CPO MOCK TEST – 16 (SOLUTION)

1. (A) Any change in the first is made by the means of second.
2. (B) Dividing the first number by 7 will give the second number.
3. (C) The relationship is $x : \frac{x^3}{2}$

   Put $x = 8$, then $\frac{x^3}{2} = \frac{8^3}{2} = 256$

   Put $x = 10$, then $\frac{x^3}{2} = \frac{10^3}{2} =$ **500**
4. (D) A clue can help to solve a mystery. Similarly, a warning can help to prevent a **danger**.
5. (A) 363 = 3 + 6 + 3 = 12 = 1 + 2 = 3
   572 = 5 + 7 + 2 = 14 = 1 + 4 = **5**
6. (A) The first two letters are written in reverse order in the second term. The third letter is replaced by a letter occupying the same position from the end of the alphabet.
7. (C) Second can be obtained by moving 135° in clockwise direction from first.
8. (B) The first, Third, Fifth and Seventh letters are moved one step backward to obtain the corresponding letters and rest of the letters are same.
9. (D) All except **Chocolate** are baked items.
10. (B) All except (B) are insects having six legs.
11. (C) Sum of digits in each number except (C) is 28.
12. (C) In all other pairs the ratios is 8 : 9.
13. (C) In all other pairs, second number = (First number – 5)/3 & (100 – 5)/3 = $\frac{95}{3} \neq 30$
14. (B) **Argentina** is a country whereas rest are continents.
15. (A) All except **Jackal** are the creatures related to sign of Zodiac.
16. (A) 4, 2, 1, 3
17. (C)

Letters	**A**	**L**	**G**	**U**	**T**
Digits	2	3	5	4	9

18. (D) The letter 'V' of **REPRIEVE** is not present in DEPRECIATE.
19. (C) From the four die, we have concluded that digits 6, 4,1 and 2 appear adjacent to 3. Clearly, there will be 5 on the face opposite to 3.
20. (A) The watch gains 5 seconds in 3 minutes which means 100 seconds in 1 hour.
    From 8 AM to 10 PM on the same day, total time passed is 14 hours (840 minutes). In 14 hours, the watch would have gained $\left(\frac{5}{3} \times 840\right)$ i.e. 1400 seconds or 23 minutes 20 seconds.
    So, when the correct time is 10 PM, the watch would show **10 : 23 : 20** PM.
21. (B) (5 + 11) ÷ (4 + 4) = 16 ÷ 8 = 2
    (7 + 13) ÷ (1 + 3) = 20 ÷ 4 = 5
    (? + 20) ÷ (5 + 3) = 4

    $\Rightarrow \frac{?+20}{8} = 4$

    $\Rightarrow$? + 20 = 32
    $\Rightarrow$? = 32 – 20
    $\Rightarrow$? = **12**
22. (A) (9 + 8) – (4 + 4) = 17 – 8 = 9
    (11 + 5) – (3 + 3) = 16 – 6 = 10
    (7 + 16) – (6 + **5**) = 23 – 11 = 12
23. (B) 8 + 7 = 15 and 2 × 15 = 30
    1 + 7 = 8 and 3 × 8 = 24
    6 + 12 = **18** and 2 × **18** = **36**
24. (B) $\sqrt[3]{125}$ = 5 & 5 × 12 = 60

    $\sqrt[3]{27}$ = 3 & 3 × 13 = 39

    $\sqrt[3]{216}$ = 6 & 6 × 3 = **18**
25. (B) Continuous prime numbers are written in three rows.

    So, $\boxed{? = \mathbf{13}}$
26. (D) Let number of horses = number of men = x.

    Then, number of legs = $4x + 2 \times \frac{x}{2} = 5x$.

    So, $5x = 90$ or $x = 18$
    So, there are (18 + 18) = **36** horses and men in total.
27. (C) O**P**QN**O**PR**S**TD**E**F = POSE
    S**T**UX**Y**ZO**P**QD**E**F = TYPE
28. (B) A 'tractor' is used to plough a field.
    But a 'tractor' is called 'car'.
    So, a '**car**' will be used to plough a field.
29. (C) From the given information, we have-
    Gopal > Raman > Madan
    Amar > Sripal > Gopal
    Tarun > Amar > Varun
    Combining all the above, we get
    Tarun > Amar > Sripal > Gopal > Raman > Madan

Position of Varun will be somewhere after Amar, but it is not fixed as relation of Varun with anyone is not given. Hence, Tarun is the strongest.

