Monthly Progressive Test (Solution)

Class: VIII (S)

Subject: PCMB

Academic Excellence Programme TECHNO ACE

Test Booklet No.: MPT06 Test Date: 03102024

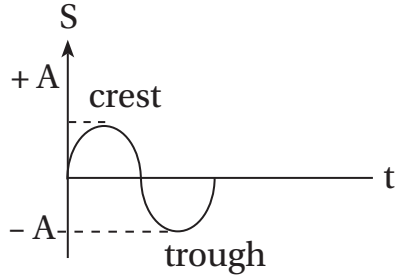
Physics

1. Ⓐ

Water waves are transvers in nature.

2. Ⓑ

A + A = 2A



3. Ⓒ

Amplitude is the maximum displacement of particle from the mean position.

4. Ⓑ

as $f = \frac{1}{T}$

5. Ⓓ

Sound travels through elastic medium.

6. Ⓐ

Speed of sound is highest in solid as inter particle separation is very less.

7. Ⓐ

as $v \alpha \sqrt{T}$

T = temperature of gas on absolute scale.

8. Ⓓ

Sound waves can not travel through vacuum.

9. Ⓑ

Sound waves require a material medium for propagation

Cont.. 2

10. Ⓑ

There is no medium for sound to propagate.

11. Ⓒ

Radio wave can travel through vacuum.

12. Ⓒ

Frying pan will vibrate.

13. Ⓐ

Sound can travel through water.

14. Ⓐ

Sound can travel through sea water.

15. Ⓓ

Sound in air is longitudinal wave but light is transverse wave.

16. Ⓒ

Inertia of rest, motion and direction

17. Ⓐ

2 (Kg) × 9.8 = 19.6 N.

18. Ⓒ

F . t = 5N × 3 s = 15 N. S.

19. Ⓑ

It is difficult to walk.

20. Ⓐ

as limiting friction α
Normal contact force.

21. Ⓓ

as $f = \frac{1}{T}$

22. Ⓐ

Speed = frequency × wavelength.

23. Ⓐ

Frequency of sound is same as frequency of vibration of source.

24. Ⓑ

Shrill sound has high frequency.

25. Ⓒ

Speed of sound in gas $\alpha \sqrt{T}$

T = temperature of gas in kelvin scale.

Chemistry

26. Ⓑ

The lightning of electric bulb in a circuit shows heating effect of electric current.

27. Ⓓ

Water can be dissociated into its components by the process of electrolysis water gives new compounds Hydrogen & oxygen. $2H_2O \rightleftharpoons 2H_2 \uparrow + O_2 \uparrow$

28. Ⓓ

Acids, bases and salts all are good conductors of electricity in its aquam solution or molten state.

29. Ⓑ

One of the most reliable method to prevent metal objects. Fromits rust is electroplating. This is correct. Electroplating is the process of depositing a layer of metal (superior metal) onto another (imperior metal) with the help of electricity. This is also true but it is not the correct explanation of assertion.

30. Ⓐ

Since in Bhoojho's experiment the bulb glows more brightly means higher current is flowing the circuit in set up A.

31. Ⓒ

Electroplating is based on the principles of electrolysis.

32. Ⓓ

Electrolyte is a compound which in aqueous solution that allows an electric current to pass through it while electrode are the metal rods which are dipped in electrolyte an attached to external power source.

33. Ⓐ

If a compass is placed near to the current conducting wire, then the true observation is the needle starts to deflect.

34. Ⓐ

When a pinch of common salt is added to distilled water then electrical conductivity increases.

35. Ⓓ

Assertion : Bulbs are more preferred than LED at the time of making traffic signals. This is wrong.

Reason : LED have longer lifetime than bulbs. This is correct.

36. Ⓐ

Assertion : On small iron made bodies chromium coating is given. This is correct.
Reason : Chromium prevents the iron made body from corrosion. This is correct & also correct explanation of Assertion.

37. Ⓐ

Assertion : When electrodes are placed inside acidified water and electricity is passed through it then two colourless gases hydrogen and oxygen are obtained. This is true.
Reason : Acidified water is electrolysed when current is passed through. This is correct and also correct explanation of Assertion.

