08/02/2026

Code-F

Aakash
Medical | IIT-JEE | Foundations

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MM : 120 CBSE AIATS-SP Class-IX (2025-26) T03F **Time : 180 Min.**

PHYSICS

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CHEMISTRY

26. (4)
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BIOLOGY

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MATHEMATICS

76. (1)
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96. (4)
97. (1)
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99. (3)
100. (3)

MENTAL ABILITY

101. (2)

102. (2)

103. (3)

104. (1)

105. (3)

106. (2)

107. (3)

108. (2)

109. (2)

110. (4)

111. (2)

112. (4)

113. (4)

114. (3)

115. (1)

116. (3)

117. (3)

118. (3)

119. (2)

120. (3)

Hints and Solutions

PHYSICS

(1) **Answer :** (1)
Solution:
$s = s_1 + s_2$
$s = \frac{v^2}{2a_1} + \frac{v^2}{2a_2}$
$60 = \frac{v^2}{10} + \frac{v^2}{6}$
$v = 15$ m/s
$v = u + at$
$15 = 0 + 5t_1$
$t_1 = 3$ s
& $0 = 15 - 3t_2$
$t_2 = 5$ s
$t = t_1 + t_2$
$= 3 + 5$
$= 8$ s

(2) **Answer :** (2)
Solution:
$V_{avg} = \frac{30+X}{\frac{30}{60}+\frac{X}{40}}$
$45\left[\frac{1}{2} + \frac{X}{40}\right] = X + 30$
$X = 60$ km

(3) **Answer :** (3)
Solution:
Total distance travelled = 120 + 130 = 250 m
Relative speed = 20 + 30 = 50 m/s
Time $= \frac{250}{50} = 5$ second

(4) **Answer :** (4)
Solution:
| velocity | ≤ | speed |

(5) **Answer :** (4)

(6) **Answer :** (3)

(7) **Answer :** (1)
Solution:
$F = m_1a_1$
$\Rightarrow \quad m_1 = \frac{F}{a_1}$
Similarly, $m_2 = \frac{F}{a_2}$
Again $F = (m_1 + m_2)a$
$\Rightarrow a = \frac{F}{m_1+m_2} = \frac{F}{\frac{F}{a_1}+\frac{F}{a_2}} = \frac{a_1a_2}{a_1+a_2}$

(8) **Answer :** (3)

(9) **Answer :** (1)

(10) **Answer :** (2)
Solution:
Acceleration $a = \frac{0.8}{10} = 0.08$ m/s^2
Initial velocity $u = \frac{30}{10} = 3$ m/s

Final velocity $v = u + at$
$= 3 + 0.08 \times 20$
$= 3 + 1.6$
$= 4.6$ m/s
Change in velocity $= 4.6 - 3 = 1.6$ m/s

(11) Answer : (1)
Solution:

$F_{AC} = \frac{1}{4} F_{BC}$

$\Rightarrow \quad \frac{Gm_1 m}{(2-x)^2} = \frac{1}{4}\frac{Gm_2 m}{x^2}$

$\Rightarrow \quad \frac{m_1}{m_2} = \frac{1}{4}\left(\frac{2-x}{x}\right)^2$

$\Rightarrow \quad \frac{9}{4} = \frac{1}{4}\left(\frac{2-x}{x}\right)^2$

$\Rightarrow 3x = 2 - x$

$\Rightarrow \quad x = \frac{1}{2}\,\mathrm{m}$

(12) Answer : (2)
Solution:
According to law of floatation
$200g = 10 \times 10 \times h \times g$
$h = 2$ cm

(13) Answer : (2)

(14) Answer : (1)

(15) Answer : (1)
Solution:
The fluid force is always normal to the surface of contact.