30. (B) The pattern is +84, –168, +336, –672.
So, required answer = 815 – 672 = **143**
Also, $84 = 84 \times 2^0$, $168 = 84 \times 2^1$, $336 = 84 \times 2^2$ and $672 = 84 \times 2^3$.

31. (C) One more logic can be applied to this question.

165 (+30) 195 (+60) 255 (+30) 285 (+60) 345 (+30) **375**

32. (C) The sequence is-
1×2, 2×3, 3×4, 4×5, 5×6, 6×7, 7×8, **8×9**.
So, required answer = $8 \times 9 = 72$

33. (D) P is on the left of O i.e. P, O.
N is on the right of Q i.e. Q, N.
M is on the right of O i.e. O, M.
N is on the left of P i.e. N, P.
From the above statements, the correct order is : Q, N, P, O M.
Clearly, **P** is sitting in the centre.

34. (A) Boy's maternal uncle will be brother of boy's mother. Maternal uncle of mother's brother and maternal uncle of lady are brother means lady is sister of mother's brother i.e., lady is the mother of the boy. So, the boy is woman's son.

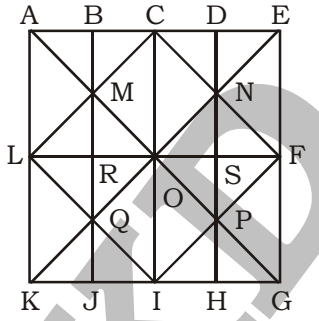
35. (D) After exchanging the signs we have,

$$\text{Given expression} = \frac{(36-4)\div 8-4}{4\times 8-2\times 16+1}$$

$$= \frac{(32\div 8-4)}{(32-32+1)} = 0$$

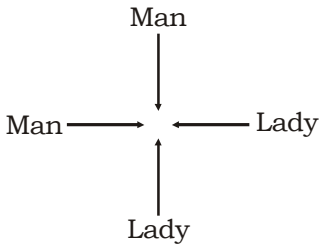
36. (D)

37. (B)



The horizontal lines are AK, BJ, CI, DH and EG i.e. 5 in number.
The vertical lines are AE, LF and KG i.e. 3 in number.
The slanting lines are LC, CF, FI, LI, EK and AG i.e. 6 in number.
Thus, we require 5 + 3 + 6 = 14 straight lines to make the given figure.

38. (B)



No lady is facing east means a man faces east. Persons opposite are not of same sex. So, a woman will be facing west. Again a man faces south. So, opposite to him will be a woman facing north. It means ladies are facing towards north and west direction.

39. (A) Only conclusion I follows.

I. ✓
II. ✗

40. (B) According to Rahul, the brother's birthday is on one of the days among 16th and 17th February.
According to Soumya, the brother's birthday is on one of the days among 17th and 18th February.
Clearly, Rahul's brother's birthday is on the day common to both the above groups i.e., 17th February.
Hence, the answer is (B).

41. (A) b **b** cc/ a/ cca **a** / b/a **a** bb/c / **b** bc **c**/a

42. (D) aa/ b **b**/aa **a**/ bbb/ **a** aaa/ **b** bbb/ a

43. (D) The word is 'GEOGRAPHY'.

44. (D) Clearly, the last train left two and a half hours before 18:00 hours i.e. at 15:30 hours. But this happened 40 minutes before the announcement. So, the announcement was made at 16 : 10 hours.

45. (C) Let the daughter's age be x years.
Then, father's age = $3x$ years.
Mother's age = $3x - 9$ years
Son's age = $x + 7$ years
ATQ,

$$(x+7) = \frac{3x-9}{2} \text{ or } 2x + 14 = 3x - 9$$

or $x = 23$.
So, mother's age = $3x - 9 = 3 \times 23 - 9$
$= 69 - 9 = 60$ years.

