



Final Assessment Test(FAT) - NOV/DEC 2025

Programme	B.Tech.	Semester	Fall Semester 2025-26
Course Code	BAEEE101	Faculty Name	Prof. Abhirami An
Course Title	Basic Engineering	Slot	E1+TE1
		Class Nbr	CH2025260103855_A
Time	1 hour 30 minutes	Max. Marks	50

Instructions To Candidates

- Write only your registration number in the designated box on the question paper. Writing anything elsewhere on the question paper will be considered a violation.

Course Outcomes

- CO1: Analyse the electrical circuits, electrical motors and the role of power electronics in industrial applications.
CO2: Acquire foundational knowledge of electronic devices and communication systems.
CO3: Apply BIS standards to create basic 2D and 3D representations of engineering components.
CO4: Explain the fundamental principles and applications of manufacturing processes, energy conversion systems, and mechanical automation technologies.
CO5: Analyze real-world examples where bio-inspired solutions have led to breakthroughs in engineering.

Answer all Questions (5 × 10 Marks)

01. Determine the current supplied by each battery using loop analysis for the network shown in Fig.1

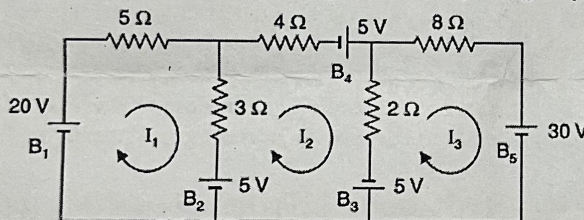


Fig.1

[10] (CO1/K3)

02. Use superposition theorem to find current I in the circuit shown in Fig.2. All resistances are given in ohms.

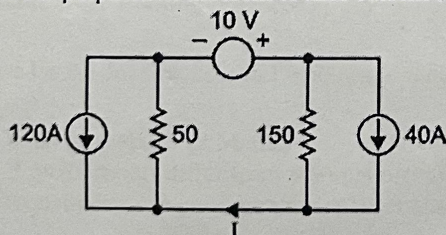


Fig.2

[10] (CO1/K3)

03. a. An alternating voltage of $(176+j132)V$ is applied to a circuit and the current in the circuit is given by $(6.6+j8.8)A$. Determine, (5 marks)
i. values of elements present in the circuit
ii. power factor of the circuit
iii. power consumed.
b. A 100V, 80W lamp is to be operated on 230Volts, 50Hz AC supply. Calculate the inductance of the choke required to be connected in series with the lamp for its operation. The lamp can be taken as equivalent to non inductive resistance. (5 marks)

[10] (CO1/K3)

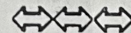
04. Describe the construction and operating principle of a single phase transformer with neat sketch and mention its applications.

[10] (CO1/K1)

05. Explain about BJT with common base configuration with neat sketch and its V-I characteristics.

[10] (CO2/K1)

BL-Bloom's Taxonomy Levels - (K1-Remembering, K2-Understanding, K3-Applying, K4-Analysing, K5-Evaluating, K6-Creating)





Final Assessment Test(FAT) - NOV/DEC 2025

Programme	B.Tech.	Semester	Fall Semester 2025-26
Course Code	BAEEE101	Faculty Name	Prof. Bhaskara Rao
Course Title	Basic Engineering	Slot	E1+TE1
		Class Nbr	CH2025260103855_B
Time	1 hour 30 minutes	Max. Marks	50

Instructions To Candidates

- Write only your registration number in the designated box on the question paper. Writing anything elsewhere on the question paper will be considered a violation.

Course Outcomes

- CO1: Analyse the electrical circuits, electrical motors and the role of power electronics in industrial applications.
CO2: Acquire foundational knowledge of electronic devices and communication systems.
CO3: Apply BIS standards to create basic 2D and 3D representations of engineering components.
CO4: Explain the fundamental principles and applications of manufacturing processes, energy conversion systems, and mechanical automation technologies.
CO5: Analyze real-world examples where bio-inspired solutions have led to breakthroughs in engineering.

Answer all Questions (5 × 10 Marks)

01. a) List any four major types of lines used in engineering drawings and state their uses. (4 Marks)
b) Compare the First Angle and Third Angle methods of orthographic projection. (4 Marks)
c) State whether the following statements are True or False: (2 Marks)
i. In an isometric projection, circles appear as ellipses.
ii. In a perspective projection, the size of the object remains the same regardless of distance. [10] (CO3/K1)
02. A hexagonal prism has one of its rectangular faces parallel to the H.P. Its axis is perpendicular to the V.P. and 3.5 cm above the ground. Draw its projections when the nearer end is 2 cm in front of the V.P. Side of base 2.5 cm long; axis 5 cm long. [10] (CO3/K3)
03. Describe the working principle of any one metal joining process with the aid of a neat diagram. [10] (CO4/K2)
04. Discuss the construction and working of a basic vapor-compression refrigeration unit. [10] (CO4/K2)
05. a) What is a robot? (2 Marks)
b) How do robots differ from automation? (3 Marks)
c) Explain any one configuration of a robotic manipulator with a neat sketch. (5 Marks) [10] (CO4/K2)

BL-Bloom's Taxonomy Levels - (K1-Remembering,K2-Understanding,K3-Appling,K4-Analysing,K5-Evaluating,K6-Creating)

