

B.E./B.TECH. Degree Examination, December 2020

Second Semester

**CM18151 Basic Civil and Mechanical Engineering**

(Regulation 2018)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions**PART A - (8 X 2 = 16 marks)**

1. Ordinary cement contains
  - A. 0.2 to 1.5 % of Sulphur
  - B. 0.2 to 2% of Sulphur
  - C. 0.2 to 0.5 % Sulphur
  - D. 0.2 to 2.5 % of sulphur
2. Overturning vehicles on a curve can be avoided by using
  - A. Compound Curve,
  - B. Vertical Curve
  - C. Reverse Curve
  - D. Transition Curve
3. A fission chain reaction in uranium can be developed
  - A. By increasing the contents of  $U_{235}$
  - B. By slowing down fast neutrons so that  $U_{235}$  fission continues by slow neutron
  - C. Both (A) and (B)
  - D. None of these.
4. Which of the following medium is compressed in a diesel engine cylinder?
  - A. Air alone,
  - B. Air and Fuel,
  - C. Air and lubricating oil,
  - D. Fuel alone..
5. List any two objectives of foundation.
6. Classify the Petrol Engines.
7. List out the thermal based power plants.
8. Differentiate Refrigerator and Air conditioners.

**PART B - (4 X16 = 64 marks)**

09. (a) (i) Describe the following (12 )
- a. Simple Leveling,
  - b. Differential Leveling,
  - c. Profile Leveling.

- (ii) Classify the surveying based on their objectives and list any four. (4)

**(OR)**

- (b) (i) Identify the ingredients in cement. State the functions of each ingredient. (8)
- (ii) List out the requirements of good cement. (4)
- (iii) State the qualities required for good bricks. (4)
10. (a) Identify the turbine which is used in high head power plant, and explain with neat sketch. (16)

**(OR)**

- (b) (i) Draw the layout of a Mobile Power Plant. State the subsystems and components of the plant and explain each one of them briefly. (12)
- (ii) State the advantages and disadvantages of Mobile power plant. (4)
11. (a) (i) With a neat schematic diagram, explain the working principle of a double acting reciprocating pump. State why it is called double acting pump. (10)
- (ii) What is cavitation in pumps? Explain in brief. (6)

**(OR)**

- (b) (i) Explain the working of a two-stroke petrol engine, with sketches for the following events: (12)
- (1) End of compression
- (2) Beginning of exhaust
- (3) Beginning of 'transfer of charge' into the cylinder
- (4) Start of compression
- (ii) Make a comparison of a petrol engine and diesel engine based on their operational features. (4)
- 12 (a) How can you achieve the refrigeration effect without compressor and explain with neat sketch. (16)

**(OR)**

- (b) Compare the vapor absorption refrigeration system and vapor compression refrigeration system. Give either reason or brief explanation for each point of comparison. (16)