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Reg. No. :

Question Paper Code : 70041

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Second Semester

Electrical and Electronics Engineering

BE 3255 – BASIC CIVIL AND MECHANICAL ENGINEERING

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

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Say how civil engineering is closely connected to the society.
2. State any four major sub disciplines in mechanical engineering.
3. Name any two leveling instruments used for surveying.
4. What is seasoning of timber?
5. State any two shallow foundations.
6. What is a culvert?
7. What are the major components of an IC Engine?
8. Differentiate between a pump and a turbine.
9. Write the principle of an air conditioner used in our homes.
10. What are psychometric charts?

PART B — (5 × 13 = 65 marks)

11. (a) Write briefly about all the disciplines of civil engineering with reference to their structure and applications.

Or

- (b) Explain the growth of automobile engineering from invention to the current market scenario.

12. (a) (i) Discuss the various methods of finding area of given stretch of land (6)
- (ii) What are contours and how are they used in different applications. (7)

Or

- (b) Discuss about different water proofing materials with respect to their types and applications.
13. (a) Differentiate between stone masonry and brick masonry and explain their types with neat sketches.
- Or
- (b) (i) Distinguish between state highways and national highways and state how they are managed. (6)
- (ii) Classify the railways based on their gauge length and state their relative merits and demerits. (7)
14. (a) Write an essay on hydro electric power plants in India.

Or

- (b) With neat diagrams explain the working of two stroke and four stroke engines.
15. (a) Explain in detail all the four stages of vapour compression refrigeration cycle.

Or

- (b) Compare room air conditioner and split air conditioner with respect to construction, comfort, working and cost considerations.

PART C — (1 × 15 = 15 marks)

16. (a) As a building engineer, state the importance of plinth area, floor area, built up area and floor space index in a building assigned to you for planning and construction.

Or

- (b) Considering the importance of catering to climate change, illustrate the concept of green buildings elaborately.