S.B. Roll. No……

APPLIED PHYSICS-I
1st Exam/Common/5752/Jun'2022
(For 2018 Batch Onwards)

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

SECTION-A

Q1. Give answer in one line. **15x1=15**

a. What is S.I unit of temperature?
b. What is full form of M.K.S?
c. What is unit of force in S.I?
d. What is direction of centrifugal force in circular motion?
e. What is unit of energy in S.I?
f. How is impulse related to force?
g. How are angular momentum L and angular velocity related ω related to moment of inertia I ?
h. What is capillarity?
i. What is value of Reynold's number in streamline flow?
j. Which thermometers are most sensitive?
k. How are coefficients of expansion related to each other?
l. Which energy increases as a body is raised from ground to a certain height?
m. What is absolute error?
n. What is maximum resultant of forces 5N and 3N?
o. When is the work done zero?

SECTION-B

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

i. What is percentage error in measurement of Kinetic energy of a body, when it's mass and velocity are measured with a percentage error of 2% and 5% respectively?
ii. Define scalar product and vector product.
iii. Define work and power. Give their SI units.
iv. Define Torque and Moment of Inertia.
v. What is surface tension? Give its S.I. and C.G.S. units
vi. Convert 100̊ F into centrigrade scale
vii. What are scalars and vectors?
viii. What is modulus of elasticity? Name three types of elasticities

SECTION-C

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

Q3. State principle of homogeneity of dimensions.
a) Use it to check the correctness of relation $E = mgh + \frac{1}{2} mv^2$ **(6)**
b) Write down the no. of significant figures in following **(4)**
6341N
0.071cm
4.48×10^4 m
4800

Q4. What do you mean by centriprtal force? Why does a cyclist bend while going around a curved path Derive expression for angle of bending? **(3, 7)**

Q5. State principle of conservation of energy. Show that for a freely falling body mechanical energy is conserved. **(3, 7)**

Q6. State and explain principle of conservation of angular momentum by giving examples. **(3, 7)**

Q7. a) What is viscosity? Define coefficient of viscosity. **(5)**
b) What do you mean by 'Elasticity' and Plasticity? **(5)**

Q8. What are different modes of transfer of heat? Explain giving examples. **(10)**