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Question Paper Code : 10232

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

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Second Semester

Electrical and Electronics Engineering

BE3255 — BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to Electrical and Computer Engineering/Electronics and Instrumentation Engineering/Environmental Engineering/Instrumentation and Control Engineering)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

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PART A — (10 × 2 = 20 marks)

1. What are the main specializations in civil engineering?
2. What does energy engineering deal with?
3. Define a contour with respect to surveying.
4. What are the uses of gypsum?
5. When do we need pile foundations?
6. Classify bridges in terms of material used to build.
7. What are the types of power plants ?
8. What are the advantages of a diesel engine compared to petrol engine?
9. State the principle of refrigeration.
10. Distinguish between an air cooler and an air conditioner.

PART B — (5 × 13 = 65 marks)

11. (a) With suitable examples, explain how civil engineering is closely related to common people anywhere in the world.

Or

- (b) Based on field of study and applications in real life situations, compare and contrast manufacturing engineering and automobile engineering.

12. (a) Discuss the process of manufacture of cement and its types and uses.

Or

- (b) What is a good quality concrete? Explain the mechanism of hardening of concrete and its strength development.

13. (a) With neat sketches, describe the various bonds adopted in both stone masonry and brick masonry.

Or

- (b) Classify dams based on material, structural action, purpose and height and explain each of them.

14. (a) State the purpose of a boiler and with neat sketches, explain any three commonly used boilers.

Or

- (b) Explaining the basic principle, discuss about different types of pumps.

15. (a) With a net sketch, explain the construction and working of a domestic refrigerator.

Or

- (b) Explain the working principle of split air conditioning cycle. List and explain the various parts in the air conditioning cycle.

PART C — (1 × 15 = 15 marks)

16. (a) What are the structural components of a framed building? Explain each of them with respect to its function in the building system.

Or

- (b) Classify Internal Combustion Engines based on, cycle of operation, cycle of combustion, arrangement of cylinders, fuel used, speed, method of cooling and according to number of cylinders.