

No. of Printed Pages : 4
Roll No.

120026

2nd Sem. / Common
Subject : Applied Mechanics

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Objective type questions. All questions are compulsory (10x1=10)

- Q.1 Give units of force.
- Q.2 Define passive forces.
- Q.3 Define arm of a couple.
- Q.4 Define friction.
- Q.5 Write two harmful effect of friction.
- Q.6 Define normal reaction.
- Q.7 Define Centre of Gravity.
- Q.8 What is position of centroid for a square lamina?
- Q.9 Define velocity ratio for a machine.
- Q.10 Define angle of twist.

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SECTION-B

Note: Very short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

- Q.11 Define Kinematics.
- Q.12 Give two example of Scalar quantity.
- Q.13 What is resolution of a force?
- Q.14 What are Coplanar force?
- Q.15 What is turning moment?
- Q.16 State law of moments.
- Q.17 Define co-efficient of friction.
- Q.18 Where does the Centre of gravity of right circular cone lie?
- Q.19 Define axis of symmetry.
- Q.20 Define compound machine.
- Q.21 Define ideal machine.
- Q.22 What is modulus of rigidity?

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SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. $8 \times 5 = 40$

- Q.23 Summarize the various system of units.
- Q.24 State and example triangle law of forces.
- Q.25 State and prove Lami's Theorem.
- Q.26 Give classification of Levers.
- Q.27 Explain lever in brief. Give its types.
- Q.28 Discuss laws of static friction.
- Q.29 Differentiate sliding & rolling friction.
- Q.30 Find the centre of gravity of a channel section having dimensions 200mm x 100mm x 10mm.
- Q.31 Derive the expression to find M.A, V.R and efficiency of a simple screw jack.
- Q.32 Explain the self locking machine.

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SECTION-D

Note: Long answer type questions. Attempt any three questions out of four questions. $3 \times 10 = 30$

- Q.33 The resultant of two forces F and 8N is 20N. Also the resultant is inclined at 60° to the 8N force, which is horizontal. Find out the angle, the force F makes with the horizontal.
- Q.34 Define Moment, turning moment and Varignon's Theorem. State and prove moment of a couple.
- Q.35 The section of a particular dam is trapezoidal with one side vertical. The width at top is 3m and at bottom is 6m. Determination the centre of gravity of the section, if its height is 12m.
- Q.36 Describe & Derive the expression for torsion equation for a shaft.

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