Unit 7 - Week 5: Flight Trajectory & Elements of Orbital Mechanics

Week 5: Assignment

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-04, 23:59 IST.

1) Coasting height is the height attained by the rocket vehicle just before the complete burnout. Given statement is: *1 point*

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
False

2) All geostationary orbits are also geosynchronous but not all geosynchronous orbits are geostationary. This statement is: *1 point*

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

3) The cube of time period of revolution of a planet around sun in an elliptical orbit is directly proportional to the square of it semi-major axis. Given statement is: *1 point*

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
False

4) A satellite of mass 35 kg is revolving in a circular orbit of moon at an altitude of 100 km. The ratio of escape velocity to orbital velocity for this satellite would be: *1 point*

- 1:1.41
- 2.21:1
- 1:2.21
- 1.41:1

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.41:1

5) Which of the following variable does not affect the speed of satellite orbiting in a circular orbit around a planet *1 point*

- mass of the satellite
- mass of the planet
- altitude of the orbit
- radius of the planet

No, the answer is incorrect.
Score: 0
Accepted Answers:
mass of the satellite

6) When the satellite moves in the opposite direction in which earth rotates in equatorial plane ; this type of orbit is known as: *1 point*

- Equatorial orbit
- Retrograde equatorial orbit
- Polar orbit
- Geostationary orbit

No, the answer is incorrect.
Score: 0
Accepted Answers:
Retrograde equatorial orbit

7) Which of the following orbit is useful for satellite in order to locate the position of natural disasters such as storm & hurricanes: *1 point*

- Equatorial orbit
- Retrograde equatorial orbit
- Polar orbit
- Geostationary orbit

No, the answer is incorrect.
Score: 0
Accepted Answers:
Geostationary orbit

8) The velocity of a satellite orbiting the earth in a circular orbit at an altitude of 300 km above the earth surface is: (Consider GM_e=398600 km^3/s^2, R_e=6400 km) *1 point*

- 6.3 km/s
- 7.7 km/s
- 8.3 km/s
- 10.2 km/s

No, the answer is incorrect.
Score: 0
Accepted Answers:
7.7 km/s

9) The period of revolution of a satellite orbiting the earth in a circular orbit of radius 7000 km from the earth center is: (Consider GM_e=398600 km^3/s^2, R_e=6400 km) *1 point*

- 5829 s
- 15437 s
- 8545 s
- 19435 s

No, the answer is incorrect.
Score: 0
Accepted Answers:
5829 s

10) Which of the following expression correctly represents the relation between angular velocity (ω) of a satellite and radius of orbit (R): *1 point*

- $\omega \alpha 1/R^2$
- $\omega \alpha 1/R^3$
- $\omega \alpha 1/R$
- $\omega \alpha 1/R^{1}.5$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\omega \alpha 1/R^{1}.5$

11) The value of escape velocity on the surface of a planet having radius of 1200 km and gravitational acceleration on the surface of planet, 1.8 m/s^2: *2 points*

- 11.22 km/s
- 5.68 km/s
- 2.08 km/s
- 8.58 km/s

No, the answer is incorrect.
Score: 0
Accepted Answers:
2.08 km/s

12) A satellite is revolving in an elliptical orbit around the earth which passes through perigee altitude of 300 km with velocity of 9.2 km/s. Then, the apogee altitude and velocity at that point are: (Consider GM_e=398600 km^3/s^2, R_e=6378 km) *3 points*

- 9893 km & 4.54 km/s
- 7800 km & 4.54 km/s
- 7800 km & 3.78 km/s
- 9893 km & 3.78 km/s

No, the answer is incorrect.
Score: 0
Accepted Answers:
9893 km & 3.78 km/s

13) An artificial satellite is revolving around a planet in an elliptical orbit of eccentricity, 0.2 with the velocity, 1.2 km/s at an altitude of 1680 km. The velocity of the satellite at it's perigee and apogee would be: (Consider GM=4900 km^3/s^2, R=1740 km) *3 points*

- 1.46 km/s & 0.66 km/s
- 1.46 km/s & 0.98 km/s
- 2.14 km/s & 0.98 km/s
- 2.14 km/s & 0.66 km/s

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.46 km/s & 0.98 km/s

14) The total mass of a planet is 0.05 times of earth's mass and planet's surface radius is 0.2 times of earth radius. The ratio of escape velocity between the earth and the planet from their respective surface would be: *2 points*

- 3.8:1
- 2:1
- 4:1
- 1.6:1

No, the answer is incorrect.
Score: 0
Accepted Answers:
2:1