# Monthly Progressive Test (Solution)

## Class: VIII

## Subject: PCMB

**Test Booklet No.: MPT09**

**Test Date:** 2 2 0 1 2 0 2 5

## Physics

1. Ⓐ
   Pull type force is required

2. Ⓑ
   Because of induction effect

3. Ⓑ
   Towards its centre

4. Ⓒ
   Both forces are equal in magnitude but opposite in direction

5. Ⓓ
   All the statements are correct

6. Ⓑ
   Air exerts pressure on the walls of a container

7. Ⓒ
   As pressure $\propto$ depth

8. Ⓓ
   Manometer measures the pressure difference

9. Ⓐ
   Reason is correct explanation of assertion

10. Ⓐ
    No, if the air cannot get in the container in any way other than the straw, then we won't get the liquid to straw out.

11. Ⓓ
    Frictional force acts.

12. Ⓓ
    We measure the spring force

13. Ⓓ
    Friction is independent of contact area

14. Ⓐ
    As weight increases, friction force also increases.

15. Ⓑ

A fluid friction acts.

16. Ⓓ

Unwanted, unpleasant, a short duration loud sound is called a noise.

17. Ⓒ

High pitch sound has high frequency. High pitch sound is also called shrill sound.

18. Ⓓ

Loudness increases with increase in amplitude as well loudness depends on the sensitivity on the ear.

19. Ⓓ

Quality of sound

20. Ⓐ

Reason is proper explanation of assertion.

21. Ⓐ

Seismograph instrument is used to measure the earth quake wave.

22. Ⓑ

Silk cloth becomes negatively charged.

23. Ⓐ

Reason supports correctly the assertion part.

24. Ⓐ

Disturbances occurring deep inside the Earth's Crust.

25. Ⓒ

Fragment of the crust of earth is called a plate.

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# Chemistry

26. Ⓒ

Outermost zone of the flame gives blue flame colour & it is the zone of complete combustion.

27. Ⓑ

since the substance is heated at 50°C, so the substance 'B' (Ignition temperature 39°C) & 'D' (Ignition temperature 25°C).

28. Ⓓ

$500 \text{ g coal gives} = \dfrac{500}{1000} \times 30,000 = 15,000 \text{KJ} / \text{kg}.$

1 kg coal gives = 30,000 KJ / kg.

$500 \text{ g. wood gives} = \dfrac{500}{1000} \times 20,000 \text{ KLJ} / \text{kg}$

$= 10,000 \text{ KJ/kg}$

2 kg of wood = 2 × 20,000 = 40,000 KJ/kg.

29. Ⓒ

Because the matchstick can not heat the coal to a very high temperature where it starts burning.

**30.** Ⓓ

LED can glow even when a weak current flow in the circuit.

**31.** Ⓐ

Copper forms a layer on the iron nail.

**32.** Ⓓ

An electric current can produce chemical, heating and magnetic effect.

**33.** Ⓑ

they have different densities.

**34.** Ⓑ

Coal tar.

**35.** Ⓒ

Natural gas is stared undered high pressure as compressed natural gas.

**36.** Ⓐ

(i) – (d),  (ii) – (e),  (iii) – (c),  (iv) – (f),  (v) – (b),  (vi) – (a)

**37.** Ⓐ

X-metal ; Y - nonmetal.

**38.** Ⓒ

$Na_2ZnO_2$

**39.** Ⓑ

$XCl_5$

**40.** Ⓑ

Both assertion and reason are correct and reason is not the correct explanation of Assertion.

**41.** Ⓑ

Both assertion and reason are correct and reason is not the correct explanation of Assertion.

**42.** Ⓑ

Both assertion and reason are correct and reason is not the correct explanation of Assertion.

**43.** Ⓐ

Both assertion and reason are correct and reason is the correct explanation of assertion.

**44.** Ⓓ

Air, Water and sunlight are inexhaustible resources.

**45.** Ⓑ

PCRA stands for Petroleum Conservation Research Association

**46.** Ⓒ

Good fuel should not have high cost.

**47.** Ⓒ

500 g coal gives $= \dfrac{500}{1000} \times 30,000 = 15,000 \text{KJ}/\text{kg. heat}$

1 kg coal gives = 30,000 KJ / kg. heat

500 g. wood gives $= \dfrac{500}{1000} \times 20,000 \text{ KLJ}/\text{kg}$

$\qquad\qquad\qquad = 10,000$ KJ/kg. heat

2 kg of wood $= 2 \times 20,000 = 40,000$ KJ/kg. heat.

