RAJAGIRI SCHOOL OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

FIRST SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2021

101908/CO900D BASICS OF CIVIL ENGINEERING

Max. Marks: 50   **Duration: 1.5 hours**

PART A

(Answer **all** questions, **each** question carries 4 marks)

1.   Explain the responsibility of a civil engineer in ensuring the safety of built environment

2.   Write a short note on Structural engineering and Geotechnical Engineering

3.   Suggest a suitable type of concrete applicable in marine conditions. Give reason

4.   Compare load bearing and framed structures.

5.   Discuss the different components of bridges

PART B
(Answer **one full** question from each module, each question carries **10**marks)

Module -I

6.(a)   Describe the different zones of CRZ with reference to its limits   (6marks)

(b)   Discuss the factors to be considered in the selection of a residential building (4 marks)

7.(a)   Identify   the role of NBC, KBR & CRZ norms in building rules and regulations prevailing in our country.   (6 marks)

(b)   Discuss the different constructed facilities in the field of civil engineering

(4marks)

Module -II

8.(a) Explain any three different kinds of cement available with reference to their properties.

(6marks)

(b) List the properties of good building bricks. Explain efflorescence in bricks.   (4 marks)

9.(a) Discuss the properties of any four types of soils   (6marks)

(b) List any five uses of glass   (4 marks)

Module -III

10.(a) Compare English bond and Flemish bond   (4marks)

(b) Explain any two types of earthwork equipment used in construction   (6marks)

11.(a) Distinguish between shallow foundation and deep foundation   (4marks)

(b) Discuss the civil engineering aspect of MEP and HVAC in a commercial building

(6marks)

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FIRST SEMESTER B. TECH DEGREE EXAMINATION

101908/CO900D BASICS OF CIVIL AND MECHANICAL ENGINEERING

Max. Marks: 100   **Duration: 3 hours**

Answer both part I and part 2 in separate answer booklets

PART II: BASIC MECHANICAL ENGINEERING

PART A

Answer all questions. Each question carries 4 marks

1. Sketch the P-v and T-s diagram of a Carnot cycle and List the processes.
2. Illustrate the working of an epicyclic gear train.
3. Explain cooling and dehumidification processes.
4. Differentiate between soldering and brazing.
5. Explain the principle of Additive manufacturing

4 x 5 = 20 marks

Part B

Answer one full question from each module

MODULE IV

6. In an air standard Otto cycle the compression ratio is 7 and compression begins at 35^oC, 0.1MPa. The maximum temperature of the cycle is 1100^oC. Find

      i) Heat supplied per kg of air,

      ii) Work done per kg of air,

      iii) Cycle efficiency

Take C_p = 1.005 kJ/kgK and C_v=0.718 kJ/kgK   10 marks

OR

7. a) Explain the working of a 4 stroke SI engine with neat sketches.   7 marks

    b) Explain the fuel system of a petrol engine.   3 marks

MODULE V

8. a) Explain the working of a vapour compression system with help of a block
   diagram   7 marks
   b) Define: Specific humidity, relative humidity and dew point temperature
                                                                              3 marks

OR

9. With the help of a neat sketch, explain the working of a centrifugal pump.
                                                                              10 marks

MODULE VI

10. Explain the two high, three high, four high and cluster rolling mills with neat
    Sketches   10 marks

OR

11. a) Describe the arc welding process with a neat sketch.   6 marks
    b) Differentiate between up-milling and down-milling operations.   4 marks