38. Ⓒ

Assertion : Electrical appliances are not touched in wet hands. This is correct.
Reason : Touching with wet hands, the colours of these appliances get affected. This is wrong.

39. Ⓒ

During electroplating of copper, aqueous solution of copper sulphate is used.

40. Ⓓ

During electroplating of copper, the role of the aqueous solution of the salt is electrolyte.

41. Ⓓ

When current passes through a wire then a magnetic field is developed and hence the needle of a compass starts to deflect. So, deflection stops when power supply is stopped.

42. Ⓐ

LPG is cooking gas Iron nails is non-combustible candle gives flame on burning wood is related to deforestation.

43. Ⓑ

Filament is present in only bulb & not in LED.

44. Ⓑ

Fuel must be heated to its ignition temperature before it starts burning.

45. Ⓒ

The outermost zone of a candle flame produce carbondionide and water vapour.

46. Ⓒ

The device which can be used to detect very small current flowing in an electric circuit is LED.

47. Ⓓ

During he electroplating of an article by the process of electrolysis, the article to be electroplated is kept at the cathode.

48. Ⓒ

Chromium metal is used in electroplating to make objects appear shining.

49. Ⓐ

Assertion : During electroplating by the process of electrolysis the article (metal) by which we want to electroplate is kept at anode. This is correct.

Reason : Metal looses the electrons and comes in the solution as metal ion which deposited at cathode (the article to be electroplated) by gaining the electron(s).

50. Ⓒ

The process of depositing a thin coating (layer) of any superior metl over an object of a cheaper metal with the help of electricity is called electroplating.

Mathematics

51. Ⓑ

RG = 4 cm

Let O be the point of intersection of SQ and PR

OG = 2 cm. ($\because$ RG : GO = 2 : 1)

$\therefore$ PR = 2 × OR = 2 × 6 cm = 12 cm.

SQ = PR = 12 cm (Ans.)

52. Ⓓ

$\because$ AB = AD $\Rightarrow \angle ADB = \angle ABD = 25^\circ \Rightarrow \angle A = 180^\circ - (\angle B + \angle CD)$

$= 180^\circ - 50^\circ$

$= 130^\circ$

$\because$ BC = CD $\Rightarrow \angle CDB = \angle CBD = 35^\circ \Rightarrow \angle C = 180^\circ - (35^\circ + 35^\circ)$

$= 110^\circ$

$\therefore$ A – C = 2x

$\Rightarrow 130^\circ - 110^\circ = 2x$

$\Rightarrow 20^\circ = 2x$

$\Rightarrow x = 10^\circ$

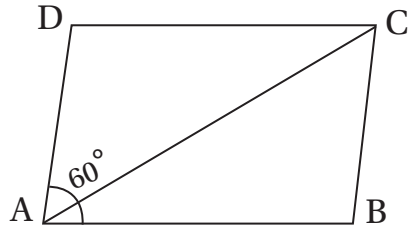
53. Ⓒ

Square, A Square has two diagonals of equal lengths and bisect perpendicularly each other.

54. Ⓐ

$\angle CAB = \frac{1}{2} \times 60^0$

$= 30°$



55. Ⓐ

$4x^2 - 4x + 1$
$= (2x - 1)^2$
$= (24 - 1)^2$
$= 23^2$
$= 529$

56. Ⓒ

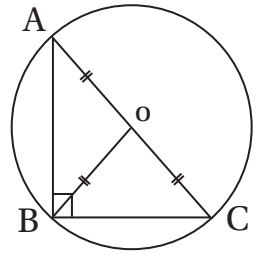
$242x^2 - 162b^2$
$= 2(121x^2 - 81b^2)$
$= 2((11x)^2 - (9b)^2)$
$= 2(11x + 9b)(11x - 9b)$

57. Ⓒ

$\frac{x}{5} + \frac{x}{2} = 3 \Rightarrow 2x + 5x = 30 \Rightarrow 7x = 30 \Rightarrow 7x - 30 = 0$ which is a linear equation in x.

