NEWFOUNDLAND AND LABRADOR PHYSICS 3204 · UNIT B

Circular and Planetary Motion — Practice Test

Newfoundland and Labrador Physics 3204 • 25 questions

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Uniform circular motion has constant speed but changing velocity because the direction of motion**



A stays the same

B changes continuously

C reverses each second

D becomes zero

Understand It with Pulse | Flag a mistake

2 **Centripetal acceleration in uniform circular motion points toward the**

A outside of the circle

B centre of the circle

C direction of motion

D tangent at all times

Understand It with Pulse | Flag a mistake

3 **The centripetal effect is the net pull toward the centre, not a separate kind of**

A mass

B velocity

C force

D energy

Understand It with Pulse | Flag a mistake

4 **For a satellite in circular orbit, the centripetal force is provided by**

A friction

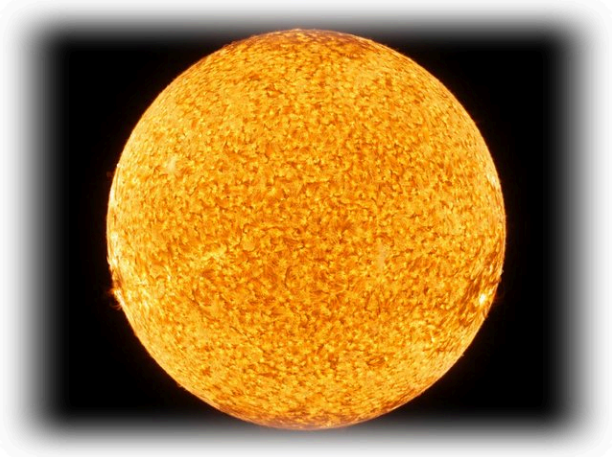
B normal force

C air resistance

D gravity

Understand It with Pulse | Flag a mistake

5 **Kepler first law states that planetary orbits are**



A ellipses with the Sun at one focus

B circles with the Sun at the centre

C parabolas

D straight lines

Understand It with Pulse | Flag a mistake

6 **Kepler second law states that a planet sweeps out equal areas in equal**

A distances

B times

C masses

D temperatures

Understand It with Pulse | Flag a mistake

7 **Kepler third law relates the square of the orbital period to the cube of the**

A planet mass only

B planet speed only

C average orbital radius

D orbital eccentricity

Understand It with Pulse | Flag a mistake

8 **A planet moves fastest in its orbit when it is closest to the Sun, at**

- A aphelion
- B equinox
- C solstice
- D perihelion

Understand It with Pulse | Flag a mistake

9 **The gravitational field strength at a point is the gravitational force per unit**

- A mass
- B distance
- C time
- D volume

Understand It with Pulse | Flag a mistake

10 **Gravitational force between two masses decreases as the distance between them**



A decreases

B increases

C stays the same

D becomes zero at once

Understand It with Pulse | Flag a mistake

11 **If the distance between two masses doubles, the gravitational force becomes**

- A one half
- B double
- C one quarter
- D four times

Understand It with Pulse | Flag a mistake

12 **A geostationary satellite stays above the same point on Earth because its orbital period is**

- A 12 hours
- B 1 hour
- C 1 month
- D 24 hours

Understand It with Pulse | Flag a mistake

13 **For an object in circular motion, increasing speed while keeping radius constant increases centripetal acceleration by the square of the**

A speed factor

B mass factor

C radius factor

D time factor

Understand It with Pulse | Flag a mistake

14 **Banking a road curve helps provide centripetal force through a component of the**

A friction only

B normal force

C weight only

D air resistance

Understand It with Pulse | Flag a mistake

15 **Escape velocity is the minimum speed needed for an object to escape a planet gravity without further**



A mass

B rotation

C propulsion

D atmosphere

Understand It with Pulse | Flag a mistake

16 **A mass moves in a circle of radius 2 metres at speed 4 metres per second. Its centripetal acceleration in metres per second squared is**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **A mass of 3 kilograms moves at 6 metres per second in a circle of radius 2 metres. The centripetal force in newtons is**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **A satellite orbits with period 4 hours at radius R. At radius 4 times R, Kepler third law gives a period in hours of**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **A wheel turns once every 2 seconds. Its frequency in hertz is**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 A wheel turns 5 times per second. Its period in seconds is



ANSWER _____

Understand It with Pulse | Flag a mistake

21 A car rounds a curve of radius 25 metres at 10 metres per second. Its centripetal acceleration in metres per second squared is

ANSWER _____

Understand It with Pulse | Flag a mistake

22 A mass of 2 kilograms moves at 5 metres per second in a circle of radius 5 metres. The centripetal force in newtons is

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A planet orbital radius increases by a factor of 4. Its orbital period increases by a factor of**

ANSWER

Understand It with Pulse | Flag a mistake

24 **Gravitational force is 100 newtons. If distance doubles, the new force in newtons is**

ANSWER

Understand It with Pulse | Flag a mistake

25 **A satellite speed is 8000 metres per second and radius is 8000000 metres. Its centripetal acceleration in metres per second squared is**



ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	B	**10.**	B	**19.**	0.5
2.	B	**11.**	C	**20.**	0.2
3.	C	**12.**	D	**21.**	4
4.	D	**13.**	A	**22.**	10
5.	A	**14.**	B	**23.**	8
6.	B	**15.**	C	**24.**	25
7.	C	**16.**	8	**25.**	8
8.	D	**17.**	54		
9.	A	**18.**	32		

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