

Winmeen Tnpsc Group 1 & 2 Study Materials

Tnpsc Group 2 Complete Syllabus : <https://goo.gl/fNSnMN>

Tnpsc Group 2 Previous Questions : <https://goo.gl/PYqsd7>

Tnpsc Group 2 Model Questions : <https://goo.gl/xQvyTk>

12. Laws of Motion and Gravitation

1. What is force?

Force is one which changes or tends to change the state of rest or of uniform motion of a body. Force is a vector quantity. Its SI unit is newton.

2. What is balanced force?

Forces acting on an object which do not change the state of rest or of uniform motion of it are called balanced forces

3. What is unbalanced force?

The block moves in the direction of the greater force. The resultant of two opposite forces acts on an object and brings it to motion. These opposite forces are called unbalanced forces.

4. What is laws of motion?

Galileo observed the motion of objects on an inclined plane. The first law of motion is stated as: An object remains in the state of rest or of uniform motion in a straight line unless compelled to change that state by an applied unbalanced force.

5. What is inertia?

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The tendency of objects to stay at rest or to keep moving with the same velocity, unless it is acted by an external force is called inertia.

6. What is momentum?

The momentum 'p' of an object is defined as the product of its mass 'm' and velocity 'v'.

$$p = mv$$

7. What is second law of motion?

The second law of motion states that the rate of change of momentum of an object is directly proportional to the applied unbalanced force in the direction of force. Suppose an object of mass 'm' is moving along a straight line with an initial velocity 'u', it is uniformly accelerated to velocity 'v' in time 't' by the application of constant force 'F', throughout the time 't'.

Rate of change of momentum = change of momentum/time

8. What is one unit of force?

One unit of force (1N) is defined as the amount of force that produces an acceleration of 1 ms^{-2} in an object of 1 kg mass.

9. What is Newton third law of motion?

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Newton's third law of motion states

that for every action there is an equal and opposite reaction. It must be remembered that the action and reaction always act on two different objects.

10. What is conservation of momentum?

The law of conservation of momentum states that, in the absence of external unbalanced force, the total momentum of a system of objects remains unchanged.

11. What is collision?

The total momentum before collision is equal to the total momentum after collision. The total momentum of two objects remain unchanged due to collision in the absence of external force. This law holds good for any number of objects.

12. What is magnitude of moment of force?

The magnitude of the moment of force about a point is defined as the product of the magnitude of force and the perpendicular distance of the point from the line of action of the force.

13. What is momentum of force?

Moment of force = $F \times d$.

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14. What is Newton's law of gravitation?

Every object in the universe attracts every other object with a force which is directly proportional to the product of their masses and inversely proportional to the square of the distance between them.

15. What is mass?

Mass is the quantity of matter contained in a body.

16. What is weight?

Weight is the gravitational force acting on a body. It is a measure of how strongly gravity pulls on that body.

17. What is acceleration related to gravity?

The acceleration produced in a body on account of the force of gravity is called acceleration due to gravity.

18. What is Chandrayana I?

Chandrayaan-1 is a moon-traveller or moon vehicle.

19. When was ISRO launched?

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It was launched by the Indian Space Research Organization (ISRO) in October 2008 from Srihari Kota in Andrapradesh and operated until August 2009.

20. What are the achievements of Chandrayana I?

The discovery of wide-spread presence

of water molecules in lunar soil.

- Chandrayaan's Moon Mineralogy Mapper has confirmed that moon was once completely molten.
- European Space Agency payload- Chandrayaan-1 imaging X-ray spectrometer (CIXS) detected more than two dozen weak solar flares during the mission.
- The terrain mapping camera on board Chandrayaan-1 has recorded images of the landing site of the US space-craft Apollo-15, Apollo-11.
- It has provided high-resolution spectral data on the mineralogy of the moon.
- Lunar Laser Ranging Instrument (LLRI) covered both the Lunar Poles and additional lunar region of interest.
- The X-ray signatures of aluminium, magnesium and silicon were picked up by the CIXS X-ray camera.

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- The Bulgarian payload called Radiation Dose Monitor (RADOM) was activated on the very same day of its launch and worked till the mission ended.
- More than 40,000 images have been transmitted by Chandrayaan camera in 75 days.
- The Terrain Mapping Camera acquired images of peaks and craters. The moon consists mostly of craters.
- Chandrayaan beamed back its first images of the Earth in its entirety.
- Chandrayaan-1 has discovered large caves on the lunar surface that can act as human shelter on the moon.

21. What is cryogenics?

The term Cryogenics is from Greek and means “the production of freezing cold”.

22. What is space station?

A space station is an artificial structure designed for humans to live and work in the outer space for a certain period of time.