46. (D)
47. (D)
48. (D)
49. (C)
50. (D)

53. (D) The President of India is elected by the system of proportional representation by means of the single transferable vote. The election to the President of India is an indirect election. The people do not elect the President directly. He is elected by MPs & MLAs who are in turn elected by people. The voting is done in the form of preferences. Winning candidate should get 50 % of first preferential votes + 1. Least preferred candidate is eliminated after every round and votes are re-distributed till a clear winner emerges. Hence, he also secures the majority of votes polled.

56. (D) PM-YUVA Yojana (Pradhan Mantri Yuva Udyamita Vikas Abhiyan) aims to create an enabling ecosystem for Entrepreneurship Development through entrepreneurship education and training across the country in selected Institutes of Higher Learning (Universities, Colleges and Premier Institutes), Schools, Industrial Training Centers (ITIs) and Entrepreneurship Development Centers (EDCs) for over a period of five years.

58. (D) All the options are the features of the Indian Parliament. But the most important feature is that its upper house (Rajya Sabha) never dissolves.

60. (C) Passive factor of production is the factor which cannot be productive without the help of the other factors of production. Land and Capital, both alone cannot be productive. Hence, both are passive factor of production.

61. (A) The mixture of gases that form the atmosphere of the Earth are nitrogen (78.09%), oxygen (20.95%), argon (0.93%), carbon dioxide (0.03%), and several trace gases.

62. (A) Global Human Capital Index is published by World Economic Forum. The report measures 130 countries against four key areas of human development i.e. Capacity, Deployment, Development, Know-How. It aims to be used as a tool to assess progress within countries and point to opportunities for cross-country learning and exchange. The report takes into account "the knowledge and skills people possess that enable them to create value in the global economic system" to measure the 'human capital' rank of a country.

63. (B) Lord Mayo served as 4th Viceroy of India from 12 January 1869 to 8 February 1872. In order to secure permanent improvement in the finances, Lord Mayo took the pains to secure and collect statistics regarding the population and the various conditions in each locality. The result was that in 1871, India's first census of taken by his orders. Mayo also organized the Statistical Survey of India.

64. (D) In other viruses, DNA is transcribed into RNA, and then RNA is translated into protein. However, retroviruses function differently – their RNA is reverse-transcribed into DNA. They use RNA as a template to make DNA.

67. (C) The photosynthesis reactions can be broken down into two components-

(i) The light-dependent reactions (the "light" reactions) - occur on the thylakoid membranes.

(ii) The light-independent reactions (the "dark" reactions) - occur in the stroma.

The conversion of NADP into NADPH is light dependent reaction. Hence, it occurs on the thylakoid membrane.

68. (D) Sir Alfred Bernhard Nobel, famously known as Alfred Nobel was the first person to discover the dynamite by combining diatomaceous earth with nitroglycerin. In 1867 he discovered that mixing nitroglycerine with silica would turn the liquid into a malleable paste, called dynamite.

69. (C) The Purna Swaraj declaration, or Declaration of the Independence of India, was promulgated by the Indian National Congress on 26th January 1930. Therefore, 26th January was selected as the date for the inauguration of the Constitution.

70. (B) The Government of India created the RIDF in NABARD in the year 1995-96 for financing on-going rural infrastructure,with an initial corpus of ₹2,000 crore. The main objective of the fund is to provide loans to State Government and State-owned corporations to enable them to complete rural infrastructure projects. With the allocation of ₹25,000crore for 2017-18 under RIDF XXIII, the cumulative allocation has reached ₹2,92,500 crore, including ₹18,500 crore under Bharat Nirman.

73. (A) The Dadasaheb Phalke Award is India's highest award in cinema. It is presented annually at the National Film Awards

ceremony by the Directorate of Film Festivals, an organisation set up by the Ministry of Information and Broadcasting. The recipient is honoured for their "outstanding contribution" to the growth and development of Indian cinema. As of 2016, the award comprises a Swarna Kamal (Golden Lotus) medallion, a shawl, and a cash prize of ₹10,00,000.

74. (A) The Ring of Fire is a major area in the basin of the Pacific Ocean where a large number of earthquakes and volcanic eruptions occur. Therefore, it is related to Pacific Ocean, volcano and earthquake.

