**5**	4	2
3	Explain the formation of Depletion Region across PN Junction Diode.	**5**	4	2
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1	Explain construction of PNP and NPN transistor.	**5**	5	2
2	With neat diagram explain the working principle of CMOS.	**5**	5	2
3	Compare CB, CC, and CE configurations of transistors	**5**	5	3

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7	The stationary part of the motor is called: a) Rotor b) Shaft c) Stator d) Fan	2	1
8	The direction of induced current is given by: a) Ohm's law b) Lenz's law c) Faraday's law d) Coulomb's law	3	1
9	A transformer works on the principle of: a) Coulomb's law b) Faraday's law of electromagnetic induction c) Ampere's law d) Newton's law	3	1

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