NEW STANDARD ACADEMY

Marks: 80

Date : 25-08-25   CLASS : 9TH   Time: 3 hours.

PHYSICS

1. A ball is thrown vertically upward with a velocity of 49 m/s. Calculate
   (i) The maximum height to which it rises.
   (ii) The total time it takes to return to the surface of earth.
2. A stone is released from the top of a tower of height 19.6m. Calculate its final velocity just before touching the ground.
3. Con sider a heavenly body whose mass is 3×10^{24} kg (half that of the earth) and radius is 3200 km (half that of the earth). What is the acceleration due to gravity at the surface of this heavenly body?
4. State the universal law of gravitation.
5. A body drops a stone from a cliff, reaches on the ground in 8 seconds. Calculate:
   (i) final velocity of stone
   (ii) height of cliff
6. Consider a block of 5kg lying on the ground then find the thrust on the ground?
7. Calculate pressure exerted by a brick of mass 3 kg
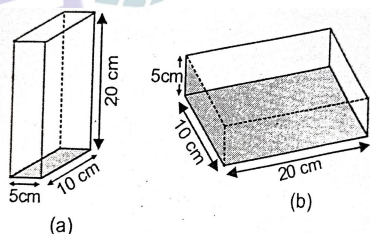
   (a) when standing on the end.
   (b) when lying flat. The total force or thrust exerted is the same in both the cases.
8. Define ' thrust'
9. Which will exert more pressure 100 kg mass on $10 m^2$ or 50 kg mass on $4 \ m^2$? give reason
10. When we stand on loose sand , our feet go deep into the sand . But when we lie down on the sand our body does not go that deep in the sand .Why?

CHEMISTRY

1. Arrange the following substances in increasing order of forces of attraction between the particles-water, sugar, oxygen.
2. What is the physical state of water at:
   (a) 25°C   (b) 0°C   (c) 100°C
3. Give two reasons to justify:
   (a) Water at room temperature is a liquid
   (b) An iron almirah is a solid at room temperature.
4. Why is ice at 273 K more effective in cooling than water at the same temperature?
5. What produces more severe burns, boiling water or steam?
6. Define solute and solvent with examples.
7. What is solute and solvent in
   (a) brass   (b) tincture iodine
   (c) air ?
8. A 3% sugar solution (w/w) means that
   (a) 3 gram of sugar is dissolved in 97 g of water.
   (b) 3 gram of sugar is dissolved in 100 g of water
9. A 10% (V/V) alcohol-water solution contains
   (a) 10 mL alcohol and 90 mL water.
   (b) 10 mL alcohol and 100 mL water.
10. A solution contains 6 mL methanol in 0.074 litre of water. Calculate the concentration of the solution.

BIOLOGY

1. What is a protoplasm Who give the name of protoplasm
2. Who discover the electron microscope give the two features
3. Give the two difference between unicellar and multicellar organism
4. Define cytoplasm
5. Give the two difference between pinocytosis and phagocytosis
6. How plasmolysis different from deplasmolysis
7. Give the two difference between rough and smooth endoplasmic reticulum
8. Define meristematic tissue give the characteristics of two tissue
9. What is the difference in apical and lateral meristem,give the example

10. What is a permanent tissue in plant give the example

MATHS

1. AB is a line segment and line l is its perpendicular bisector. If a point P lies on l, show that P is equidistant from A and B.
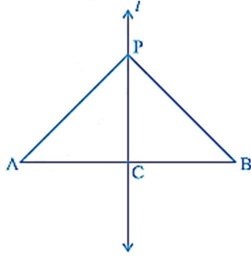
2. Line-segment AB is parallel to another line-segment CD. O is the mid-point of AD (see Fig.). Show that (i) $\triangle AOB \cong \triangle DOC$ (ii) O is also the mid-point of BC
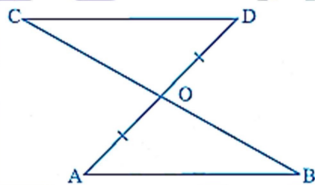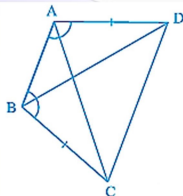
3. In quadrilateral ACBD, AC = AD and AB bisects $\angle A$ (see Fig). Show that $\triangle ABC \cong \triangle ABD$. What can you say about BC and BD?
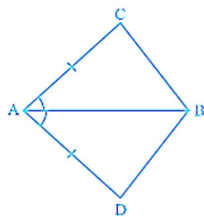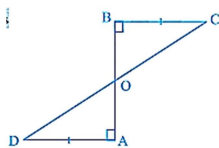
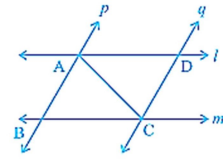4. ABCD is a quadrilateral in which AD = BC and $\angle DAB = \angle CBA$ (see Fig.). Prove that
(i) $\triangle ABD \cong \triangle BAC$
(ii) BD = AC
(iii) $\angle ABD = \angle BAC$

5. AD and BC are equal perpendiculars to a line segment AB (see Fig.). Show that CD bisects AB

6. l and m are two parallel lines intersected by another pair of parallel lines p and q (see Fig). Show that $\triangle ABC \cong \triangle CDA$.
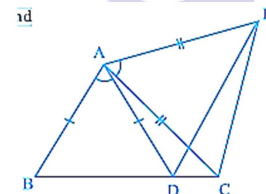
7. Line l is the bisector of an angle $\angle A$ and B is any point on l. BP and BQ are perpendiculars from B to the arms of $\angle A$ (see Fig.). Show that:
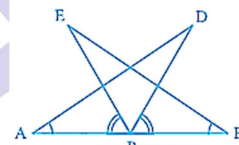(i) $\triangle APB \cong \triangle AQB$
(ii) BP = BQ or B is equidistant from the arms of $\angle A$
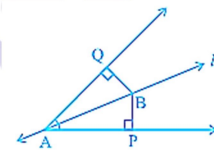
8. In given fig., AC = AE, AB = AD and $\angle BAD = \angle EAC$. Show that BC = DE

9. AB is a line segment and P is its mid-point. D and E are points on the same side of AB such that $\angle BAD = \angle ABE$ and $\angle EPA = \angle DPB$ (see Fig.). Show that
(i) $\triangle DAP \cong \triangle EBP$
(ii) AD = BE

10. In right triangle ABC, right angled at C, M is the mid-point of hypotenuse AB. C is joined to M and produced to a point D such that DM = CM. Point D is joined to point B (see Fig. 7.23). Show that:
(i) $\triangle AMC \cong \triangle BMD$
(ii) $\angle DBC$ is a right angle.
(iii) $\triangle DBC \cong \triangle ACB$
(iv) $CM = \frac{1}{2} AB$