

FIRST TERMINAL EXAMINATION

(2020-2021)

PHYSICS

Max marks: 40

CLASS: XI B & C

Time: 90 minutes

GENERAL INSTRUCTIONS

1. The question paper consists of 27 questions. All questions are compulsory.
2. The Exam will be conducted through Google Classroom.
3. **Section A** has 20 questions of one mark each, **Section B** has 3 questions of 2 marks each, **Section C** has 3 questions of 3 marks each and **Section D** has one question of 5 mark.
4. All answers have to be **written on paper and the pdf form of the photo of the written paper should be submitted through Google Classroom**. Press SUBMIT after completion.
5. Use pencil and scale wherever diagrams have to be drawn. DO NOT use pen to draw diagrams.

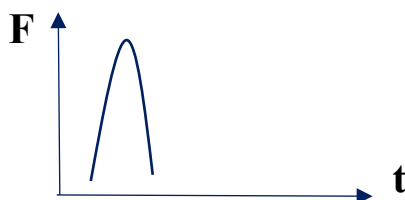
Section A

1. In a complex motion of particles of a rigid body about its centre of mass, the centre of mass always follows a parabolic path. (T/ F)
2. Draw the potential energy, $U(x)$, versus displacement (x) graph of the event expressed by the following graph.
3. **kWh** is the SI unit of _____.
(a) Electrical power (b) Current
(c) Potential Difference (d) Electrical Energy
4. The length of a body is measured as 3.51 m, if the accuracy is 0.01mm, then the percentage error in the measurement is
(a) 351% (b) 1% (c) 0.28% (d) 0.035%

5. Determine the value of the T from the given vector equation.

$$5\mathbf{j} - T\mathbf{j} = 6\mathbf{j} + 3T\mathbf{j}$$

6. Define the quantity expressed in the graph:



7. If 2 masses 10 g and 1 kg are moving with the same speed of 10 ms^{-1} , the ratio of their momentums will be

- (a) 1:100 (b) 10:1 (c) 0.01:1 (d) 1:10

8. A ball is projected vertically upwards with a velocity v . It comes back to ground in time t . Draw the correct v - t graph taking into consideration the sign convention.

9. An object is at an angle such that the horizontal range is 4 times of the maximum height. What is the angle of projection of the object?

- (a) 30° (b) 45° (c) 60° (d) 90°

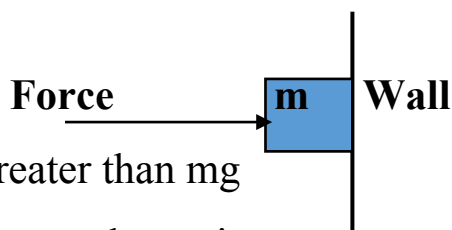
10. What is the one major weakness of Work Energy theorem compared to Newton's Laws of motion?

11. The position vector of a particle is given by $\mathbf{r} = 3t\mathbf{i} + 5t^2\mathbf{j} + 7t\mathbf{k}$. On which plane does the particle experience momentum?

12. Static and kinetic frictions depend on

- (a) area of contact of the surfaces
(b) magnitude of applied force
(c) temperature of surfaces in contact
(d) nature of materials in contact

13. An object of mass m is held against a vertical wall by applying horizontal force F as shown in the figure. The minimum value of the force F is



- (a) Less than mg (b) Greater than mg
(c) Equal to mg (d) Cannot determine

14. The centripetal force between the tyres of a car and the road as the car takes a curved path is provided by _____.
15. A spider of mass 50 g is hanging on a string of a cob web. What is the tension in the string?
16. In a given set of values, 5.70 m, 5.70×10^2 cm, 5.70×10^3 mm and 5.70×10^{-3} km, which has the maximum value of significant figures?
17. If a particle executes uniform circular motion in the xy plane in clock wise direction, then the angular velocity is in
 - (a) +y direction
 - (b) +z direction
 - (c) -z direction
 - (d) -x direction
18. When an object of mass 'm', tied to the end of a string of length 'l' of negligible mass, is undergoing a vertical circular motion, the tension will not do any work on the mass. Why?
19. It is impossible to push a car sitting inside it. Why?
20. A ball is dropped from some height towards the ground. Which one of the following represents the correct motion of the ball?

