Shemford
Futuristic K-12 School
CBSE Affiliation No-2132974

Summer Holiday Homework

Session (2023-2024)

Class: IX

Name_____ Roll. No_____

Subject: English

1.) You recently visited your granny's house and you found out that she is facing great difficulty to know which medicines to take and not to take as she does not know how to read. You wish to help her. Write a letter to your friend, informing him/ her how you helped your grandmother.

2.) Search and select one natural or cultural heritage and make an informative record on it in about 200 to 300 words.

Subject: AI

After observing your teachers, friends and relatives communicating through different communication methods – written, oral, and non-verbal – for some times. Prepare a presentation using power point / sway enlisting 5 pros and 5 cons each for all above mentioned communication (verbal, non-verbal and visual).

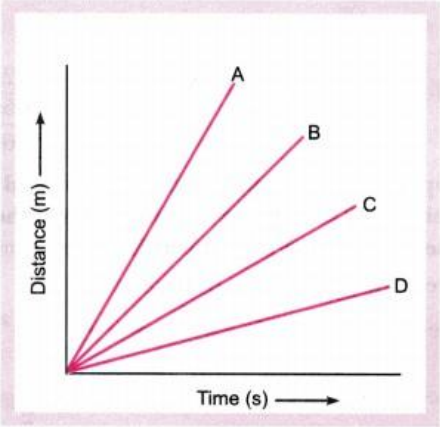
Subject: Hindi

1-यात्रा वृतांत के आधार पर अरुणाचल या उत्तर प्रदेश की भौगोलिक स्थिति का शब्द चित्र प्रस्तुत करें वहाँ की स्थिति आपके गाँव या शहर से किस प्रकार भिन्न है। दोनों में अंतर बताते हुए परियोजना कार्य तैयार कीजिए ।
2-समास के भेदों को दर्शाते हुए एक परियोजना कार्य तैयार कीजिए अपनी आवश्यकता अनुसार इस लिंक की सहायता ले सकते हैं

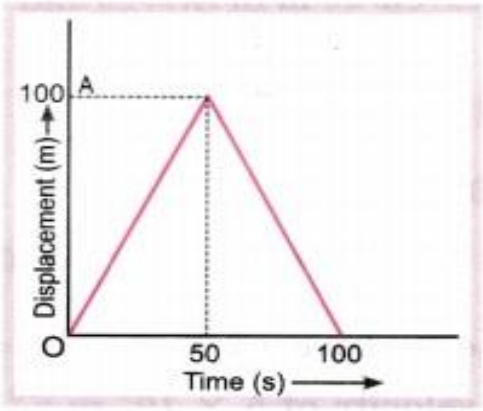
Subject: Physics

Higher Order Thinking Skills Questions:

1. Four cars A, B, C and D are moving on a levelled road. Their distance versus time graphs are shown in figure. Which car is the slowest?