58. Ⓒ

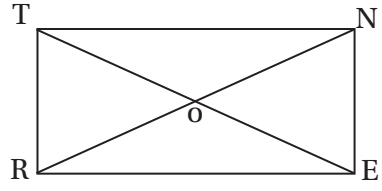
OA = OB = OC = Circum radius
$\Rightarrow$ true
Reason is false.



59. Ⓐ

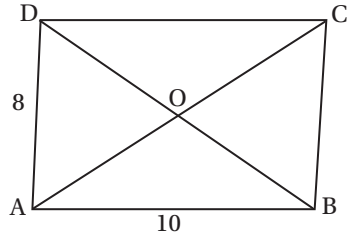
OT = OR

$\Rightarrow 3x + 1 = 2x + 4$
$\Rightarrow 3x - 2x = 4 - 1$
$\Rightarrow \boxed{x = 3}$ true.
R is true.



60. Ⓓ

AB = 10 m, BC = 8 m
(10 – 8)m < BD < (8 + 10) m
$\Rightarrow$ 2m$\angle$ BD $\angle$ 18m



61. Ⓐ

$AC = 14\text{ m} \Rightarrow OA = 7\text{ m}$

62. Ⓑ

$\angle DAB = 70^\circ = \angle ABC = 110^\circ$

63. Ⓐ

$$100 \xrightarrow{t\,\%} \frac{t}{100}\times 100 = t$$

New Salary $= (100 + t)$

$$\text{amount decreased} = (100+t)\times\frac{t}{100}$$

$$= \frac{t(100+t)}{100}$$

$$\text{New Salary} = (100+t) - \frac{t(100+t)}{100}$$

$$= (100+t)\left(1-\frac{t}{100}\right)$$

$$= \frac{(100+t)(100-t)}{100}$$

$$= \frac{100^2 - t^2}{100}$$

original salary – new Salary

$$= 100 - \frac{100^2 - t^2}{100}$$

$$= \frac{t^2}{100}$$

His salary decreased by $\dfrac{\frac{t^2}{100}}{1\cancel{00}}\times 1\cancel{00}\,\%$

$\therefore$ True $= \dfrac{t^2}{100}\%$

64. Ⓑ

Increased price = ₹ $2000 \times \frac{120}{100}$ = ₹ 2400

Decreased price = ₹ $2400 \times \frac{90}{100}$ = ₹ 2160

65. Ⓐ

Let CP of 1gm Rice be ₹ 1.

∴ C.P. of 100 g rice = ₹ 100 20% profit

∴ S.P. of 100 g rice = ₹ 120

But he sold 80 g rice for ₹ 120

∴ C.P. of 80 g rice = ₹ 80

∴ Profit % = $\frac{40}{80_2} \times 100\% = 50\%$

66. Ⓑ

$x^{a-b+b-c+c-a}$

$= x^0$

$= 1$

67. Ⓑ

$$\begin{array}{r|l} 0999 & 31 \\ 9 & \\ \hline 99 & \\ 61 & \\ \hline 38 & \end{array} \qquad \begin{array}{r} 999 \\ 98 \\ \hline 961 \end{array}$$

68. Ⓑ

$10^2 = 6^2 + 8^2$

69. Ⓓ

$a^2 + \sqrt{2}a + 1 = 0 \quad \Rightarrow \frac{a^2}{a} + \frac{\sqrt{2}\,a}{a} + \frac{1}{a} = 0$

$\Rightarrow \boxed{a + \frac{1}{a} = -\sqrt{2}}$

Now, $\frac{a^4 + a^2 + 1}{a^2}$

$$= \frac{a^4}{a^2} + \frac{1}{a^2} + 1$$

$$= a^2 + \frac{1}{a^2} + 1$$

$$= \left(a + \frac{1}{a}\right)^2 - 2.\cancel{a}.\frac{1}{\cancel{a}} + 1$$

$$= \left(a + \frac{1}{a}\right)^2 - 1$$

$$= (-\sqrt{2})^2 - 1 = 2 - 1 = 1 \quad \text{Ans.}$$

70. Ⓐ

$$x^\circ = \frac{(5-2)\times 180^\circ}{5}$$

$$= \frac{3\times \cancel{180}^{\circ\ 36^\circ}}{\cancel{5}}$$

$$= 108^\circ$$

$$y^\circ = \frac{(6-2)\times \cancel{180}^{\circ\ 30^\circ}}{\cancel{6}}$$

$$= 4 \times 30^\circ$$

$$= 120^\circ$$

$x:y = 108 : 120$

$= 27 : 30$

$= 9 : 10.$

71. Ⓑ

$$\frac{(r-2)\times \cancel{180^\circ}}{r} = \frac{59}{58} \times \frac{(s-2)\times \cancel{180^\circ}}{s}$$

