* 6240 *

C16–EE–304

6240

BOARD DIPLOMA EXAMINATION, (C–16)

MARCH/APRIL—2018

DEEE—THIRD SEMESTER EXAMINATION

GENERAL MECHANICAL ENGINEERING

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the stress-strain diagram of mild steel and label the salient points on it.

2. Define Poisson's ratio and write its units.

3. State the torsion equation and expand the terms involved with units.

4. Write the formula for polar moment of inertia for *(a)* solid shaft, *(b)* hollow shaft.

5. Write three functions of carburetor.

6. Write any three differences between two-stroke and four-stroke engine.

7. List out boiler accessories.

8. Write the classification of steam turbines.

A.A.N.M & V.V.R.S.R POLYTECHNIC GUDLAVALLERU, KRISHNA.DT.AP

9. Write the classification of hydraulic pumps.

10. Write any three differences between hydraulic impulse and reaction turbine.

PART—B 10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. For a given material, E 1 1 10^5 N / mm^2, G 1 1 10^5 N / mm^2. Find :

(a) Poisson's ratio

(b) Bulk modulus

(c) Stress induced

(d) Lateral contraction of the round bar 35 mm diameter and 2·5 m long when stretched by 2·5 mm

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 10^5 N/mm^2.

13. Explain with a neat sketch working of zenith carburetor.

14. Explain the working principle of four-stroke diesel engine.

15. Write the functions of any five boiler mountings and any five boiler accessories.

16. Write the differences between impulse and reaction steam turbine.

17. With neat sketch, explain working of Kaplan turbine.

18. Explain the working of submersible pump with neat sketch.

★ ★ ★

A.A.N.M & V.V.R.S.R. POLYTECHNIC, GUDLAVALLERU, KRISHNA. A.P.