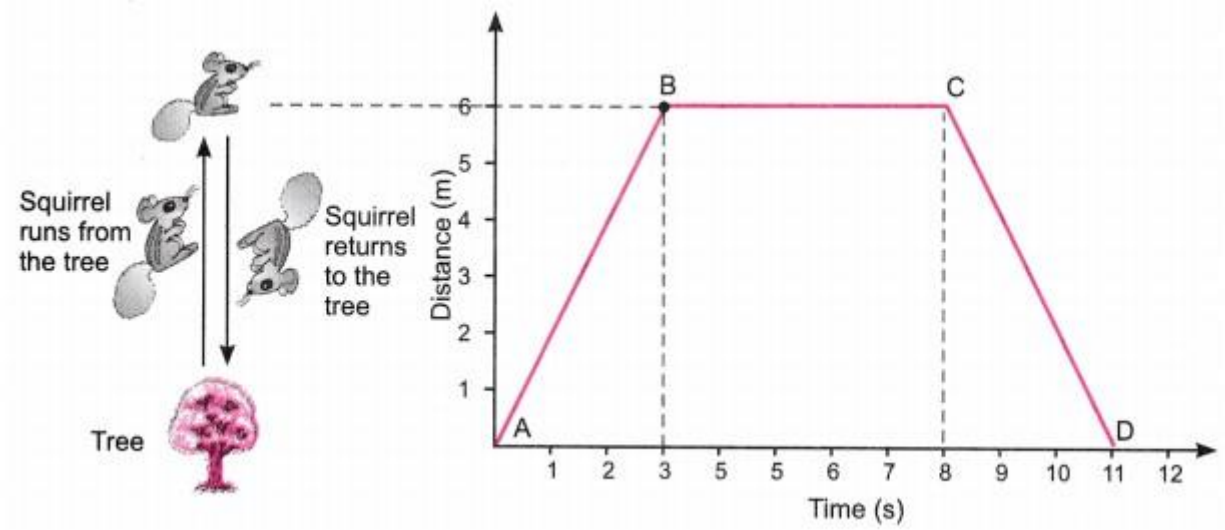


2. A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement-time graph is shown in figure. Plot a velocity-time graph for the same.



3. Suppose a squirrel is moving at a steady speed from the base of a tree towards some nuts. It then stays in the same position for a while, eating the nuts, before returning to the tree at the same speed. A graph can be plotted with distance on the x-axis and the time on y-axis

   Observe the graph carefully and answer the following questions.
   (A) Which part of the graph shows the squirrel moving away from the tree?
   (B) Name the point on the graph which is 6 m away from the base of the tree.
   (C) Which part of the graph shows that the squirrel is not moving?
   (D) Which part of the graph shows that the squirrel is returning to the tree?
   (E) Calculate the speed of the squirrel from the graph during its journey.



4. The table given below shows distance (in cm) travelled by bodies A, B and C. Read this data carefully and answer the following questions.

Distance (in cm) covered by different bodies

Time in (s)	Body (A)	Body (B)	Body (C)
1st Second	20	20	20
2nd Second	20	36	60
3rd Second	20	24	100
4th Second	20	30	140
5th Second	20	48	180

(i) Which of the bodies is moving with
(a) constant speed?
(b) Constant acceleration?
(c) Non-uniform acceleration?
(ii) Which of the bodies covers
(a) maximum distance in 3rd second?
(b) Minimum distance in 3rd second?

Activity

5. Have you ever experienced that the train in which you are sitting appears to move while it is at rest? Discuss and share your experience.

6. Walk from one corner of a basketball court to its opposite corner along its side. Measure the distance covered by you and magnitude of the displacement.
What difference would you notice between the two in the case?

Short Answer Type Questions

7. A train starting from rest moves with a uniform acceleration of 0.2 m/s^2 for 5 minutes. Calculate the speed acquired and the distance travelled in this time.

8. Name the two quantities, the slope of whose graph gives:
(a) Speed, and (b) acceleration

9. A deer starts from rest, and accelerates at 2 m/s^2 for 10 seconds. Calculate :

(a) The final velocity
(b) The distance travelled.

10. A train travelling at 20 m/s^{-1} accelerates at 0.5 $m/s^2$for 30 s. How far will it travel in this time?

11. A cyclist is travelling at 15 m/s^{-1}. He applies brakes so that he does not collide with a wall 18 m away. What deceleration must he have?

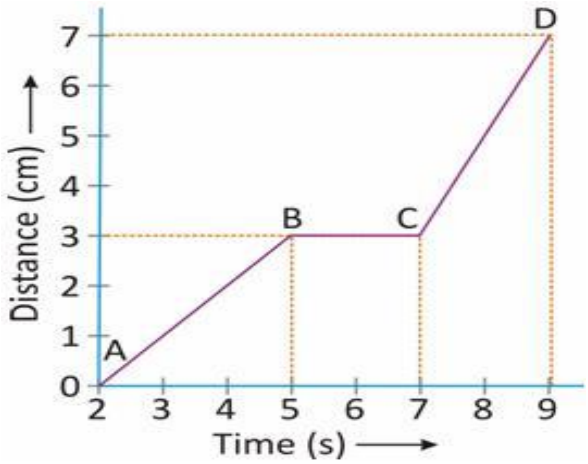
12. Draw a velocity-time graph to show the following motion:
A car accelerates uniformly from rest for 5 s; then it travels at a steady velocity for 5 s.

13. The velocity-time graph for part of a train journey is a horizontal straight line. What does this tell you about (a) the train's velocity, and (b) about its acceleration?

Long Answer Type Question:

14. The graph gives alongside shows the positions of a body at different times. Calculate the speed of the body as it moves from:

(i) A to B
(ii) B to C, and
(iii) C to D.

