Roll No…….. **Total No. of Printed Pages: 1**

Total No. of Questions: [09]

B.Sc. Hons. (AME) (Semester – 4th)
APPLIED PHYSICS
Subject Code: BAME3-427
Paper ID: 20131117

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a. Write the difference between translatory and rotational motion.
b. Define generalised Hooke's Law and give its expression only.
c. What do you mean by damped oscillations?
d. Differentiate between angle of twist and angle of shear.
e. Define Newtons's law of motion..
f. State anlge of repose and angle of friction
g. A sphere of iron has radius 15cm and density 7.8g.cm^3. Calculate its moment of inertia.
h. What are the three different modes of heat transfer?
i. What is the use of verniercalliper, screw gauge and spherometer?
j. Give the significance of curl of a vector field?

Section – B **(5 marks each)**

Q2. Define S.H.M and derive relation for energy of harmonic oscillator.

Q3. State and prove work-energy theorem.

Q4. Define the terms shear stress, shear strain, Strain hardening and elasticity.

Q5. What is co-efficient of viscosity? Explain the experiment to determine the co-efficient of viscosity of a liquid.

Q6. What is parallelogram law of forces? Explain.

Section – C **(10 marks each)**

Q7. (a) State and prove theorem of parallel axis.
(b) Find an expression for bending moment.

Q8. State Bernoulli's theorem. Derive an expression for Bernoulli's theorem for the flow of liquids.

Q9. (a) What are pyrometers? Give one application of pyrometer.
(b) Explain the Searle's method in brief for determination of thermal conductivity of conductors.