**48.** Ⓐ

Heat produced by 4.5 kg of fuel = 180,000 kJ

,,        ,,        ,,    1  kg  ,,    ,,  $= \dfrac{1,80,000}{4.5}$ kj $= 40,000 \text{ KJ}/\text{kg}.$

**49.** Ⓓ

Hydrogen has the highest colorific value.

**50.** Ⓒ

formula of Metal sulphite = $MSO_3$
So, ,,    ,,  metal phosphate = $M_3(PO_4)_2$

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# Mathematics

**51.** Ⓓ

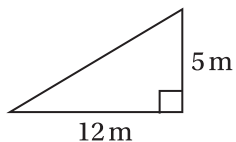$\dfrac{a}{b} > \dfrac{c}{d} \Rightarrow ad > bc$ (as $a, b, c, d > 0$)

**52.** Ⓓ

$\dfrac{15}{3} = \dfrac{5}{1} \longrightarrow \dfrac{1}{5} \longrightarrow 1 + 5 = 6$

**53.** Ⓐ

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 | $\frac{1}{1}$ | $\frac{1}{2}$ | $\frac{1}{3}$ | $\frac{1}{4}$ | $\frac{1}{5}$ | $\frac{1}{6}$ ........ |
| 2 | $\frac{2}{1}$ | $\frac{2}{2}$ | $\frac{2}{3}$ | $\frac{2}{4}$ | $\frac{2}{5}$ | $\frac{2}{6}$ ........ |
| 3 | $\frac{3}{1}$ | $\frac{3}{2}$ | $\frac{3}{3}$ | $\frac{3}{4}$ | $\frac{3}{5}$ | $\frac{3}{6}$ ........ |
| 4 | $\frac{4}{1}$ | $\frac{4}{2}$ | $\frac{4}{3}$ | $\frac{4}{4}$ | $\frac{4}{5}$ | $\frac{4}{6}$ ........ |
| 5 | $\frac{5}{1}$ | $\frac{5}{2}$ | $\frac{5}{3}$ | $\frac{5}{4}$ | $\frac{5}{5}$ | $\frac{5}{6}$ ........ |
| 6 | $\frac{6}{1}$ | $\frac{6}{2}$ | $\frac{6}{3}$ | $\frac{6}{4}$ | $\frac{6}{5}$ | $\frac{6}{6}$ ........ |

Since $Q \sim N \Rightarrow Q$ is countably infinite.

**54.** Ⓑ



$\sqrt{5^2 + 12^2} = 13.$

**55.** Ⓐ

$n^2 + (n+1)^2 + (n(n+1)^2$
$= n^2 + n^2 + 2n + 1 + (n(n+1))^2$
$= (1)^2 + 2.n\,(n+1) + (n(n+1))^2$
$= (1 + (n(n+1))^2$
$p = 1 + n^2 + n = n^2 + n + 1 \Rightarrow p$ is always a positive integer $\forall\, n \in N.$

**56.** Ⓑ

$x = \sqrt{121} = 11 \Rightarrow 10 \leq 11 \leq 20.$

**57.** Ⓓ

$(odd)^3 \rightarrow odd \Rightarrow$ sum of three odd numbers can never be even $\Rightarrow$ no solution

**58.** Ⓓ

Let x be the number

triple of x is 3x.

$(3x)^3 = 27x^3$.

$\therefore$ K = 27

2K = 54

**59.** Ⓐ

$6a^2 = 150 \Rightarrow a^2 = 25 \Rightarrow a = 5 \Rightarrow$ volume $= 5^3 = 125$

**60.** Ⓑ

$\begin{array}{l} a = 10 \\ b = 4 \\ \underline{c = 9} \\ a + b + c = 23 \end{array}$

**61.** Ⓓ

a = 2, b = 4, c = 8 $\Rightarrow$ abc = 248.

**62.** Ⓒ

| H | T | U | | | | |
|---|---|---|---|---|---|---|
| a | b | c | $\Rightarrow$ | No | = | 100a+10b+c |
| c | a | b | $\Rightarrow$ | No | = | 100c+10a+b |
| b | c | a | $\Rightarrow$ | No | = | 100b+10c+a |
| | | | | Sum | = | 100(a+b+c)+10(a+b+c)+(a+b+c) |
| | | | | | = | (a+b+c)×111 |

which is divisible by 37

**63.** Ⓑ

Every polynomial is a multinomial.

