6240

BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
GENERAL MECHANICAL ENGINEERING
THIRD SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Define shear modulus and write the relation between shear modulus and modulus of elasticity
2. Draw the stress – strain diagram for mild steel (ductile material) and indicate salient points on it
3. What is a shaft? List the materials used for manufacturing the shaft
4. Define power. Write the formula for power transmitted by the shaft
5. State any three differences between 2-stroke and 4-stroke engines
6. What are the functions of (a) spark plug (b) Fuel injector
7. Write three important differences between fire tube and water tube boilers
8. Give the classification of steam turbine based on action of steam with example for each one
9. Write disadvantages of submersible pumps
10. What is a hydraulic turbine? List the parts of a hydraulic turbine

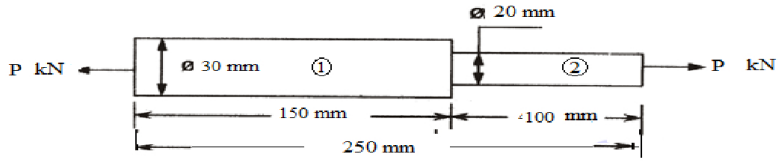
PART - B (10m x 5 = 50m)

Code: C16 EE-304

Note 1:Answer any five questions and each question carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. A copper bar 150 mm long is 30 mm in diameter and for remainder 100 mm of length, its diameter is 20 mm. A tensile load is applied to the bar so that the maximum stress induced in the material is 50 N/mm^2. Determine the magnitude of the load and calculate the total extension of the bar . For Copper, $E = 1.03 \times 10^5$ N/mm^2



12. Find the diameter of solid circular shaft required to transmit 750 kW at 250 r.p.m. It is specified that the maximum shear stress must not exceed 50 N/mm^2 and the angle of twist must not exceed 2° in a length of 2 m. Take $G = 0.8 \times 10^5$ N/mm^2

13. Describe the parts of a Zenith carburetor with a neat sketch

14. Draw the line sketches of a 4-stroke petrol engine and explain its working cycle

15. List and explain various accessories used in steam boilers

16. Explain the working of De-Laval turbine with a neat sketch

17. Explain the working of Kaplan turbine with a neat sketch

18. Describe the working of a jet pump with a neat sketch

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