Q.32 Explain Newton's first law of motion.

Q.33 Write the applications of levers.

Q.34 The law of Machine is P=0.03W+7.0 in newtons. What is the mechanical advantages and efficiency of the machine if the load is 2KN and V.R. is 40?

What is the maximum efficiency of the machine? What is the effort lost in friction when W=2KN.

Q.35 Write short note on compound levers.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

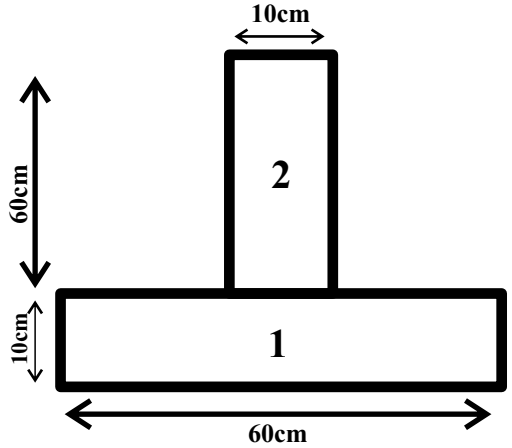
Q.36 Explain the following terms with a practical example.

i) Arm of couple

ii) Moment of couple

Q.37 Explain the working of Wheel and Axle.

Q.38 Find the centre of gravity of following section.



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Roll No. .....

3rd Sem / Auto, Civil, Mech.

Subject:- Applied Mechanics

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 The system international (SI) has_____ base units

a) 4 b) 5

c) 7 d) 2

Q.2 Which of the following is vector quantity

a) Time b) Mass

c) Work d) Displacement

Q.3 The forces whose line of action meet at a point are known as_____

a) Coplanar forces b) Concurrent forces

c) Resultant forces d) Non-concurrent forces

Q.4 The forces which tend to decrease the length of a body are called_____ forces.

a) Tensile b) Compressive

c) Shear d) Bending

Q.5 Moment of a force= _____ x perpendicular distance

a) Displacement b) Moment

c) Force d) Work

Q.6 The moment of a couple is known as

a) Torque b) Force

c) Couple d) Arm of a couple

Q.7 Angle of repose is_____ angle of friction

a) Different b) Passive

c) Equal to d) Less than

Q.8 The area of circle is_____--

a) 3.14 x R x R b) 2 x3.14 x R

c) B x H d) 0.124 x R

Q.9 The C.G of a semi circle lies at a distance of _____ from the base.

a) 0.424 x R b) 0.524 x R

c) 0.924 x R d) 0.124 x R

Q.10 Machine is reversible if the efficiency is more than

a) 100% b) 50%

c) 90% d) 25%

SECTION-B

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

Q.11 Vector quantity has_____

Q.12 Statics is the branch of_____, which_____

Q.13 The triangle law of forces if the corollary of the _____ law of forces.

Q.14 Define a rigid body.

Q.15 A simple lever has_____

Q.16 Sliding friction is_____ than rolling friction

Q.17 The position of C.G. of parallelogram lies at_____

Q.18 Formula for efficiency is_____

Q.19 _____ is the ratio of load lifted to the effort applied.

Q.20 _____ of a machine is the actual work done by the machine.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Write the SI units of the following:

a) Force b) Energy

c) Power d) Pressure

Q.22 Describe the characteristics of a force.

Q.23 Explain triangle law of forces.

Q.24 What is couple? Mention important properties of a couple.

Q.25 Describe the types of machines.

Q.26 What is angle of friction? Explain

Q.27 Explain various methods of reducing friction.

Q.28 Explain method to find centre of gravity of symmetrical bodies.

Q.29 What do you mean by ideal machine?

Q.30 Using Lami's theorem, calculate the third force, where first force of 5kg is directed towards east, second force acts in north west and balancing third force towards south.

Q.31 Explain varignon's theorem of moments.