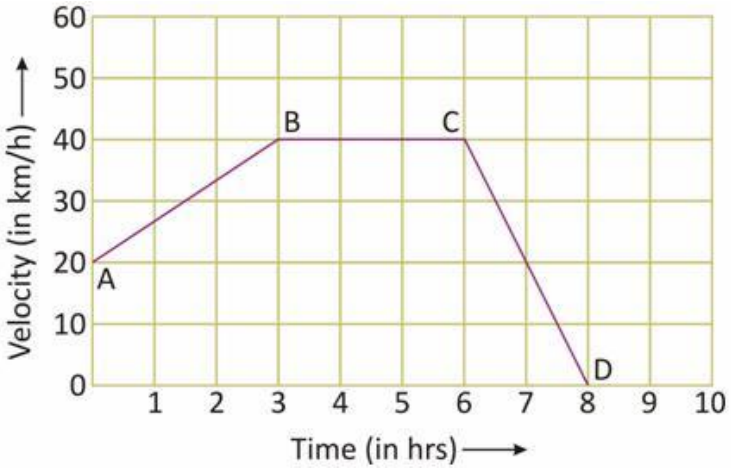


15. What can you say about the motion of a body if:
(a) Its displacement-time graph is a straight line?
(b) Its velocity-time graph is a straight line?

16. A body with an initial velocity x moves with a uniform acceleration y. Plot its velocity–time graph.

17. Given here is the velocity-time graph for a cycle:

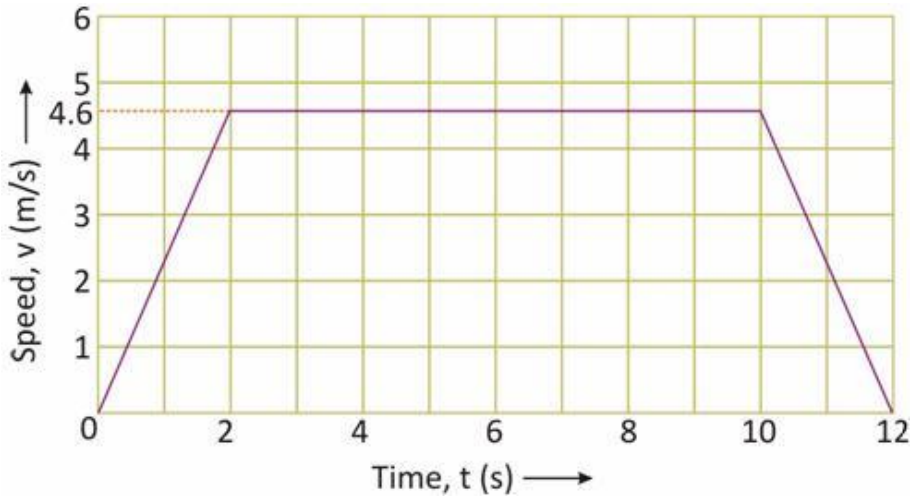
Find: (i) velocity of the cycle at point C.
(ii) Acceleration acting on the cycle between A and B.
(iii) Acceleration acting on the cycle between B and C.



18. A body is moving uniformly in a straight line with a velocity of 5 m/s. Find graphically the distance covered by it in 5 seconds.

19. The speed-time graph of an ascending passenger lift is given here.

What is the acceleration of the lift :
(i) during the first two seconds ?
(ii) between second and tenth second ?
(iii) during the last two second ?



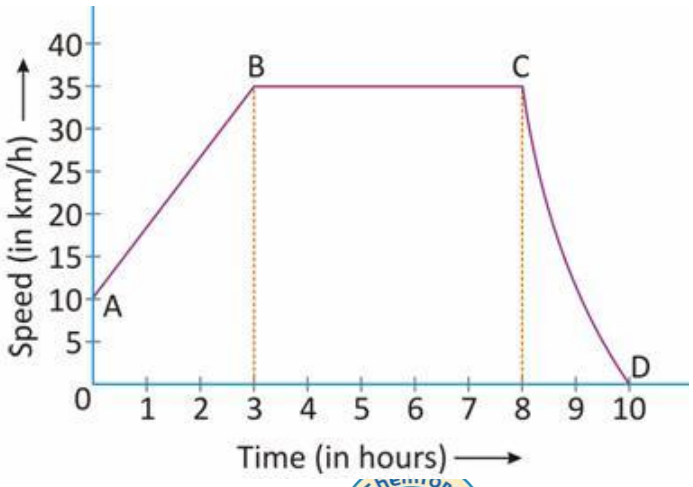
20. A car is moving on a straight road with uniform acceleration. The speed of the car varies with time as follows :

Time (s)	:	0	2	4	6	8	10
Speed (m/s)	:	4	8	12	16	20	24

Draw the speed-time graph by choosing a convenient scale. From this graph:
(i) Calculate the acceleration of the car.
(ii) Calculate the distance travelled by the car in 10 seconds.

