



C14-MNG-402

4466

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH / APRIL - 2019

DMNG - IV SEMESTER EXAMINATION

BASIC 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) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1 Define :
 - (a) Friction and
 - (b) Coefficient of friction.
- 2 State the linear law of machine.
- 3 Explain briefly third system of pulley.
- 4 State the functions of couplings.
- 5 Define :
 - (a) Module
 - (b) Diametral pitch.
- 6 Define :
 - (a) Young's Modulus
 - (b) Modulus of rigidity and
 - (c) Poisson's Ratio.
- 7 Define the terms :
 - (a) shear force and
 - (b) bending moment.
- 8 State the applications of compressed air.
- 9 List the applications of IC engine.
- 10 Define higher calorific value and lower calorific value of fuel.

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PART - B**10×5=50**

- Instructions :**
- (1) Answer any **FIVE** questions.
 - (2) Each question carries **TEN** marks.
 - (3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11 A body of weight 490.5 N rests on a plane inclined at 20 degrees to the horizontal. A horizontal force of 250 N just move the body up the plane. Find the coefficient of friction.
- 12 (a) Define mechanical advantage and efficiency.
(b) In a second system pulleys, an effort of 150N lifts a load of 1050N. Determine the efficiency if the system contains 4 pulleys in each block.
- 13 Two pulleys 60 cm and 40 cm diameters are connected by a belt. Central distance between the pulleys is 6 cm. Find the length of belt required for (a) open belt drive, (b) cross belt drive and (c) difference between length of cross belt and open belt.
- 14 Write the advantages and disadvantages of chain drive over other drives.
- 15 A hollow cylinder 2m long has an outer dia 50 mm and inner dia of 30 mm. If the cylinder is carrying a load of 25 KN. Find the stress in the cylinder. Also find the deformation of the cylinder if the modulus of elasticity is 100 Gpa.
- 16 Define the terms :
(a) strength, (b) stiffness, (c) resilience,
(d) hardness and (e) creep.
- 17 Explain the working of multistage compressor and write its advantages.
- 18 Explain the working of 4-stroke petrol engine.