S. B. Roll. No.....

APPLIED MECHANICS
3rd Exam/Civil/Mech./Auto/0093/Dec'22
(For 2018 Batch Onwards)

Duration: 3Hrs. **M.Marks:75**

SECTION-A

Q1. Give one Line answer. **15x1=15**

a. Define Mechanics.
b. Unit of Weight is?
c. Write relation between weight and mass.
d. The efficiency of self-locking machine is?
e. A weight of 100 N is lifted by 25 N efforts, and then M.A. will be?
f. Give example of any vector quantity.
g. Unit of force in SI system is?
h. The forces whose lines of action are parallel are called?
i. Algebraic sum of forces forming the couple is?
j. The friction experienced by a body when it is in motion is called?
k. Angle of Friction is always?
l. The force with which a body is attracted towards earth is called?
m. Point through which the whole area of a plane figure is assumed to act is known as?
n. Efficiency of an ideal machine is?
o. Unit of moment in SI system is?

SECTION-B

Q2. Attempt any six questions. **6x5=30**

i. Explain the Parallelogram Law of Forces.
ii. Differentiate between Mass and weight
iii. Explain the Law of the Machine.
iv. Define moment and write its applications.
v. Explain Scalar quantities and Vector quantities.
vi. Explain the Principal of Transmissibility of Forces.
vii. Explain the Lami's Theorem.
viii. Explain the type of loading acting over a beam.
ix. Differentiate between Static Friction and Dynamic Friction.

SECTION-C

Q3. Attempt any three questions. **3x10=30**

a. A load of 200 N is lifted by means of a certain machine through a distance of 50 meters. If the effort applied is 50 N and has moved through a distance of 250m, find mechanical advantage, velocity ratio and efficiency of the machine.
b. A body weighing 1000 N is lying on a rough horizontal plane for which, co-efficient of friction is 0.75. Determine i) Horizontal force required to move it, ii) Normal Reaction, iii) Limiting force of friction, iv) Resultant Reaction, v) Angle of friction
c. Explain the force system.
d. A horizontal beam 12 m long is supported at the ends and carries two loads, one of 250N, 3m from the left end and another of 600N, 7.5 m from the left end. Calculate the reactions at the supports.
e. Explain the methods of reducing Friction.