MANAV RACHNA INTERNATIONAL SCHOOL
Block – F, Greenwood City, Sector 46, Gurgaon – 122001
Session 2024-25

SUBJECT: SCIENCE **GRADE: VII** **NAME:** _____

Ch. 6: Motion and time

Q1. Observe the given figure and answer the following questions:

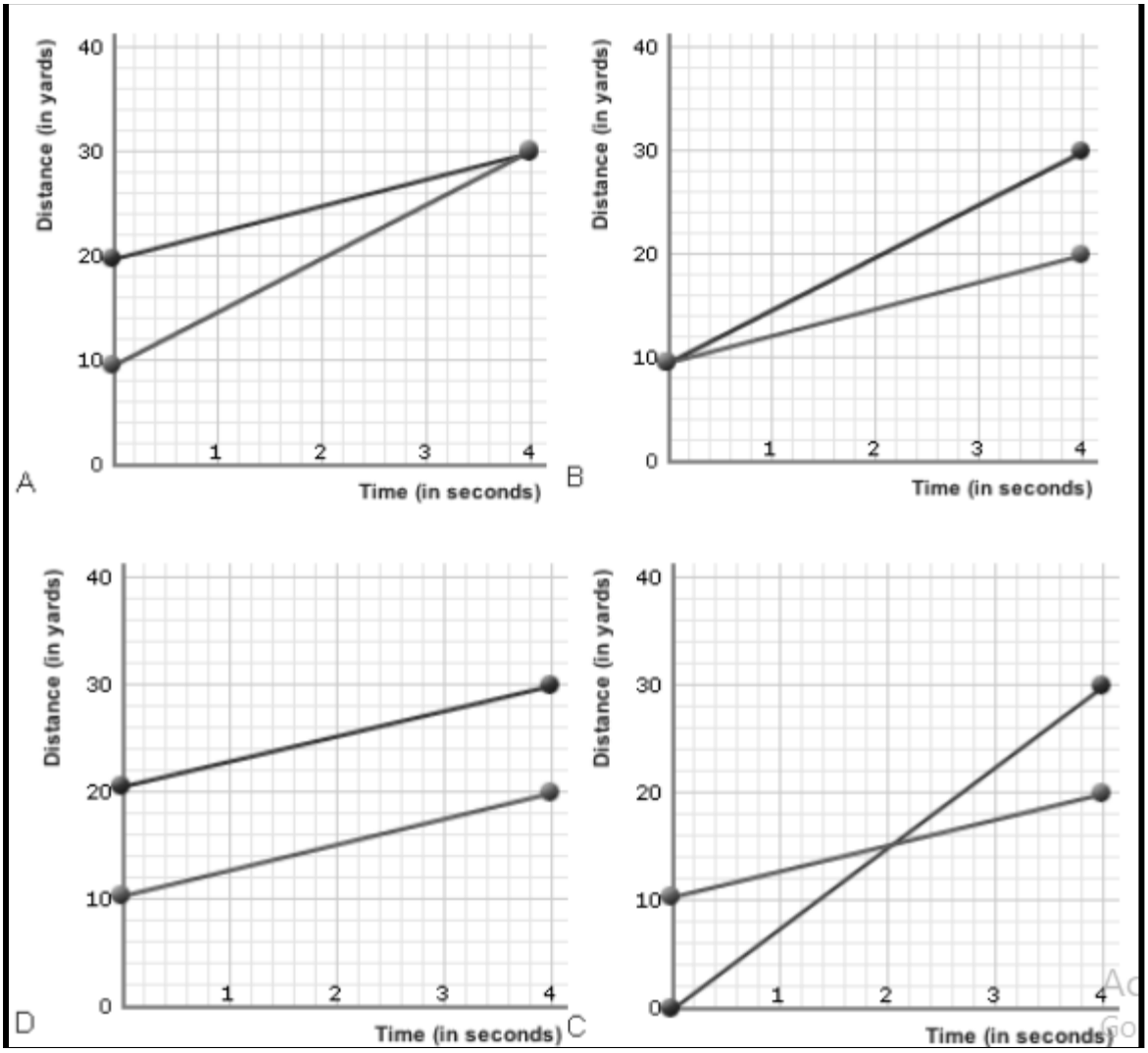

Figure 1

i. Which of the given graph represents the motion of object with equal speed?
ii. Mention the graph which depicts maximum difference in speed between two moving objects.

