

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**B.Sc., Winter 2018-19 Examination**

**Semester: 1**  
**Subject Code: 11104101**  
**Subject Name: Physics –I**

**Date: 20/12/2018**  
**Time: 10:30 am to 1:00 pm**  
**Total Marks: 60**

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**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) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**

- (a) Explain surface, line and volume integration.
- (b) Explain the center of mass concept in detail and write its formula.

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

- (a) Short note (04)
  1. Explain Curl
- (b) Write a note on Cylindrical coordinate system. (04)
- (c) Write a note on spherical coordinate system. (04)

**Q.2(A) Answer the following questions.**

- (a) Short note (04)
  1. Explain Work energy principle.
- (b) Write a note on Conservative forces. (04)

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

- (a) Short note (03)
  1. Write a note on Rocket
- (b) Explain the energy and momentum concept of inertial and non inertia frame of reference. (03)
- (c) Explain conservation of angular momentum. (03)

**Q.3(A) Essay type (each of 4 marks) (08)**

- (a) Write a detail note on Stress.
- (b) Write a detail note on strain.

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

- (a) Short note (04)
  1. Explain Stoke's law
- (b) Explain surface tension. (04)
- (c) Explain Bulk Modulus in detail. (04)

**Q.4(A) Answer the following questions.**

- (a) Short note (04)
  1. Write a note on Bernoulli's theorem
- (b) Write a note on Characteristics of S.H.M. (04)

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

1. Explain wave velocity and Group velocity. **(3)**
- (b) Write the general equation of wave . **(03)**
- (c) Explain the concept of Damped Harmonic oscillations. **(03)**