(16) Answer : (1)
Solution:

$F = \frac{Gm_1 m_2}{(r+d)^2}$

$F = \frac{6.67\times10^{-11}\times16\times8}{(14+2)^2}$

$= \frac{6.67\times10^{-11}\times16\times8}{16\times16}$

$= 3.335 \times 10^{-11}$ N

(17) Answer : (1)

(18) Answer : (2)
Solution:

$P = \frac{mg}{A} = \frac{(6+3)10}{25\times10^{-4}}$

$= \frac{9\times10\times10^4}{25}$

$P = \frac{18}{5} \times 10^4\ Pa$

$P_1 = \frac{30}{\left(\frac{5}{2}\times\frac{5}{2}\right)\times10^{-4}} = \frac{30\times10^4}{25} \times 4$

$\Rightarrow \frac{24\times10^4}{5}\ Pa$

$\frac{P_1}{P} = \frac{24\times10^4\times5}{5\times18\times10^4}$

$\frac{P_1}{P} = \frac{24}{18} = \frac{4}{3}$

$P_1 = \frac{4}{3}P$

(19) Answer : (1)

(20) Answer : (4)

(21) **Answer :** (2)

(22) **Answer :** (1)
Solution:
Time taken by bullet to reach the target
$t_1 = \frac{1275}{255} = 5$ s
Time taken by sound of firing of bullet to reach the target
$t_2 = \frac{1275}{340} = 3.75$ s
$\Delta t = t_1 - t_2 = 5 - 3.75$
$\Delta t = 1.25$ s

(23) **Answer :** (3)
Solution:
Work done by friction = Change in energy of block
Energy of block at *A* = $\frac{1}{2}mv^2 + mg(5)$
Energy of block at *B*
= $\frac{1}{2}mv^2 + mg(5) - \frac{1}{2}mv^2 - mg(3.5)$
$F \times 2 = \frac{1}{2}mv^2 + mg(5) - \frac{1}{2}mv^2 - mg(3.5)$
$F = mg\frac{1.5}{2} = \frac{3mg}{4}$

(24) **Answer :** (4)

(25) **Answer :** (3)

CHEMISTRY

(26) **Answer :** (4)

(27) **Answer :** (2)

(28) **Answer :** (3)

(29) **Answer :** (3)

(30) **Answer :** (4)

(31) **Answer :** (4)

(32) **Answer :** (2)

(33) **Answer :** (2)

(34) **Answer :** (2)

(35) **Answer :** (2)

(36) **Answer :** (2)

(37) **Answer :** (1)
Solution:
Molecular mass of ethyne (C_2H_2) = (2 × 12) + (2 × 1)
(C_2H_2) = 26 u

(38) **Answer :** (4)

(39) **Answer :** (3)
Solution:
T in K = T in°C + 273
∴ 27°C = 27 + 273 = 300 K
17°C = 17 + 273 = 290 K
37°C = 37 + 273 = 310 K

(40) **Answer :** (4)

(41) **Answer :** (4)

(42) **Answer :** (3)

(43) **Answer :** (2)

(44) **Answer :** (3)

(45) **Answer :** (3)

(46) **Answer :** (3)

(47) **Answer :** (4)

(48) **Answer :** (3)

(49) **Answer :** (1)

(50) **Answer :** (4)
Solution:

Percentage concentration (w/w) $= \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100$

Let mass of solute = x grams

$\Rightarrow\ 20 = \frac{x}{300} \times 100$

$\Rightarrow\ x = \frac{20 \times 300}{100}$

$\Rightarrow$ x = 60 g

Now, on adding y g of water the concentration (w/w) becomes 5%.

$\therefore\ 5 = \frac{60}{300+y} \times 100$

$\Rightarrow$ 5y + 1500 = 6000

$\Rightarrow$ 5y = 4500

$\therefore\ y = \frac{4500}{5} = 900$ g

BIOLOGY

(51) **Answer :** (3)

(52) **Answer :** (4)

(53) **Answer :** (2)

(54) **Answer :** (1)

(55) **Answer :** (1)
Solution:
A plant cell will gain water when kept in a hypotonic solution and it will shrink in size when placed in a hypertonic solution.

(56) **Answer :** (4)

(57) **Answer :** (2)

(58) **Answer :** (2)

(59) **Answer :** (3)
Solution:
Both the statements are correct.

(60) **Answer :** (1)

(61) **Answer :** (3)
Solution:
The given structure is of nucleus.

(62) **Answer :** (4)

(63) **Answer :** (1)

(64) **Answer :** (2)

(65) **Answer :** (2)

(66) **Answer :** (3)

(67) **Answer :** (1)

(68) **Answer :** (3)

(69) **Answer :** (2)

(70) **Answer :** (3)

(71) **Answer :** (3)
Solution:
Nervous tissue consists of neuron cells and are found in brain, spinal cord and nerves.

