SHIKSHA CLASSES

Subject : Science -I | **QUESTION PAPER** | **Total Marks** : 20

Class : X | **1. Gravitation** | **Time** : 45 Min.

Q. 1 : A) Choose the correct alternatives. **(1+1=2)**

1) Which of the following statement is correct?

a) Mass is constant and weight is variable.

b) Mass is variable and weight is constant

c) Both mass and weight are variable

d) Both mass and weight are constant.

2) Escape velocity for an object resting on earth is given by the formula.

a) $\sqrt{\frac{2GM}{R}}$ b) $\frac{2GM}{R}$ c) $\frac{GM}{R+h}$ d) $\sqrt{\frac{GMm}{(R+h)^2}}$

Q.1 : B) Solve the following questions (Any One). **(01)**

1) State whether the following statement is true or false.

The value of g increases with altitude.

2) Define centripetal force.

3) Considering first correleation complete the second

Acceleration due to gravity : m/s^2 : : Gravitational constant : -----

Q.2 : A) Give scientific reason (Any One). **(02)**

1) The weight of a body is different on different planets.

2) The value of g is zero at the centre of the earth.

Q. 2 : B) Solve the following questions (Any Two) **(2+2=4)**

1) Distinguish between mass and weight.

2) Define : a) Freefall, b) Aceleration due to gravity.

3) Why does low and high tides occur?

Q. 3 : Answer the following questions (Any 2) **(3+3=6)**

1) Why does the feather and the stone do not reach the ground at the same time?

2) Write a short note on Gravitational waves.

3) State and explain Newton's law of Gravitation.

4) If a person weight 750N on earth, how much would be his weight on the Moon given that Moon's mass is 1/81 of that of the earth and its radius is 1/3.7 of that of the earth?

Q. 4 : Attempt any one of the following. **5**

1) Write the three laws given by Kepler. How did they help Newton to derive the inverse square law gravity?

Or

Explain the variation in the value of 'g' in detail.

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