

MM : 160

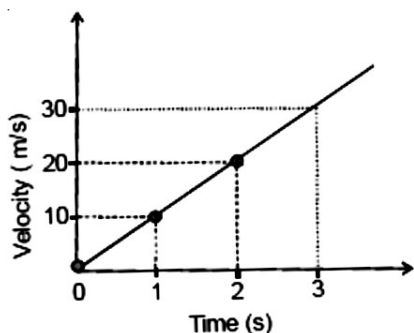
Class-IX

TIME : 60 MINUTES

**NOTE: There are four sections, Physics, Chemistry, Biology and Maths**  
Each section carries 10 questions with four marks each and all are compulsory.

**PHYSICS**

01. Velocity-time graph of a body moving with uniform acceleration is shown in the diagram. The distance travelled by the body in 3 seconds is



- (1) 90 m                      (2) 45 m  
(3) zero                      (4) 10 m
02. A car travels from rest with a constant acceleration  $a$  for  $t$  seconds. What is the average speed of the car for its journey, if the car moves along a straight road?
- (1)  $v = \frac{at}{2}$                       (2)  $v = 2at^2$   
(3)  $2at$                       (4) none
03. A body is released from certain height. After falling for sometime, if acceleration due to gravity vanishes, then

- (1) the body continues to move with uniform velocity  
(2) the body continues to move with uniform acceleration  
(3) the body continues to move with uniform retardation  
(4) the body continues to move with variable acceleration.
04. Which of the following statement is correct?  
(1) If the position and velocity are in same direction, the particle is moving towards the origin.  
(2) If the acceleration and velocity are in same direction, the particle is slowing down.  
(3) If the velocity is zero for a time interval, the acceleration is zero at any moment within that time interval.  
(4) If the velocity is zero at any instant, then the acceleration must be zero at that instant.
05. Action and reaction according to Newton's third law act on  
(1) same body in opposite direction  
(2) different bodies in same direction  
(3) different bodies in opposite direction  
(4) same body in same direction.
06. The passenger feels a forward jerk when a bus moving at a high speed suddenly stops. This happens due to

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**ROUGH WORK**

- (1) inertia of passenger  
 (2) inertia of bus  
 (3) gravitational pull of the Earth  
 (4) None.
07. What force must the brakes apply to a 2800 kg truck going 30 metres per second to bring it to rest in 8.0 seconds?  
 (1) 12000 N (2) 13000 N  
 (3) 10500 N (4) 12500 N
08. The force applied on any surface in a direction perpendicular to it is called  
 (1) Pressure (2) Force  
 (3) Buoyancy (4) Thrust
09. A block of ice is floating in a liquid of specific gravity 1.2 contained in a beaker. What will happen to the liquid level when ice completely melts?  
 (1) Liquid level will increase  
 (2) Liquid level will decrease  
 (3) Liquid level will remain unchanged  
 (4) Depends on the size of ice block
10. If the radius of the Earth were to shrink by 1% and its mass remaining the same, the acceleration due to gravity on the Earth's surface would  
 (1) decrease (2) increase  
 (3) remain unchanged  
 (4) will decrease by 9.8%.
11. Which of the following is most suitable for summer?  
 (1) Cotton (2) Nylon  
 (3) Polyester (4) Silk.
12. On converting 25°C, 38°C and 66°C to Kevlin scale, the correct sequence of temperature will be  
 (1) 298 K, 311 K and 339 K  
 (2) 298 K, 300 K and 338 K  
 (3) 273 K, 278 K and 543 K  
 (4) 298 K, 310 K and 338 K
13. A form of matter that has no fixed shape but has a fixed volume. An example of this form of matter is  
 (1) carbon dioxide (2) ice  
 (3) water vapor (4) kerosene
14. When heat is constantly supplied by a burner to boiling water, then the temperature of the water during vaporisation:  
 (1) Rises very slowly  
 (2) Rises rapidly until steam is produced  
 (3) First rises and then becomes constant  
 (4) Does not rise at all
15. Boron and carbon are  
 (1) metalloids  
 (2) metalloid and non-metal respectively  
 (3) metal  
 (4) non-metal and metalloid respectively
16. Which of the following are homogeneous in nature?  
 (i) ice (ii) wood  
 (iii) soil (iv) air  
 (1) (i) and (iii) (2) (ii) and (iv)  
 (3) (i) and (iv) (4) (iii) and (iv)
17. An example of liquid metal and liquid non-metal is  
 (1) Gallium, mercury  
 (2) Mercury, chlorine  
 (3) Mercury, bromine  
 (4) Bromine, sulphur

**CHEMISTRY**

**ROUGH WORK**

18. What does the statement "10 percent glucose in water by mass" signify?  
 (1) 10 gram of glucose dissolved in 100 gram of water.  
 (2) 10 gram of glucose dissolved in 90 gram of water.  
 (3) 20 gram of glucose dissolved in 200 gram of water.  
 (4) 20 gram of glucose dissolved in 90 gram of water.