Q2. When the clock reads 08:30 AM, the odometer of a car reads 57321.0 km. Analyse the given situation and answer the following questions:

i. What is the distance travelled by the car if the odometer reads 57336.0 km at 08:50 am?

ii. Calculate the car's speed in kilometres per hour during this time.
iii. Express the speed in m/s as well.

Q3. A car travels at 40 km/h for 15 minutes, then at 60 km/h for the next 15 minutes. What is the total distance travelled by the car in m?

Q4. Study the graph given below. What can be concluded about the speed in the above graph?

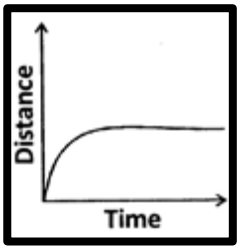

Figure 2

Q5. Aparna travelled by a plane flying at an average speed of 600km/h. The plane left the airport at 13:00 h and reached the destination at 15:45 h. How far did Aparna travel?

Q6. A spin drier spins at a rate of 60 revolutions per minute. How many revolutions would it make in 10 minute 20 seconds?s

Q7. **Assertion-reason questions**

The following questions consist of two statements- Assertion (A) and Reason(R). Answer these questions by selecting the appropriate option given below:

a) Both A and R are true and R is the correct explanation for A.
b) Both A and R are true and R is not the correct explanation for A.
c) A is true but R is false.
d) A is false but R is true.

(i) **ASSERTION (A):** The blades of a switched-off fan come to rest after some time.
REASON(R): In a uniform circular motion, the speed of motion remains constant.

(ii) **ASSERTION (A):** Periodic motion of a pendulum has been used to make clocks and watches.
REASON(R): Pendulum of given length does not take the same time to complete one oscillation.

(iii) **ASSERTION (A):** A faster moving object covers more distance in less time.. .
REASON(R): The speed of faster moving object is less.

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Q8. Case Study (Source based questions)

Read the given statements and answer the following questions:

i) The graph given below shows the motion of four runners P, Q, R and S in a 5 km marathon.

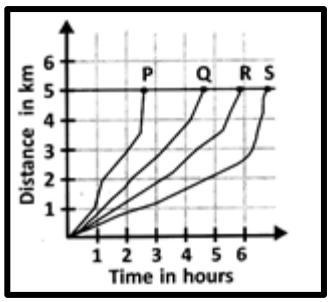

Figure 3

a) According to the given figure, who completed the race at the earliest?
b) What was the time difference between the Fastest and the slowest runner?

ii) A cyclist travels at an average speed of 50km/h. Observe the given figure and attempt the following questions:

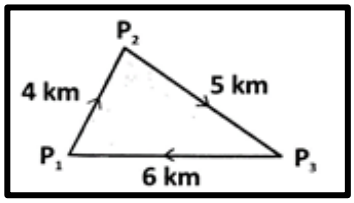

Figure 4

a) How long will it take for him to travel a triangular journey through three places P1, P2 and P3 as shown in the figure?

iii. The given graph represents an athletic race conducted among three persons P, Q and R. Interpret the given data and attempt the following questions:

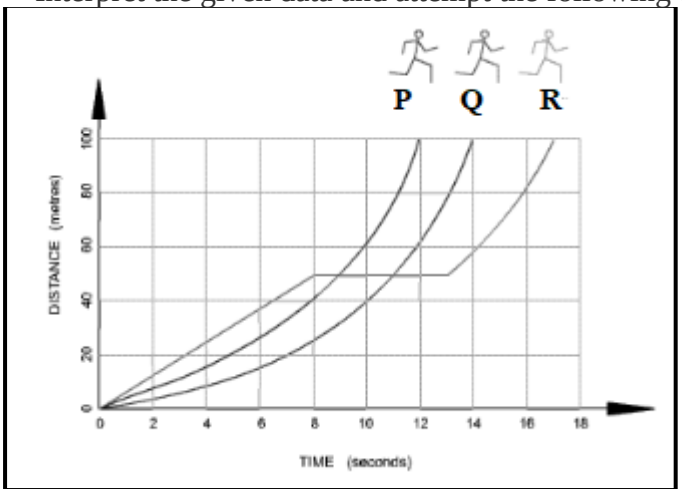

Figure 5

i. Who had finished the race first and how far was he ahead of the last one?
ii. Compare the average speed of all the three participants.