(72) **Answer :** (4)

(73) **Answer :** (2)

(74) **Answer :** (3)

(75) **Answer :** (2)

MATHEMATICS

(76) **Answer :** (1)

(77) **Answer :** (3)

(78) **Answer :** (4)

(79) **Answer :** (1)

(80) **Answer :** (4)

(81) **Answer :** (4)

(82) **Answer :** (4)

(83) **Answer :** (2)

(84) **Answer :** (2)

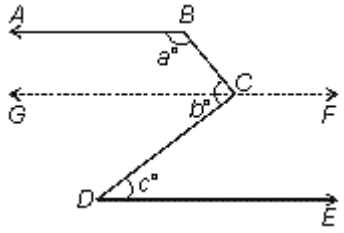
(85) **Answer :** (4)

(86) **Answer :** (3)

(87) **Answer :** (3)
Solution:
Let the sides of a triangular plot are 12x, 8x and 7x
$\therefore$ Perimeter = 12x + 8x + 7x
$\Rightarrow$ 27x = 270
$\Rightarrow$ x = 10
$\therefore$ Sides of the plot are 120 m, 80 m and 70 m
$\Rightarrow$ Semi-perimeter $= \frac{270}{2} = 135 \text{ m}$
Area of the triangular plot
$= \sqrt{135(135-120)(135-80)(135-70)}$
$= \sqrt{135 \times 15 \times 55 \times 65}$
i.e. $900\sqrt{A} = 225\sqrt{143}$
$\Rightarrow$ $A = \frac{143}{16}$
Hence, $32A = \frac{32 \times 143}{16}$
= 286

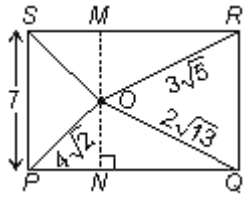
(88) **Answer :** (3)
Solution:
(2,2) satisfies both the equations. So it is solution of both.

(89) Answer : (3)
Solution:



Construct $GF \parallel AB$,
$\therefore \angle ABC + \angle BCG = 180°$ ...(i) [Co-interior angles]
$\Rightarrow GF \parallel DE$
$\angle DCG = \angle EDC$ ...(ii) [Alternate angles]
Adding equation (i) and (ii),
$\angle ABC + \angle BCG + \angle DCG = 180° + \angle EDC$
$\angle ABC + \angle BCD = 180° + \angle EDC$
$a° + b° = 180° + c°$
$\therefore a° + b° - c° = 180°$

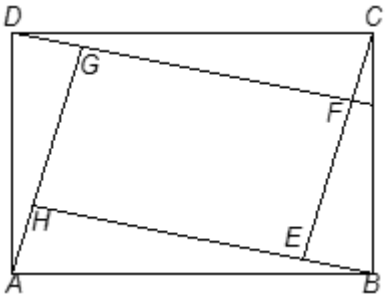
(90) Answer : (2)
Solution:



Draw $MN \parallel PS \parallel QR$
$\therefore MN = PS = 7$ cm
Let $OM = x$ cm
$\Rightarrow ON = (7 - x)$ cm
$\because NQRM$ is also a rectangle.
$\therefore NQ = MR$ and $NM = QR$
$\Rightarrow \sqrt{OQ^2 - ON^2} = \sqrt{OR^2 - OM^2}$
$52 - (7 - x)^2 = 45 - x^2$
$52 - 49 + 14x = 45$
$14x = 42$
$x = 3$
$\Rightarrow OM = 3$ cm
We know that,
$OP^2 + OR^2 = OQ^2 + OS^2$
$OS^2 = OP^2 + OR^2 - OQ^2$
$= 32 + 45 - 52$
$= 25$
$\Rightarrow OS = 5$ cm
In ΔOMS,
$MS^2 = OS^2 - OM^2$
$= 25 - 9$
$= 16$
$MS = 4$ cm
In ΔORM
$MR^2 = OR^2 - OM^2$
$= 45 - 9 = 36$
$\Rightarrow MR = 6$ cm
Hence, length of $RS = 4 + 6$
$= 10$ cm

(91) Answer : (3)
Solution:
Let the side of square $EFGH$ be x cm

$\angle DGA = 90^o$
$BE = 2$ cm
$DG = AH = 2$ cm
In ΔDGA



$AD^2 = DG^2 + GA^2$

$\Rightarrow \left(2\sqrt{17}\right)^2 = (2)^2 + (x+2)^2$

$\Rightarrow x^2 + 4x - 60 = 0$

$\Rightarrow x = 6$

$\therefore$ Side of *EFGH* is 6 cm

$\therefore$ Area of *EFGH* is 36 cm^2

(92) Answer : (4)

(93) Answer : (3)

(94) Answer : (4)

(95) Answer : (1)
Solution:
Let V_O and V_F be the original volume and volume after change of the cone respectively.