19. Which of the following properties does not describe a compound?  
 (1) It is composed of two or more elements  
 (2) It is a pure substance.  
 (3) It cannot be separated into constituents by physical means  
 (4) it is mixed in any proportion by mass mass

20. In all the three states of water, (i.e. ice, liquid and vapour) chemical composition of water  
 (1) is very different  
 (2) remains same  
 (3) sometimes same and sometimes different  
 (4) none of the above



21. One of the following is not true about Cardiac muscles  
 (1) They lack mitochondria  
 (2) Cells are bi-nucleate  
 (3) Found outside the heart such as the digestive tract  
 (4) All the above

22. Which of the following is connective tissue?  
 (1) Ligament (2) Tendon  
 (3) Blood (4) All of the above

23. Which of the following statements is incorrect?  
 i. Parenchyma tissues have intercellular spaces.  
 ii. Collenchymatous tissues are irregularly thickened at corners.  
 iii. Apical and intercalary meristems are permanent tissues.  
 iv. Meristematic tissues, in its early stage, lack vacuoles.  
 (1) (i) and (ii) (2) Only (iii)  
 (3) (iii) and (iv) (4) Only (ii)

24. Where are the essential proteins and lipids required for cell membrane manufactured?  
 (1) Lysosome  
 (2) Chromosomes  
 (3) Endoplasmic reticulum  
 (4) Mitochondria

25. The process by which water moves through a semi-permeable membrane from a region of high concentration to a region of lower concentration, thereby equalizing water concentration is called:  
 (1) Evaporation (2) Diffusion  
 (3) Osmosis (4) All of the above

26. The Nodes of Ranvier are found in:  
 (1) Nerve cells (2) Heart cells  
 (3) Liver cells (4) All of the above

27. Animal cell lacking nuclei would also lack in  
 (1) Ribosome (2) Lysosome  
 (3) Endoplasmic reticulum  
 (4) Chromosome

28. Which of the following are examples of prokaryotes?  
 (1) Algae (2) Fungi  
 (3) Bacteria (4) Protozoa

**ROUGH WORK**

29. Weeds are the unwanted plants that grow along with the cultivated plants. How do they affect the crop plants?

- (1) By killing plants in the field before they grow
- (2) By dominating the plants to grow
- (3) Competing for various resources of plants causing low availability of nutrients
- (4) All of above

30. Some chemical elements are required in large amounts by the plants for their proper growth. These inorganic elements are called macronutrients or macro-elements. Which of the following elements do not come under the category of macronutrients?

- |                |               |
|----------------|---------------|
| i. Phosphorous | ii. Manganese |
| iii. Magnesium | iv. Iron      |
- (1) Both (i) and (ii)
  - (2) Only (ii)
  - (3) Both (ii) and (iv)
  - (4) Both (ii) and (iii)

**MATHS**

31. Simplify  $\frac{2^{n+4} - 2(2^n)}{2(2^{n+3})}$

- |                             |                   |
|-----------------------------|-------------------|
| (1) $2^{n+1} - \frac{1}{8}$ | (2) $-2^{n+1}$    |
| (3) $1 - 2^n$               | (4) $\frac{7}{8}$ |

32. For positive real numbers p and q, which of the following is not true?

- (1)  $\sqrt{pq} = \sqrt{p}\sqrt{q}$
- (2)  $(p + \sqrt{q})(p - \sqrt{q}) = p^2 - q$
- (3)  $\sqrt{\frac{p}{q}} = \frac{\sqrt{p}}{\sqrt{q}}$
- (4)  $(\sqrt{p} + \sqrt{q})(\sqrt{p} - \sqrt{q}) = p + q$

33. If  $\frac{x}{y} + \frac{y}{x} = -1$  ( $x, y \neq 0$ ), then the value of

$x^3 - y^3$  is

- |       |         |
|-------|---------|
| (1) 1 | (2) -1  |
| (3) 0 | (4) 1/2 |

34. If  $a + b = -1$ , then the value of  $a^3 + b^3 - 3ab$  is equal to

- |        |         |
|--------|---------|
| (1) 26 | (2) -1  |
| (3) 1  | (4) -24 |

35. The value of  $\frac{6\sqrt{x} + x^{3/2}}{\sqrt{x}}$  is

- |                       |                |
|-----------------------|----------------|
| (1) x                 | (2) $\sqrt{x}$ |
| (3) $x^{\frac{3}{2}}$ | (4) 6          |

36. The points (other than origin) for which abscissa is equal to the ordinate will lie in

- (1) quadrant I only
- (2) quadrants I and II
- (3) quadrants I and III
- (4) quadrants II and IV

37. A point of the form (a, -a) always lies on the line

- |             |                 |
|-------------|-----------------|
| (1) $x = 0$ | (2) $y = 0$     |
| (3) $y = x$ | (4) $x + y = 0$ |

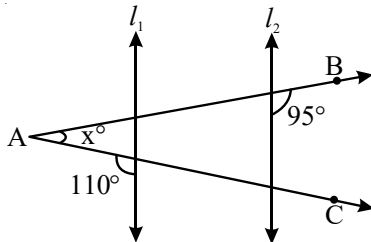
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**ROUGH WORK**

38. Which of the following needs a proof?

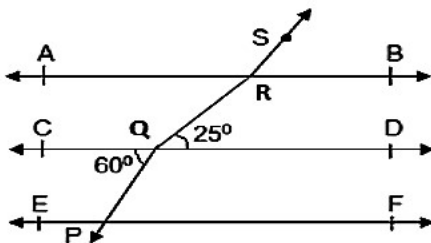
- (1) Theorem
- (2) Axiom
- (3) Definition
- (4) Postulate

39. In below figure, if  $l_1 \parallel l_2$ , then the value of x is



- (1) 25
- (2) 15
- (3) 65
- (4) 35

40. In below figure, if  $AB \parallel CD \parallel EF$ ,  $PQ \parallel RS$ ,  $\angle RQD = 25^\circ$  and  $\angle CPQ = 60^\circ$ , then  $\angle QRS$  is equal to



- (1)  $85^\circ$
- (2)  $135^\circ$
- (3)  $145^\circ$
- (4)  $110^\circ$

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