Monthly Progressive Test

Class: VIII

Subject: PCMB

Test Booklet No.: MPT03 | Test Date: 14062024

Time: 180 mins | Full Marks: 200

Solutions

Physics

1. Ⓓ

Gravity, muscular, friction forces

2. Ⓑ

Normal contact force = 1 + 2 = 3 kg wt = $3 \times 9.8 = 29.4$ N

3. Ⓓ

$\frac{(100-25)}{5} = 15 \text{ m/s}^2$ as normal contact force is 50 N

4. Ⓒ

10 Newton

5. Ⓑ

$9.8 - U = (1)(4.9) \Rightarrow U = 4.9$ N

6. Ⓓ

$2 \times 9.8 \times 10^5 = 19.6 \times 10^5$ dyne

7. Ⓐ

Reducing the friction

8. Ⓓ

Changing state of rest, state of motion, shape or size

Cont.. 2

9. Ⓒ

Both muscular and friction force

10. Ⓐ

Newton's first law

11. Ⓑ

Pulling is difficult

12. Ⓐ

Compressed

13. Ⓓ

Static, sliding, rolling

14. Ⓓ

Birds, aeroplane, ships

15. Ⓐ

to increase friction

16. Ⓒ

inertia of rest, motion, directional

17. Ⓐ

$\frac{19.6}{9.8} = 2 \text{ kg}$

18. Ⓒ

$F \cdot t = mv - mu = (5) \cdot (3) = 15 \text{ Ns}$

19. Ⓐ

Self-adjusting

20. Ⓓ

kinetic, sliding

21. Ⓐ

Becomes $2a$

22. Ⓐ

Push and pull

23. Ⓓ

Sliding, turning, deformation

24. Ⓑ

Difficult

25. Ⓐ

Friction (limiting) increases as normal contact force increases.

Chemistry

26. Ⓐ

Carbon dioxide, sulpher dioxide and nitrogen dioxide all are gaseous while suspended particulate matter (SPM) are solids with very small volume.

27. Ⓑ

Calorific value : It is the amount of heat produced when 1 kg fuel is completely burnt

28. Ⓑ

Both statements are correct

29. Ⓑ

Both statements are correct

30. Ⓓ

kJ / kg

31. Ⓐ

Calorific value

32. Ⓒ

Correct order of calorific value : gaseous fuel > liquid fuel > solid fuel

Hydrogen is a gaseous fuel and hence it has the highest calorific value among the given fuels

33. Ⓐ

Oxygen helps burning of any substance

34. Ⓐ

Incomplete burning of a carbon containing substance causes the formation of small amount of unburnt carbon and this is the cause of black colour of smoke.

35. Ⓓ

Water lowers the ignition temperature and thus a substance can be saved from burning.

36. Ⓒ

37. Ⓓ

Carbon monoxide is a very harmful gas and can cause death of a person by attacking the haemoglobin present in blood

38. Ⓓ

Coal contains various impurities and when it burns with oxygen then the pollutants like sulpher dioxide, nitrogen oxides, carbon dioxide, etc are released and these gases cause acid rain.

39. Ⓐ

Low ignition temperature means the fuel can burn easily and high calorific value indicates the excellent fuel efficiency.

40. Ⓑ

Paper, charcoal, petrol all are highly inflammable substances while sand is a non-combustible substances.

41. Ⓒ

Carbonization is a slow process in which dead vegetations turn into coal.

42. Ⓐ

Wood—peat—lignite—bituminous coal—anthracite coal

43. Ⓐ

Non-luminous flame

44. Ⓐ

Kerosene

45. Ⓑ

Liquid fuels

46. Ⓒ

Improper combustion of fuel causes the formation of carbon.

47. Ⓓ

Hydrogen gas on burning i.e. after reaction with oxygen it forms water which does not cause any type of environmental pollution

48. Ⓑ

Wood is available at low cost and very much available in the countryside.

49. Ⓒ

Woolen blanket disconnects the burning cloth and oxygen and thus fire is extinguished.

50. Ⓓ

Charcoal does not burn with flame.

Mathematics

51. Ⓑ

$3 + 4 + x + 6 = 13 + x$ which is divisible by 3 when least value of x is 2.

52. Ⓐ

$7 + y + 8 + x + 3 = 18 + x + y$ which is divisible by 9 when least value of $x + y$ is 0.

53. Ⓑ

$4 + 5 + x + 7 + y = 16 + x + y$ which is divisible by 3 when least value of $x + y$ is 2.

54. Ⓒ

Last two digit = $x2$ which is divisible by 4 when least value of x is 1.

