Question Bank: Time and Motion

Chapter: Time and Motion
Class: 6 | Science | Oxford Curriculum
Total Questions: 25
Mapped with Bloom's Taxonomy
Competitive Exam Tags: NTSE, NSO, NSTSE

Section A: Remembering & Understanding (1 Mark Each)

1. What is the SI unit of time?
   Answer: Second (s)
   Tag: NSO

2. Define time.
   Answer: Time is the ongoing and continuous sequence of events that occur in succession.
   Tag: NSTSE

3. What is the instrument used to measure time?
   Answer: Clock or watch.
   Tag: NSO

4. What is speed?
   Answer: Speed is the distance travelled per unit time.
   Tag: NTSE

5. Name two devices used in ancient times to measure time.
   Answer: Sundial and water clock.
   Tag: NSO

6. What is uniform motion?
   Answer: Motion in which an object covers equal distances in equal intervals of time.
   Tag: NSO

7. Define non-uniform motion.
   Answer: Motion in which an object covers unequal distances in equal intervals of time.
   Tag: NSTSE

8. Name the instrument used in laboratories to measure time accurately.
   Answer: Stopwatch.
   Tag: NSO

9. What is the formula for speed?
   Answer: Speed = Distance / Time
   Tag: NTSE

10. What is the unit of speed in SI system?
    Answer: Metres per second (m/s)
    Tag: NSO

Section B: Applying & Analyzing (2–3 Marks Each)

1. How does a sundial work?
   Answer: A sundial uses the position of the Sun's shadow to tell time.
   Tag: NSO

2. Differentiate between uniform and non-uniform motion with examples.
   Answer: Uniform motion: car on a straight road at constant speed; Non-uniform motion: car in traffic.
   Tag: NSTSE

3. Why do we need standard units of time?
   Answer: To ensure uniformity and accuracy in time-related calculations.
   Tag: NTSE

4. A car travels 60 km in 2 hours. What is its speed?
   Answer: Speed = Distance / Time = 60 / 2 = 30 km/h
   Tag: NTSE

5. What are the advantages of using stopwatches in labs?
   Answer: Stopwatches provide accurate measurements useful in time-sensitive experiments.
   Tag: NSO

Section C: Evaluating & Creating (3–5 Marks Each)

1. Explain an experiment to calculate the speed of a toy car.
   Answer: Mark a starting and ending point. Measure the distance. Use a stopwatch to note the time taken. Use the formula Speed = Distance / Time.
   Tag: NSTSE

2. How can we measure the time taken for a pendulum to complete one oscillation?
   Answer: Start the stopwatch at one extreme and stop it after a set number of oscillations, divide the total time by number of oscillations.
   Tag: NTSE

3. What precautions should be taken while using a stopwatch?
   Answer: Start and stop it accurately, avoid delays, ensure proper reset, and use with practice for precision.
   Tag: NSO

4. Explain the importance of speed in daily life with examples.
   Answer: Speed affects travel time, reaction in sports, efficiency in machines, etc. For example, a fast ambulance reaches the hospital quickly saving lives.
   Tag: NTSE

5. A cyclist covers 45 km in 3 hours. Calculate speed and comment on the type of motion.
   Answer: Speed = 15 km/h. If speed remains same, motion is uniform; else, it is non-uniform.
   Tag: NSTSE

Section D: Case-Based/Scenario Questions (4–5 Marks Each)

1. **Case Study:** A race was conducted in school. Students measured the distance as 100 m and used stopwatches. Student A finished in 10 seconds, Student B in 12 seconds.
   a) Calculate the speed of both students.
   b) Who ran faster and by how much?
   Answer:
   a) A: 100/10 = 10 m/s; B: 100/12 = 8.33 m/s
   b) Student A ran faster by 1.67 m/s
   Tag: NTSE

2. **Scenario:** Reema noted the time taken for different vehicles to cross 1 km on the road. Bike: 1 min, Car: 1.5 min, Bus: 2 min.
   a) Find speed of each vehicle.
   b) Arrange them in increasing order of speed.
   Answer:
   a) Bike: 1 km/min, Car: 0.67 km/min, Bus: 0.5 km/min
   b) Bus < Car < Bike
   Tag: NSTSE

3. **Case Study:** A student used a pendulum to calculate time. He noted 10 oscillations took 15 seconds.
   a) Find time period of one oscillation.
   b) Why is it necessary to repeat and average time readings?
   Answer:
   a) 15/10 = 1.5 s
   b) To reduce human error and increase accuracy.
   Tag: NSO

4. **Scenario:** An athlete runs a 400 m track in 80 seconds, then slows down and takes 120 seconds for the next 400 m.
   a) What is average speed?
   b) Was motion uniform? Why/why not?
   Answer:
   a) Total distance = 800 m; Total time = 200 s; Speed = 800/200 = 4 m/s
   b) No, because time for equal distances was not same.
   Tag: NTSE

5. **Case Study:** Students compared speed of walking, running, and cycling by recording time for 100 metres. They found walking took 80s, running 40s, and cycling 20s.
   a) Calculate speed of each.
   b) What conclusion can be drawn from the data?
   Answer:
   a) Walking: 1.25 m/s, Running: 2.5 m/s, Cycling: 5 m/s
   b) Cycling is fastest, followed by running, then walking.
   Tag: NSTSE