Seat No:_____ **Enrollment No:_____**

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

B.Sc. Winter 2017-18 Examination

Semester: 1 **Date: 26/12/2017**
Subject Code: 11104101 **Time: 10:30am to 01:00pm**
Subject Name: Physics-I **Total Marks: 60**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Answer the following questions. (Each of 04 marks) **(08)**

(a) Define elastic potential energy and derive its formula.
(b) Define scaler quantity and write at list three examples.

Q.1. B) Answer the following questions. (Any two)

(a) Definition. (Each of 02 marks) **(04)**
1. Strain.
2. Center of mass.

(b) Explain vector triple product. **(04)**
(c) Explain gradient along with its physical significance. **(04)**

Q.2. A) Answer the following questions.

(a) State the following laws. (Each of 02 marks) **(04)**
1. Conservation of energy.
2. Hook's law.

(b) Explain Cartesian coordinate system. **(04)**

Q.2. B) Answer the following questions. (Any two)

(a) Definition. (Each of 01 marks) **(03)**
1. Frame of reference.
2. Work.
3. Viscosity.

(b) Derive relationship between elastic constant. **(03)**
(c) Derive second order differential equation of simple harmonic motion. **(03)**

Q.3. A) Answer the following questions. (Each of 04 marks) **(08)**

(a) Derive the equation of velocity of rocket any time by considering weight of rocket.
(b) Explain application of vector to linear and rotational quantity.

Q.3. B) Answer the following questions. (Any two)

(a) Do as directed. (Each of 02 marks) **(04)**
1. State Stoke law.
2. Define surface tension.

(b) Derive equation of continuing. **(04)**
(c) Define Conservative force and Non conservative force along with example. **(04)**

Q.4. A) Answer the following questions.

(a) Do as directed. (Each of 02 marks) **(04)**
1. Define gradient potential energy.
2. Explain quality factors.

(b) Derive poiseuille's formula. **(04)**

Q.4. B) Answer the following questions. (Any two)

(a) Definition. (Each of 01 marks) **(03)**
1. Wave.
2. Intensity.
3. Group velocity.

(b) Determine young's modulus by searl's method. **(03)**
(c) Derive equation of progressive wave. **(03)**