55. Ⓐ

$2 + 1 + 4 + y + 5 = 12 + y$ which is multiple of 9 when value of y is 6.

56. Ⓒ

$2 + 4 + x = 6 + x$ which is divisible by 3 when values of x are 0, 3, 6, 9.

So, number of values of $x = 4$.

57. Ⓐ

Let $A = 3m$ and $B = 9n$

$\therefore\ A + B = 3m + 9n = 3(m + 3n)$ which is divisible by 3.

58. Ⓐ

The general form of abc is $100 \times a + 10 \times b + c = 100a + 10b + c$.

59. Ⓒ

The usual form of $100 \times 7 + 10 \times 1 + 8$ is 718.

60. Ⓑ

202 is not divisible by 5.

61. Ⓑ

$2 + 8 + 2 + 2 + 1 = 15$ which is divisible by 3.

62. Ⓑ

Since the number M being divided by 5 gives a remainder 1, so, the ones digit of M must be 1 or 6.

63. Ⓓ

$1 + 5 + 2 + 8 + 7 = 23$ which is not divisible by 3 or 9.

Again, $1528 - 14 = 1514$

$151 - 8 = 143$

$14 - 6 = 8$ which is not divisible by 7.

64. Ⓓ

49032 is divisible by 24.

$24 = 3 \times 8$

$\therefore$ 49032 is divisible by 3 and 8.

65. Ⓐ

$$\begin{array}{r} A\ \ 1 \\ +\ 2\ \ B \\ \hline B\ \ 0 \end{array}$$

Unit digit for $(1 + B) = 0$

$\therefore\ B = 9$

Again $1 + A + 2 = B = 9$

$\therefore\ A = 6$

66. Ⓒ

$$(1)^{-1} + \left(\frac{1}{2}\right)^{-1} + \left(\frac{1}{3}\right)^{-1} = 1 + 2 + 3 = 6$$

67. Ⓐ

$3430000 = 3.43 \times 10^6$

68. Ⓐ

$$-\frac{4}{5} \times \frac{3}{7} \times \frac{15}{16} \times \frac{-14}{9} = \frac{1}{2}$$

69. Ⓑ

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

$\therefore$ {6, 8, 10} is a pythagorean triplet.

70. Ⓑ

$\sqrt[3]{343} \times \sqrt[3]{-64} = 7 \times (-4) = -28$

71. Ⓐ

Let tens digit be x.

$\therefore$ Unit digit = $2x$

$\therefore$ $x + 2x = 3 \quad \Rightarrow 3x = 3 \quad \Rightarrow x = 1$

$\therefore$ The required number = $10 \times 1 + 2 = 12$

72. Ⓓ

9 and 1 whose product = 9 and sum = 10

73. Ⓐ

$653 * 47$

$7 + * + 5 = 12 + *$

$4 + 3 + 6 = 13$

If $*$ is replaced by 1, then difference of 13 and $(12 + *) = 0$ which is divisible by 11.

74. Ⓑ

624876

$6 + 2 + 4 + 8 + 7 + 6 = 33$

$\therefore$ 624876 is divisible by 3

Again, 624876 is divisible by 2 and 4.

$\therefore$ 624876 is divisible by 12

75. Ⓑ

$10000 < 10005 < 10010$

10005 is divisible by 5

Biology

76. Ⓑ

Flesh

77. Ⓐ

Sheep

78. Ⓐ

Protein

79. ©

Dairy products

80. Ⓓ

Both Ⓐ and Ⓑ

81. Ⓐ

Edible fishes

82. Ⓐ

Dairy products.
These are rich sources of Calcium

83. ©

Milk, meat and eggs

84. ©

Proteins and vitamins

85. ©

They have more essential amino acids.

86. Ⓓ

They have more fats in them.
Excessive fats are harmful for us and can cause several diseases.

87. Ⓓ

All of the above

88. ©

Milk
It contains almost all types of nutrients in balanced amounts.

89. Ⓐ

Birds

90. Ⓐ

Chicken

91. Ⓓ

All of the above

92. ©

Weeds

93. Ⓑ

Providing water to crops

94. Ⓐ

Decrease in soil fertility

Overuse of fertilisers changes the chemical nature of soil, gradually reducing its fertility.

95. ©

Crop rotation

96. Ⓓ

There is unnecessary wastage of space.

97. Ⓓ

All of the above

98. Ⓐ

Harvesting

99. Ⓑ

Sprinkler irrigation

Water is sprayed on the crops through sprinklers, minimising water wastage.

100. Ⓓ

Storing grains