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C14-MNG-402

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**BOARD DIPLOMA EXAMINATION, (C-14)
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) Static friction (b) Limiting friction
2. Define (a) Mechanical advantage (b) Velocity ratio.
- * 3. Define ideal machine and self locking machine.
4. List the applications of couplings.
5. List the advantages of chain drive over the belt drive.
6. Define stress and strain with their units.
7. Define beam and list types of beams.
8. List the advantages of multistage compression over single stage compression.
9. Compare petrol engine and diesel engine.
10. List the uses of compressed air.

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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 body of weight 500N is dragged up on a plane inclined at 30^0 to the horizontal. A force of 400N inclined at 20^0 with the plane just move the body up the plane. Find the coefficient of friction.
12. An effort of 303.8N is required to lift 9800N and effort of 597.8N is required to lift 19600N using a simple machine. Find the load lifted using an effort of 156.8N on that machine.
13. Explain open belt and cross belt with figures.
14. Explain the simple and compound gears trains.
15. A rod of length 1m and diameter 300mm is subjected to tensile load of 20KN the length increase of the rod be 0.3mm and decrease in diameter is 0.0018mm, determine:
(a) Poisson's ratio (b) Young's modulus (c) Bulk modulus (d) Rigidity modulus
16. Explain stress strain curve for mild steel.
17. Explain the working of single stage reciprocating air compressors.
18. Compare the 4-stroke engine and 2-stroke engine.

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