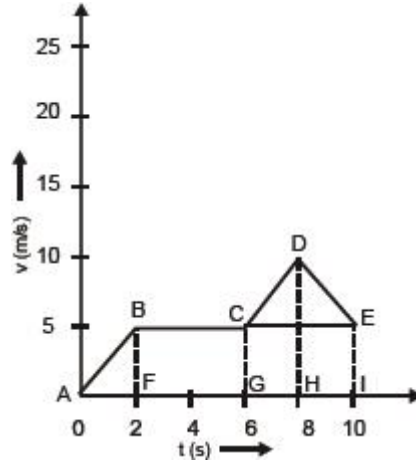# AMARCHAND SINGHVI INTERNATIONAL SCHOOL

CLASS IX – PHYSICS WORKSHEET

1. Define acceleration and state its SI unit. For motion along a straight line, when do we consider the acceleration to be (i) positive (ii) negative? Give an example of a body in uniform acceleration.

2. Find the total displacement of the body from the following graph:

3. A car travels at 54 km/h for first 20 s, 36 km/h for next 30 s and finally 18 km/h for next 10 s. Find its average speed.

4. Define acceleration and give its SI unit. When is acceleration of a body negative? Give two examples of situations in which acceleration of the body is negative.

5. Distinguish between uniform motion and non-uniform motion. Is uniformly accelerated motion uniform motion? Give one example each of uniform and non-uniform motion.

6. The speedometer readings of a car are shown below. Find the acceleration of the car and its displacement.

Time	Speedometer
9:25 am	36 km/h
9:45 am	72 km/h

7. Define uniform circular motion and give example of it. Why is it called accelerated motion?

8. How can we distinguish one sound from another having the same pitch and loudness?

9. What is the audible range of frequency for human beings?

10. Find the frequency of a wave whose time period is 0.002 second.

11. What is crest and trough?

12. What do we don't get echo in small room?

13. What is the function of middle ear?

14. What us ultrasonic and infrasonic sound waves?

15. What is SONAR?

16. Define wave-motion.

17. Derive the formula for potential energy.

18. Explain the Law of conservation of energy with pendulum.

19. If energy is neither created nor destroyed then from where do we get energy?

20. State and explain one example where kinetic energy is present in a body and is used.

21. Define power and give its unit.

22. What is potential energy? Explain different types of potential energy.

23. How is work and energy related to each other?

24. Give one example where work done on an object is negative.

25. A man does 60 J of work in 6 seconds. Calculate the power.

26. Give one example where work done on an object is zero.

27. State two effects of force.

28. What is the commercial unit of energy? Define it.

29. If first law of motion holds true, why does a ball rolling on ground stop on its own?

30. What would happen if there was no friction on the Earth?

31. What would happen if gravitational force of the Sun suddenly vanishes?

32. What did Galileo observe by placing two inclined planes facing each other and rolling down a marble ball from top end of one of them?

33. What is the negative effect of friction on your shoe soles?

34. You are applying force on the pan of single pan weighing balance and the pointer points to 100 g. What is the force in newtons applied by you?

35. An athlete always runs some distance before taking a jump. Why?

36. A cricket ball of mass 70 g moving with a velocity of 0.5 m/s is stopped by a player in 0.5 s. What is the force applied by the player to stop the ball?

37. In a cricket match, why does a player lower his hands slightly while catching the ball?

38. Two cars having masses in the ratio 4 : 5, accelerate in the ratio 2:3. Find the ratio of forces exerted by each of them.

39. Earth attracts apple from the tree and it falls on it but the earth does not move towards the apple. Why?

40. Is uniform circular motion taking place at a constant speed or constant velocity? Why?

41. Name the force which is required to maintain a body in uniform circular motion?

42. A ball is projected vertically upwards with an initial velocity of u goes to a maximum height h before coming to ground. What is the value of h?

43. Is value of 'g' same everywhere?

44. Find relationship between 'g' and 'G'

45. During a free-fall what is the weight of a body. Give reason for the answer.

46. A stone and feather are thrown from a tower, both the objects should reach the ground at same time but it does not. Why?

47. What is the value of 'G', universal gravitational constant?

48. Find the value of 'g', acceleration due to gravity.

49. Calculate value of 'g' on moon.

50. Show that the weight of the body on moon =1/6 of the weight of the body in earth.

51. Establish relationship between 'g' and 'G'.

52. How is the weight of an object related to its mass?

53. Show that the acceleration due to gravity at the surface of moon is about 1/6 of that at the surface of the earth.

54. Calculate the value 'g', acceleration due to gravity.

55. What is centripetal force? Define it with example.

56. From a rifle of mass 5kg, a bullet of mass 50gram is fired with an initial velocity of 50m/s. Calculate the initial recoil velocity of the rifle.

57. Why does one get hurt on jumping from a great height to the floor?

58. Why do roads on mountains have inward inclination at sharp turns?

59. Explain the following:

   (a) An object increases its energy when raised through a height.

   (b) Energy is neither created nor destroyed then from where do we get energy.

   (c) When we push the wall, the wall does not move and no work is done.

60. A ship sends out ultrasound that returns from the seabed and is detected after 3.42 s. If the speed of ultrasound through seawater is 1531 m/s. What is the distance of the seabed from the ship?

61. A child watching Dussehra from a distance sees the effigy of ravana burst into flames and hears the explosion associated with it 2 sec after that. How far was he from the effigy if the speed of sound in air that night was 335m/sec?

62. Give three uses of ultrasound.

63. A bus travels a distance of 120 km with a speed of 40 km/h and returns with a speed of 30 km/h. Calculate the average speed for the entire journey.

64. A bus accelerates uniformly from 54 km/h to 72 km/h in 10 seconds Calculate
   (i) Acceleration in m/s^2
   (ii) Distance covered by the bus in metres during this interval.

65. Derive the equation of motion $v = u + at$, using graphical method.

66. A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming the acceleration is uniform, find
   (i) The acceleration.
   (ii) The distance travelled by the train for attaining this velocity.

67. Why does sound become faint with distance?

68. Given that sound travels in air at 340m/sec, find the wavelength of the waves in air produced by 20 kHz sound source. If the same source is put in a water tank, what would be the wavelength of the sound waves in water?   Speed od sound in water is 1480m/s

69. A body possess potential energy of 460 J whose mass is 20 kg and is raised to a certain height. What is the height when $g = 10$ m/s^2.

70. What work is said to be done to increase the velocity of a car from 15 km/h to 30 km/h, if the mass of the car is 1000 kg?