21. The graph given alongside shows how the speed of a car changes with time :

(i) What is the initial speed of the car?
(ii) What is the maximum speed attained by the car?
(iii) Which part of the graph shows zero acceleration?
(iv) Which part of the graph shows varying retardation?
(v) Find the distance travelled in first 8 hours?



22. A car is travelling along the road at 8 m/s^{-1}. It accelerates at 1 m/s^{-2} for a distance of 18 m. How fast is it then travelling?

23. A car is travelling at 20m/s along a road. A child runs out into the road 50 m ahead and the car driver steps on the brake pedal. What must the car's deceleration be if the car is to stop just before it reaches the child?

Project:

24. Built a working model of"Types of motion".

YouTube links for project reference:
https://youtu.be/Ijt08FwHTzU
https://youtu.be/Btj0sI5vdto
https://youtu.be/1aHJdGqmRlI

Subject: Chemistry

Topic: Revision worksheet [Chapter 1: Matter in our surroundings]

A. Answer the following questions

1) Name the three states of matter. Give one example of each.

2) What are the two ways in which the physical state of matter can be changed?

3) Explain how gases can be liquefied?

4) What produces more severe burns, boiling water or steam?

5) How can the boiling point of a liquid be raised, without adding any impurity?

6) Why does a summer rainstorm lower the temperature?

7) A drop of dettol got evenly distributed in water. How?

8) Liquid nitrogen is used as a commercial refrigerant to flash freeze foods. Nitrogen boils at -196^{0}C. What is this temperature on the Kelvin temperature scale?

9) What property or properties of gases can you point to support the assumption that most of the volume in a gas is empty space?

10) Why do the gases exert more pressure on the walls of the container than the solids?

11) Define the following terms:

- **a)** Melting point
- **b)** Freezing point
- **c)** Boiling point

12) Explain why water stored in an earthen vessel becomes cool.?

13) Which phenomenon occurs during the following changes?

- **a)** Wax melts in the sun.
- **b)** Drying of wet clothes

c) Formation of clouds

d) Density of liquids is more than gases.

14) Compare the rate of diffusion of liquids and solids with reason.

15) Differentiate between solids, liquids and gases on the basis of the following properties:

i) Intermolecular space

ii) Shape and volume

16) Convert the temperatures given below into Kelvin scale:

i) -50˚C

ii) 145˚C

17) What is condensation? How is the condensation of a gas carried out?

18) The smell of hot sizzling food reaches us several metres away. Why?

19) If a bottle of perfume is opened in one corner of a room, it immediately spreads throughoutthe room. Why?

20) What are fluids?

21) What property of gas is utilized when natural gas is supplied for vehicles?

22) Which of the following substances you expect strongest and in which weakest intermolecularforce: Water, alcohol, sugar, sodium chloride, carbon dioxide.

23) Compare the process of boiling and evaporation.

24) Why evaporation is called surface phenomenon?

25) What are volatile liquids and sublime substances?

26) Define humidity.

27) Why does our palm feel cold when we put some acetone, petrol or perfume on it?

28) Liquids generally have lower density as compared to solids. But ice floats on water. Why?

29) Why do we sweat more on a humid day?

30) Why do we see water droplets on the outer surface of a glass containing ice-cold water?

31) Why should we wear cotton clothes in summer?

32) Why keeping a wet handkerchief on the forehead of person having fever helps in reducingfever?

33) A bottle of ammonia spills in a corner of room, a person sitting in another corner opens thewindow of the room immediately.

34) Explain how pressure cooker helps in cooking food faster and softer?

35) What is the effect of pressure on freezing point and Boiling point of a liquid?

36) Define matter. Is sunlight a matter? Justify your answer.

37) What are the characteristics of particles of matter?

