



**INDIAN SCHOOL
AL WADI AL KABIR**

2019-2020

CLASS - XI

Holiday homework is an attempt to channelise the creative energy of the children. Doing it in the right spirit with enthusiasm will make it a great learning experience. Make sure that your work is neat, presentable, and original and follows to the guidelines.

CLASS 11 - PHYSICS

OBJECTIVE TYPE QUESTIONS

- 1) Two projectiles are fired from the same point with the same speed at angles of projection 60° and 30° respectively. Which one of the following is true?
a) Their range will be maximum b) Their maximum height will be the same. c) Their landing velocity will be the same. d) Their time of flight will be the same.
Answer - a
- 2) The range of a projectile, when launched at an angle of 15° with horizontal is 1.5km. What is the range of the projectile, when launched at an angle of 45° to the horizontal?
a) 1.5km b) 3.0km c) 6.0km d) 0.75km
Answer - B
- 3) The maximum range of a gun along horizontal is 16km. What is the muzzle velocity of the shell?
a) 400m/s b) 200m/s c) 800m/s d) 256m/s
Answer - a (Hint- $R_{\max} = u^2/g$)
- 4) The angular speed of a fly-wheel making 120r.p.m is
a) π rad/s b) 2π rad/s c) 4π rad/s d) $4\pi^2$ rad/s
Answer- c
- 5) A body is whirled in a horizontal circle of radius 20cm. It has an angular velocity of 10 rad/s. What is the linear velocity at any point on the circular path?
a) 10m/s b) 2 m/s c) 20 m/s d) $\sqrt{2}$ m/s
Answer - b

Very Short answer type questions (1marks)

- 1) Can the relative velocity of two bodies be greater than the absolute velocity of either? Yes (bodies moving in opposite directions)
- 2) Two balls of different masses are thrown vertically upward with same initial velocity. Height attained by them are h_1 and h_2 respectively. What is h_1/h_2 ? (Ans: 1/1, because the height attained by the projectile is not depend on the masses.)
- 3) A helicopter is flying south with a speed of 60km/hr. A bird is moving with the same speed towards east. Find the relative velocity of the helicopter with respect to the bird?
- 4) Is uniform circular motion a case of uniform motion? Why?

- 5) What is the angle between velocity and acceleration at the peak point of the projectile motion? (Ans: 90°).

Short Answer type question (2marks)

- 6) What is the angular velocity of the hour hand of a clock ?(Ans : $\omega = 2\pi/12 = \pi/6 \text{ rad h}^{-1}$)
- 7) Rain is falling vertically with a speed of 20m/s. A women rides a bicycle with a speed of 12m/s in the north-south direction. What is the relative velocity of rain with respect to women?
- 8) A boy is moving with velocity 3km/h along east and the rain is falling vertically with velocity 4km/hr. Calculate the velocity of rain relative to boy [take $\tan 37^\circ = 0.75$]
- 9) Show that when the horizontal range is maximum, height attained by the body is one fourth the maximum range in the projectile motion.

(Ans: Horizontal range $R = \frac{u^2 \sin 2\theta}{g}$; for maximum range $\theta = 45^\circ$, R_{\max}

$= \frac{u^2}{g}$ and Height $H = \frac{u^2 \sin^2 \theta}{2g}$; For $\theta = 45^\circ H = \frac{u^2}{4g} = \frac{1}{4}$ of the R_{\max} .)

- 10) A gunman always keeps his gun slightly tilted above the line of sight while shooting. Why?

Short answer questions (3marks)

- 11) A fighter plane flying horizontally at an altitude of 2 km with a speed of 200m/s passes directly overhead an anti air craft gun. At what angle from the vertical should the gun be fixed for the shell with muzzle speed 400m/s to hit the plane ?[$g = 10\text{m/s}^2$]Ans. 30°
- 12) A body is projected at an angle θ with the horizontal. Derive an expression for its horizontal range. Show that there are two angles θ_1 and θ_2 projections for the same horizontal range.
- 13) Two forces 80N and 60N act on a body at an angle of 60° . Find the magnitude and direction of the resultant force.