$V_O = \frac{1}{3}\pi r^2 h$

$V_F = \frac{1}{3}\pi\left(4r\right)^2 \cdot \left(\frac{h}{8}\right)$

$= \frac{2}{3}\pi r^2 h$

$\Rightarrow \frac{V_F - V_O}{V_O} = \frac{\frac{\pi r^2 h}{3}}{\frac{\pi r^2 h}{3}} = 1:1$

(96) Answer : (4)

(97) Answer : (1)

(98) Answer : (1)
Solution:
$\Delta ABC \cong \Delta ADC$
$\therefore BC = CD$

(99) Answer : (3)

(100) Answer : (3)

MENTAL ABILITY

(101) Answer : (2)
Solution:

961, 1024, 1089, 1146, 1225
(Wrong term)
1146 should be $(34)^2 = 1156$
$(31)^2$ $(32)^2$ $(33)^2$ $(35)^2$

(102) Answer : (2)
Solution:
Pattern is of prime written two at a time.

(103) Answer : (3)
Solution:
t w i n | t w i n | t w i n | t w i n

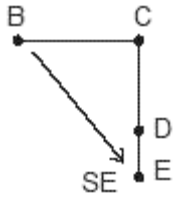
(104) Answer : (1)
Solution:
Letter +1, 2, 3, 4, 5, 6, 7 and so on ……..

(105) Answer : (3)
Solution:
abc : $(a + b)^2 + c$

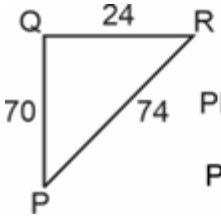
(106) Answer : (2)
Solution:
$\frac{(12+3)^2}{4+1} = 45$

(107) Answer : (3)
Solution:
a θ b ω c = a + (c × b)

(108) Answer : (2)
Solution:



(109) Answer : (2)
Solution:



$PR^2 = PQ^2 + QR^2$

$PR = \sqrt{70^2 + 24^2} = 74$

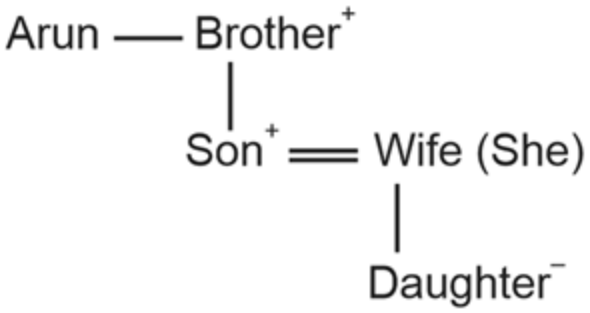
(110) Answer : (4)
Solution:
By observation

(111) Answer : (2)
Solution:
Each letter coded to next letter and written in revers order

(112) Answer : (4)
Solution:
$A(1) = 1^2 + 1^3 = 2$
$K(11) = 11^2 + 11^3 = 1452$

(113) Answer : (4)
Solution:
Neelofar is sister of Nigar, who is daughter of Ruksana.

(114) Answer : (3)
Solution:



(115) Answer : (1)
Solution:
Ajay - Monday - Supervisor
Naveen - Wednesday - Executive
Anupam - Saturday - Manager
Vinod - Sunday - Director

(116) Answer : (3)
Solution:
Ajay - Monday - Supervisor
Naveen - Wednesday - Executive
Anupam - Saturday - Manager
Vinod - Sunday - Director

(117) Answer : (3)
Solution:
By counting, 16 + 3 + 3 + 3 + 3 + 2 + 1 = 31

(118) Answer : (3)
Solution:
Flip vertically.

(119) Answer : (2)
Solution:
Flip horizontally.

(120) Answer : (3)
Solution:
0 odd days.