38) Discuss an activity for each, to prove the following:•

(i) Particles of matter are continuously moving.

(ii) Particles of matter attract each other.

(iii) Gases are more compressible as compared to solids and liquids.

(iv) The particles of matter are very small beyond our imagination.

Give explanations for the observations made,

39) (a) Convert the following to Celsius scale (i) 450K (ii) 300K

(b) Convert the following to Kelvin scale (i) 27° C (ii) 86°C

40) Tabulate the differences between solids, liquids & gas in following terms:

(i) Shape (ii) Kinetic Energy of particles

(iii) Fluidity (iv) Intermolecular forces

(v) Intermolecular spaces (vi) density

(vii) Rigidity (viii) compressibility

(ix) Filling of the container

41) Give reasons for the following:

(i) Chalk is a solid.

(ii)Gas fills the entire shape of a containing vessel.

(iii)Gas exerts pressure on the walls of the container.

(iv) Solids do not diffuse into one another.

(v) Liquids have a fixed volume but not a fixed shape.

(vi)Gases do not have a fixed volume or fixed shape.

42) In your day-to-day life routine observe incidents which reminds you for the properties of solid, liquid and gas. Write down those incidents and click their pictures also.

43) As per the Ek Bharat Shrestha Bharat campaign write five unique things which you observe about Arunanchal Pradesh with special refrence to studies.

Subject: Biology

Make a PowerPoint presentation on topic "**Explore and compare the food habits and cuisine of Uttar Pradesh and Arunachal Pradesh"** . OR "**To explore India's natural treasures: Biodiversity, wildlife and deforestation in Uttar Pradesh and Arunachal pradesh**".

Basic format of presentation will include:

Slide 1: Name of the presentation, Presenter (with class and roll no.) and name of the school.

Slide 2: Index including name of the topics which are part of your presentation.

Slide 3: Your content will begin from this slide……

- Make a compilation of at least 20-30 slides. Be as creative as possible. Take help of newspaper and articles on google.
- This project will be a part of your internal assessment of the year.

Chapter 1: The fundamental unit of life

B. Answer the following questions

44) _____and _____are the cytoplasmic organelles in which own genetic material is present.

45) _____and _____are cytoplasmic organelles in which single membrane is present.

46) The science of study of cell is called _____.

47) ATP is also called as_____.

48) Kitchen of the cell is _____ (Mitochondria/Chloroplast/Ribosome).

49) Protein factory of the cell is _____(Ribosome/Endoplasmic reticulum/ Lysosome).

50) Transport of molecules from higher concentration towards lower is called _____.

51) _____is also called as suicidal bag.

52) Why the bacteria is considered to be as a prokaryotic cell?

53) What do you mean by hypertonic and hypotonic solution?

54) Explain the functions and structure of Golgi bodies.

55) Explain the role of proteins in the structure of a plasma membrane?

56) What is nucleoid?

57) Why is plasma membrane a selectively permeable membrane?

58) How does amoeba consume food?

59) Name the cleansing organelle in the cell?

Subject : Mathematics

Q.1 Priyanka donated the amount Rs. $(\frac{1}{x^3} + x^3)$ to a NGO , who are working for Marine animals, her friends wanted to know the amount donated by her. She did not disclose the amount but gave the hint that

$$x + \frac{1}{x} = Rs.7$$

i) Find the amount donated by Priyanka to NGO

ii) Which mathematical concept is involved in this problem?

iii) By donating the amount to NGO which value is depicted by Priyanka?

iv) By helping to marine animals which SDG goal is promoted by Priyanka?

Q.2 A group of (a + b) teachers, (a^2+b^2) girls and (a^3+b^3) boys set out for an 'ADULT EDUCATION MISSION'. If there are 10 teachers and 58 girls then find:

i) Find the number of boys.

ii) Which mathematical concept is used in this problem?

i) By working for 'Adult Education' which value is depicted by teachers and students?

ii) By working for 'Adult Education' Which SDG goal is promoted by teachers and students?

Q.3 Make a wheel of SDG goals promoted in Q. 1 and 2 along with their number, name and logo.

Subject : S.Sc.

Choose any one topic and make a project file on it

1. Roles of women in History

2. World peace & security

3. Population characteristics and changes in India

4. Changing forest area & its impact on environment

5. Parliament

6. Elections in India.