14) A stone tied to the end of a string of length 100cm is whirled in a horizontal circle with constant speed. If the stone makes 10 revolutions in 20 seconds, calculate the magnitude and direction of the acceleration.

$$\omega = 2\pi f = 2\pi \times 10/20 = \pi \qquad a = r\omega^2$$

15) State the parallelogram law of vector addition. Derive an expression for magnitude and direction of resultant of the two vectors.

16) An aero plane moving horizontally at 150m/s releases a bomb at a height of 500m. The bomb hits the target. What was the horizontal distance of the aero plane from the target when the bomb was released? [1500m]

Long answer question (5 marks)

17) What is centripetal acceleration and centripetal force? Derive an expression for centripetal acceleration & centripetal force.

18) Show that the path traced by a projectile is parabola. Derive the equations to find the [i] Maximum height [ii] time of flight [iii] time taken to reach maximum height [iv] horizontal range.

19) What is angular velocity and angular acceleration? Establish a relation with

- a) Angular velocity and linear velocity
- b) Angular acceleration and linear acceleration

20) A cricket ball is thrown at a speed of 28m/s in a direction 30° above the horizontal. [i] Maximum height [ii] time of flight [iii] time taken to reach maximum height [iv] horizontal range. (Ans- 10m, 5.8s, 2.9s, 69.3m)

PREPARED BY MS. ANU ANNIE MATHEWS

CLASS 11 - CHEMISTRY

♥ CHEMISTRY JOURNAL WORK – SALT ANALYSIS 1 AND 2

♥ PROJECT WORK

➤ Topic : **Environmental Chemistry**

- Choose *any one* subtopic given below:

1.	Environmental Pollution/Atmospheric Pollution ➤ <i>Global Warming and Greenhouse Effect</i>
2.	Water Pollution
3.	Soil Pollution
4.	Industrial Waste
5.	Strategies to control Environmental Pollution
6.	Green Chemistry

INSTRUCTIONS:

- ✓ *Prepare a file format in A4 size sheets with pages 4-5 nos.*
- ✓ *Reference: Class 11 Chemistry Part II – pages 398 – 410.*

Prepared by: Mr. Anoop Stephen

CLASS 11 - BIOLOGY

JOURNAL WORK

WORK SHEET - HUMAN PHYSIOLOGY 1 (REFER TO THE SCHOOL WEBSITE)

Prepared by: Ms. Rejitha Sajith

CLASS 11 - ENGINEERING GRAPHICS

1. Divide a straight line AB, proportionate to four given lines a, b, c and d. (a=5, b=4, c=3, d=2)
2. Construct an Isosceles Triangle ABC, having each of its sides = 50mm and each of its base angles equal to the given angle B. (angle B = 45 degree).
3. Construct a Triangle ABC, having its base BC=50mm, side AB=40mm, side AC=60mm.
4. Construct a Triangle ABC, having its altitude AD 35mm, side AB 40mm and side AC 50mm.
5. Construct a square ABCD of 40mm sides with compasses.
6. Construct a Rhombus ABCD, having its diagonal AC=60mm and its side equal to 40mm.
7. Construct a Rhombus ABCD, having its diagonal AC=45mm and the diagonal BD=35mm.
8. Construct a Trapezion or Kite ABCD, having its diagonal AC=50mm, its adjacent sides AD and AB each equal to 30mm and CD and CB equal to 40mm.
9. Construct an Irregular polygon ABCDE from the following data: Sides: AB=25, BC=30, CD=35, ED=20 and AE=20mm. Diagonals: AC=42 and AD=37mm.
10. Draw a direct common Tangent to two equal circles of diameter 30mm, having their centres O and C, 35mm apart.
11. Draw a circle to pass through a given point C and to touch a given straight line AB in a given point D.

12. Draw a circle to touch a given straight line AB and to pass through two points C and D, given outside it, at equal distance from it.

13. Construct a spiral about any regular polygon (Pentagon) of 7mm sides.

14. Construct an Involute of a circle of 30mm diameter.

15. Draw the cycloid of a circle whose diameter equal to 40mm.

Note: All the dimensions should be in millimeters (mm).

Date of Submission : On Reopening day

Prepared by Ms. Aiswarya D

HOD – SCIENCE

26.05.19