

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 30063

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Second Semester

Electrical and Electronics Engineering

GE25C01 — BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to : Electronics and Instrumentation Engineering/Instrumentation and Control Engineering)

(Regulations 2025)

Time : 3 hours

Maximum : 100 marks

CO – Course Outcomes

CO1	Understand the scope and significance of civil and mechanical engineering in societal and industrial development.
CO2	Apply basic technical knowledge in the field of civil and mechanical engineering.
CO3	Develop an appreciation for interdisciplinary roles of civil and mechanical engineers in solving real-world problems.

BL – Bloom's Taxonomy Levels

(L1-Remember, L2-Understand, L3-Apply, L4-Analyze, L5-Evaluate, L6-Create)

Answer ALL questions.

PART – A (Total Marks = 40)

[Q. No. 1 to Q. No. 10 ; $10 \times 1 = 10$ Marks (Multiple Choice Questions)]

Q. No. 11 to Q. No. 20; $10 \times 3 = 30$ Marks]

Q.No.	Questions	Marks	CO	BL
1.	Which test is commonly conducted in geotechnical engineering? (A) Compression test on steel (B) Slump test (C) Standard penetration test (D) Impact test	1	1	1

2.	Water treatment plants are associated with (A) Environmental Engineering (B) Structural Engineering (C) Transportation Engineering (D) Surveying	1	1	1
3.	Which material is commonly used for waterproofing roofs? (A) Bitumen (B) Sand (C) Lime (D) Timber	1	1	1
4.	Decorative panels are mainly used to (A) Increase structural load only (B) Improve appearance and interior finish (C) Reduce building height (D) Replace foundations	1	2	1
5.	Which masonry provides better appearance and durability? (A) Mud masonry (B) Brick masonry (C) Stone masonry (D) Timber masonry	1	2	2
6.	Which foundation is suitable for heavy structures? (A) Isolated footing (B) Raft foundation (C) Strip footing only (D) Brick footing only	1	2	1
7.	Gas turbine power plants generally work on (A) Carnot cycle (B) Rankine cycle (C) Brayton cycle (D) Stirling cycle	1	2	2
8.	Which renewable source depends on weather conditions? (A) Coal energy (B) Nuclear energy (C) Solar and wind energy (D) Diesel energy	1	3	1

9.	HVAC systems improve indoor (A) Structural strength (B) Thermal comfort and air quality (C) Soil bearing capacity (D) Fuel efficiency only	1	3	1
10.	Forged components generally have (A) Poor strength (B) Improved mechanical properties (C) No ductility (D) Low toughness only	1	3	1
11.	State any three advantages of energy-efficient buildings.	3	1	2
12.	What is meant by Public Health Engineering?	3	1	2
13.	Differentiate between clay bricks and fly ash bricks.	3	1	2
14.	What are the characteristics of good waterproofing materials?	3	2	3
15.	Differentiate between shallow foundation and deep foundation.	3	2	3
16.	Define isolated footing and mention its applications.	3	2	1
17.	What is a diesel power plant? Mention its applications.	3	2	2
18.	Define renewable energy with examples.	3	3	2
19.	What are the main parts of a centrifugal pump?	3	3	2
20.	Differentiate between TIG welding and MIG welding.	3	3	2

PART – B (5 × 12 = 60 marks)

Q.No.		Questions	Marks	CO	BL
21.	(a)	Explain the functions and importance of Structural Engineering in the Construction Industry.	12	1	4
		OR			
	(b)	Describe the importance of energy conservation in buildings and explain methods to reduce energy consumption.	12	1	4

22.	(a)	Describe the properties, manufacturing process, and uses of hollow concrete blocks.	12	1	3
	OR				
	(b)	Describe the methods used for thermal and sound insulation in residential and commercial buildings.	12	2	3
23.	(a)	Describe the principles of sustainable construction and green building technologies.	12	2	4
	OR				
	(b)	Discuss the importance of proper foundation Selection in ensuring Structural safety and stability.	12	3	4
24.	(a)	Describe the layout, components, and working principle of a steam power plant with neat sketch.	12	3	4
	OR				
	(b)	Discuss the role of civil and mechanical engineers in the design, operation and maintenance of modern power plants.	12	3	5
25.	(a)	Describe the working principle, construction and applications of reciprocating pumps.	12	3	5
	OR				
	(b)	Discuss the role of additive manufacturing in rapid prototyping and product development.	12	3	5