(MPC05-AKU-01E)

- The orbital speed of Jupiter is.
  A) Greater than the orbital speed of earth
  B) Less than the orbital speed of earth
  C) Equal to the orbital speed of earth
  D) Zero

(MPC05-AKU-02M)

- The period of a satellite in a circular orbit of radius R is T. The period of another satellite in a circular orbit of radius 4R is.
  A) 4T
  B) T/4
  C) 8 T
  D) T/8

(MPC05-AKU-03M)

- The acceleration due to gravity on the surface of the moon is $\frac{1}{6}$ that one the surface of earth and the diameter of the moon is one-fourth that of earth. The ratio of escape velocities on earth and moon will be
  A) $\frac{\sqrt{6}}{2}$
  B) $\sqrt{24}$
  C) 3
  D) $\frac{\sqrt{3}}{2}$

(MPC05-AKU-04M)

- At a height above the surface of the earth equal to the radius of the earth the value of g (acceleration due to gravity on the surface of the earth) will be nearly
  A) Zero
  B) $\sqrt{g}$
  C) $\frac{g}{4}$
  D) $\frac{g}{2}$

(MPC05-AKU-05M)

- Two satellites S_1 and S_2 describe circular orbits of radii r and 2r respectively around a planet. If the orbital angular velocity of S_1 is w, the orbital angular velocity of S_2 is.

  A) $\frac{w}{2\sqrt{2}}$

  B) $\frac{w\sqrt{2}}{3}$

  C) $\frac{w}{\sqrt{2}}$

  D) $w\sqrt{2}$

(MPC05-AKU-06M)

- A simple pendulum has a time period T_1, when on the earth's surface, and T_2 when taken to a height R above the earth's surface, where R is radius of earth. The value of T_2/T_1 is.

  A) 1

  B) $\sqrt{2}$

  C) 4

  D) 2

(MPC05-AKU-07H)

- If the distance between the earth and the sun were half its present value, the number of days in a year would have been.

  A) 64.5

  B) 129

  C) 182.5

  D) 730

(MPC05-AKU-08M)

- Imagine a light planet revolving around a very massive star in a circular orbit of radius R with a period of revolution T. If the gravitational force of attraction between the planet and the star is proportional to $R^{-5/2}$, the T^2 is proportional to.

  A) R^3

  B) $R^{7/2}$

  C) $R^{3/2}$

  D) $R^{3.75}$

(MPC05-AKU-09M)

- The period of revolution of planet A around the sun is 8 times that of B. The distance of A from the sun is how many times greater than that of B from the sun?
  A) 2
  B) 3
  C) 4
  D) 5

(MPC05-AKU-10M)

- For a satellite moving in an orbit around the earth, the ratio of KE to PE is.
  A) $\frac{1}{2}$
  B) $\frac{1}{\sqrt{2}}$
  C) 2
  D) $\sqrt{2}$

(MPC05-AKU-11M)

- Imagine a planet having the same day density as that of the earth but radius is three times the radius of the earth. If acceleration due to gravity on the surface of the earth is g and that of the said planet is g' then
  A) $g' = \frac{g}{9}$
  B) $g' = 9g$
  C) $g' = \frac{g}{27}$
  D) $g' = 3g$

(MPC05-AKU-12E)

- Average density of the earth
  A) Does not depend on g.
  B) Is a complex function of g.
  C) Is density proportional to g.
  D) Is inversely proportional to g.

(MPC05-AKU-13E)

- The change in the value of g at a height h above the surface of the earth is the same as at a depth d below the surface of the earth. When both h and d are much smaller than the radius of earth, then which one of the following is true?

  A) $a = {}^{h}/_{2}$

  B) $d = {}^{3h}/_{2}$

  C) $d = 2h$

  D) $h = d$

(MPC05-AKU-14M)

- Two planets are revolving around the earth with velocities v_1, v_2, and in radii $r_1$and r_2 ($r_1 > r_2$) respectively. Then

  A) $v_1 = v_2$

  B) $v_1 > v_2$

  C) $v_1 < v_2$

  D) $\frac{v_1}{r_1} = \frac{v_2}{r_2}$

(MPC05-AKU-15H)

- Earth is revolving around the sun if the distance of the earth from the sun is reduced to $\frac{1}{4}$th of the present distance then the present length of the day is reduced by

  A) $\frac{1}{4}$

  B) $\frac{1}{2}$

  C) $\frac{1}{8}$

  D) $\frac{1}{6}$

Answer Key	
1	B
2	C
3	B
4	C
5	A
6	D
7	B
8	B
9	C
10	A
11	D
12	C
13	C
14	C
15	C