$\Rightarrow 58s\,(r-2) = 59r\,(s-2)$

$\Rightarrow 58\,rs - 116\,s = 59\,rs - 118\,r$

$\Rightarrow \quad -116\,s = rs - 118\,r$

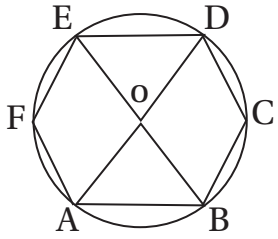
$\Rightarrow 118\,r - rs = 116\,s$

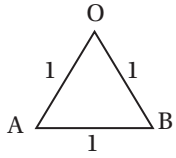
$\Rightarrow r\,(118 - s) = 116\,s$

$\therefore\ r = \dfrac{116\,s}{(118-s)}$

$\Rightarrow$ Possible value of $s = 117$

72. Ⓐ





$$\text{or } (\Delta OAB) = \frac{\sqrt{3}}{4}.1^2 \text{ cm}^2$$

$$= \frac{\sqrt{3}}{4}\text{cm}^2$$

For 6 Δ^s, Area $= 6 \times \frac{\sqrt{3}}{4}\text{cm}^2$

$$= \frac{\sqrt{3}}{2} \times 3\,\text{cm}^2$$

$\therefore$ n = 3.

73. Ⓓ

CP of 12 dozen eggs = ₹ 12 × 72

= ₹ 864

SP of 144 eggs = ₹ 8 × 144

= ₹ 1152

$\therefore$ Profit = ₹ 1152 – ₹ 864

= ₹ 288

74. Ⓓ

Let the sum be ₹ x .. Rate = 4% p.a.

$$\text{S.I.} = ₹\ x \times 2 \times \frac{\cancel{4}}{\cancel{100}_{25}} = ₹\ \frac{2x}{25}$$

$$\text{C.I.} = ₹\ x\left(1+\frac{4}{100}\right)^2 - ₹\ x$$

$$= ₹\ x \times \frac{675}{625} - ₹\ x$$

$$= ₹\ \frac{51x}{625}$$

$$\therefore \frac{51x}{625} - \frac{2x}{25} = 1$$

$$\Rightarrow \frac{x}{625} = 1 \Rightarrow x = 625$$

$\therefore$ The sum = ₹ 625

75. Ⓓ

Area $= b \times h = 192$

$\Rightarrow h = \frac{192}{b}$

As $4 \le b \le 12$

Minimum value of $b = 4$

$\therefore$ Maximum value of $h = \frac{192}{4}$ cm

$= 48$ cm (Ans.)

Biology

76. Ⓑ

Blood

77. Ⓑ

Virus

78. Ⓒ

Roots

Roots of leguminous plants have symbiotic bacteria which help to fix atmospheric nitrogen.

79. Ⓓ

All of the above

80. Ⓒ

Contaminated food and water

81. Ⓑ

Antibiotic resistance

82. Ⓒ

Cattle ranching

83. Ⓐ

Lightning

84. Ⓒ

Pseudomonas

85. Ⓓ

All

86. ©

Remains constant

87. Ⓐ

Blue green algae

88. Ⓐ

Both A and R are true and R is the correct explanation of A.
Trees absorb CO_2 for phottosynthesis, thus work as carbon sinks.

89. Ⓐ

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

90. ©

A is true but R is false
The Gangetic dolphin is an endangered species.

91. Ⓑ

Fauna

92. ©

(iii) & (iv)

93. Ⓓ

All

94. ©

Lactose

95. Ⓓ

Storing grains

96. Ⓑ

Worms

97. Ⓓ

Sleeping sickness

98. ©

Tanzania

99. Ⓑ

Community

100. Ⓓ

All of the above