5695

C16-MNG-**402**

5695

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER-2018
DMNG - FOURTH SEMESTER EXAMINATION

BASIC MECHANICAL ENGINEERING

Time : 3 Hours] [Total Marks: 80

PART-A

3X10=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. Write the advantages of chain drives
4. State different types of gears.
5. Define load and list the types of loads.
6. Define (a) Hook's law (b) Poisson's Ratio
7. Classify the different types of fluid
8. Difference between diesel engine and petrol engine.
9. Define (a) H.C.V. (b) L.C.V.
10. Why lubrication is required in IC engines?

PART-B

10X5=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 load of 2500 N is to be raised by a screw jack with a mean diameter of 75mm and pitch of 12mm, friction coefficient between the screw and nut is 0.075. Find its efficiency.
12. In a wheel and differential axle, the diameter of the wheel is 400mm and the diameter of the axles are 90mm and 80mm, and of an effort 245N can lift a load of 12700N. Find the efficiency of the machine. Also find the effort lost in friction.
13. A flat belt is installed with an initial tension of 2KN. The angle of lap on smaller pulley is 150^0. The coefficient of friction between the belt to pulley surface is 0.3, the belt transmits power at a speed of 1200 m/min. Calculate the power that can be transmitted by the belt drive.
14. (a) Distinguish between open-belt drive and cross-belt drive
    (b) Write the advantages and disadvantages of chain drives over belt drives
15. A mild steel bar of 30mm diameter is subjected to a pull of 60 KN. The measured extension on gauge length of 200mm is 0.9mm and change in diameter is 0.0039mm. Calculate the Poisson's ratio and the value of three elastic constant (E, C, K)
16. Explain the simple manometer with a neat sketch
17. Explain the working of a four stroke diesel engine with a neat sketch
18. Explain the working principle of single cylinder air compressor with a neat sketch.

****