76. (D) Buland Darwaza or the "Gate of Magnificence" was built by the great Mughal emperor, Akbar in 1601 A.D. at Fatehpur Sikri. Akbar built the Buland Darwaza to commemorate his victory over Gujarat. Buland Darwaza is the highest gateway in the world.

77. (B) The ionisation potential decreases on going down a group. This is because the electron to be removed from the outer energy level is increasingly distant from the nucleus, as a result of the atoms getting bigger down the group. The attraction of the nucleus for the electron becomes less, and it becomes easier to pull it away.

81. (B) Mass of the given planets-
(i) Jupiter – 1.898×10^{27} kg
(ii) Saturn – 5.68×10^{26} kg
(iii) Neptune -1.02×10^{26} kg
(iv) Uranus – 8.68×10^{25} kg

83. (D) The Swaraj Party was a political party formed in India on 9th January 1923 after Gaya annual conference in Dec,1922 of Indian national congress. It was established as the Congress-Khilafat Swarajaya Party.

84. (C) A fingerprint or dactylogram in its narrow sense is an impression left by the friction ridges of a human finger.

85. (B) Active Components are the electronic components that require a source of energy to perform their intended functions. Passive component are the electronic component which cannot rely on the source of energy. Hence, resistor, inductor and capacitor are passive components and transistor is an active component.

86. (C) Timur Lang invaded India in 1398 A.D with an aim of destroying the hindu kings and rulers. After crossing the Sindh river, he entered Punjab. This was on 24 September 1398.

87. (B) The Congress's demand for Swaraj (self-rule) was first expressed publicly by him in his presidential address in 1906 at Calcutta session of Indian National Congress.(But the term "Swaraj" was firstly used by Swami Dayanand Saraswati.)

88. (C) The process of ovulation is controlled by the hypothalamus of the brain and through the release of hormones secreted in the anterior lobe of the pituitary gland, luteinizing hormone (LH) and follicle-stimulating hormone (FSH). F.S.H. also stimulates the production of the ovarian hormone oestrogen.

95. (D) Madhya Pradesh government has launched a scheme "Bhavantar Bhugtan Yojana" (Price Deficit Financing Scheme) to hedge price risks in the agriculture sector. The objective of the scheme is to provide the compensation for agriculture products whenever its price fall below the announced minimum support prices (MSP) by the Union government. The farmers will have to register themselves with mandis to leverage the benefits of this schemeand the compensation will be transferred directly to the bank accounts of the farmers.

96. (A) One astronomical unit is the approximate mean distance between the Earth and sun. It is originally conceived as the average of Earth's aphelion and perihelion.
1 A.U = 149597870.7 kms

98. (B) Potato was introduced in India in the early part of the 17th century by the Portuguese. It was first cultivated in Surat on the West coast. Portuguese called it "Batata".

99. (D) Gautam Buddha renounced his home at the age of 29.

100.(C) Rajinder Singh is appointed as the President of Hockey India, the governing body of hockey in India, after Mariamma Koshy's resignation. Mariamma Koshy was appointed as the President of Hockey India in November 2016 after Dr Narinder Batra had resigned from the position due to being elected as the President of International Hockey Federation (FIH).

101. (D) 4.5 km/hr = $\left(4.5\times\frac{5}{18}\right)$ m/sec

$= \frac{5}{4}$ m/sec = 1.25 m/sec

and 5.4 km/hr = $\left(5.4 \times \frac{5}{18}\right)$ m/sec

$= \frac{3}{2}$ m/sec = 1.5 m/sec

Let the speed of the train be x m/sec
Then, $(x - 1.25) \times 8.4 = (x - 1.5) \times 8.5$
$\Rightarrow 8.4x - 10.5 = 8.5x - 12.75$
$\Rightarrow 0.1x = 2.25$
$\Rightarrow x = 22.5$

$\therefore$ Speed of the train = $\left(22.5 \times \frac{18}{5}\right)$ km/hr

= 81 km/hr

102. (A) Cost price of 1 Banana = ₹ 3.5
selling price of 1 Banana = ₹ 4
$\therefore$ Required profit %

$= \frac{.5}{3.5} \times 100 = 14\frac{2}{7}\%$ gain

103. (B) Let the height of the building x metres.
Less lengthy shadow, less in the height (Direct proportion)
$\therefore 40.25 : 28.75 :: 17.5 : x$
$\Leftrightarrow 40.25 \times x = 28.75 \times 17.5$

$x = \frac{28.75 \times 17.5}{40.25}$

$\Rightarrow x = 12.5$

104. (C) Let the distance travelled by x km.