**64.** Ⓓ

degree = (3 + 4) = 7.

**65.** Ⓓ

Let $\begin{array}{l} p(x) = -x^2 + x \\ \underline{q(x) = \phantom{-} x^2 - x} \\ p(x) + q(x) = 0 \text{ degree not defined} \end{array}$

Let $\begin{array}{l} p(x) = -2x^2 + x \\ \underline{q(x) = x^2 - x} \\ p(x) - q(x) = -x^2 \text{ degree = 2} \end{array}$

Similarly p(x) + q(x) has degree 1 also.

**66.** Ⓓ

$$\underset{\text{Base}}{\longrightarrow} x^{n \leftarrow \text{exponent}} \Big\} \text{ power}$$

**67.** Ⓒ

$$\left(\frac{1}{a}+\frac{1}{b}\right)\div(a+b)$$

$$=\frac{a+b}{ab}\times\frac{1}{a+b}=\frac{1}{ab}=(ab)^{-1}\to(c).$$

**68.** Ⓓ

$$p=2^{3^{2^{1^{2^{3^4}}}}}=2^{3^2}=2^9=512\to 5+1+2=8.$$

**69.** Ⓓ

$$n^2-1=(n+1)(n-1).$$

**70.** Ⓑ

$$x^4+y^4-x^2y^2=(x^2)^2+2x^2y^2+(y^2)^2-3x^2y^2$$

$$=(x^2+y^2)^2-(\sqrt{3}xy)^2$$

$$=(x^2+y^2+\sqrt{3}xy)(x^2+y^2-\sqrt{3}xy)$$

$$K_1=\sqrt{3}, K_2=-\sqrt{3} \Rightarrow K_1+K_2=0.$$

$$5°=1$$

**71.** Ⓐ

$$\left.\begin{array}{l} A \to \text{True} \\ R \to \text{True} \end{array}\right\} \Rightarrow \text{option (A)}$$

and correct explanation.

**72.** Ⓒ

$$\left.\begin{array}{l} A \to \text{False} \\ R \to \text{True} \end{array}\right\} \Rightarrow \text{option (C)}$$

**73.** Ⓑ

Profit function $= R(x)-C(x)= \cancel{x^2}+x-6-\cancel{x^2}+4=x-2$

**74.** Ⓐ

$$C(x)=x^2-4=(x+2)(x-2)$$

**75.** Ⓒ

$$x-2=0$$

$$\alpha=2$$

**76.** Ⓑ

Sperm and ovum.

**77.** Ⓐ

Bud

**78.** Ⓓ

Fish.
Not a mammal

**79.** Ⓒ

Zygote

**80.** Ⓑ

Ovulation

**81.** Ⓐ

XX

**82.** Ⓒ

Development of Adam's apple.
It is a secondary sexual characteristics of boys.

**83.** Ⓓ

All

**84.** Ⓐ

Viruses are different from other microbes because they are microscopic.
Viruses are ultra microscopic.

**85.** Ⓑ

Algae.

**86.** Ⓒ

Fermentation

**87.** Ⓒ

Combine

**88.** Ⓐ

Irrigation

**89.** Ⓐ

Forest fires

**90.** Ⓑ

Desert.
Soil erosion causes loss of top soil which is the fertile layer of soil.

**91.** Ⓒ

A is true but R is false.
Birds migrate from colder to warmer regions.

92. Ⓓ

A is false but R is true.
Animals are protected in their own habitats where they move around freely.

93. Ⓓ

A is false but R is true.
Yeast is a unicellular fungi.

94. Ⓑ

Both A and R are true but R is not the correct explanation of A.

95. Ⓐ

Both A and R are true and R is the correct explanation of A.

96. Ⓑ

Both A and R are true but R is not the correct explanation of A.

97. Ⓐ

roots.
In root nodules.

98. Ⓓ

Fertilisers do not provide humus to the soil.
Fertilisers are inorganic chemicals.

99. Ⓓ

Fumigation.
Fumigation is spraying of insecticides on crops.

100. Ⓓ

Kills unwanted plants in the fields