Then, $\frac{x}{10} - \frac{x}{15} = 2$

$\Rightarrow 3x - 2x = 60$
$\Rightarrow x = 60$ km
Time taken to travel 60 km at 10 km/hr

$= \left(\frac{60}{10}\right)$ hrs = 6 hrs.

So, Vivek started 6 hours before 2 P.M. i.e., at 8 A.M.

$\therefore$ Required speed = $\left(\frac{60}{5}\right)$ km/h = 12 km/h

105. (A) Let the average age of the whole team by x years.
$\therefore 11x - (26 + 29) = 9(x - 1)$
$\Rightarrow 11x - 9x = 46$
$\Rightarrow 2x = 46$
$\Rightarrow x = 23$
So, average age of the team is 23 years

106. (B) C's 1 day's work = $\frac{1}{3} - \left(\frac{1}{6} + \frac{1}{8}\right)$

$= \frac{1}{3} - \frac{7}{24} = \frac{1}{24}$

A's wages : B's wages : C's wages

$= \frac{1}{6} : \frac{1}{8} : \frac{1}{24} = 4 : 3 : 1$

$\therefore$ C's share (for 3 days) = ₹ $\left(3 \times \frac{1}{24} \times 3200\right)$

= ₹ 400

107. (A) Let the speed of the stream x mph. Then,
Speed downstream = $(10 + x)$ mph,
Speed upstream = $(10 - x)$ mph

$\therefore \frac{36}{(10 - x)} - \frac{36}{(10 + x)} = \frac{90}{60}$

$\Rightarrow 72x \times 60 = 90(100 - x^2)$
$\Rightarrow x^2 + 48x - 100 = 0$
$\Rightarrow (x + 50)(x - 2) = 0$
$\Rightarrow x = 2$ mph

108. (B) C.P. of 56 kg rice = ₹ $(26 \times 20 + 30 \times 36)$
= ₹ $(520 + 1080)$ = ₹ 1600
S.P. of 56 kg rice = ₹ (56×30) = ₹ 1680

$\therefore$ Gain = $\left(\frac{80}{1600} \times 100\right)\%$ = 5%

109. (D) L.C.M. of 252, 308 and 198 = 2772
So, A, B and C will again meet at the starting point in 2772 sec. i.e., 46 min. 12 sec.

110. (D) Ratio of initial investments

$= \left(\frac{7}{2} : \frac{4}{3} : \frac{6}{5}\right)$ = 105 : 40 : 36.

Let the initial investments be $105x$, $40x$ and $36x$.

$\therefore$ A : B : C = $\left(105x \times 4 + \frac{150}{100} \times 105x \times 8\right)$

$: (40x \times 12) : (36x \times 12)$
$= 1680x : 480x : 432x = 35 : 10 : 9$

Hence, B's share = ₹ $\left(21600 \times \frac{10}{54}\right)$ = ₹ 4000

111. (A) P = 6000
For 1sr year CI = 5% of 6000 = 300
Amount = 6000 + 300 = 6300
P for 2nd year = 63000 – 2100 = 4200
CI for 2nd year = 5% of 4200 = 210
Amount 2nd year = 4200 + 210 = 4410
P for 3rd year = 4410 – 2100 = 2310
CI for 3rd year = 5% of 2310 = 115.5
Required amount = 2310 + 115.5 = 2425.5

112. (C) $\frac{4x - 3}{x} + \frac{4y - 3}{y} + \frac{4z - 3}{z} = 0$

$\Rightarrow \frac{4x}{x} - \frac{3}{x} + \frac{4y}{y} - \frac{3}{y} + \frac{4z}{z} - \frac{3}{z} = 0$

$\Rightarrow \frac{3}{x} + \frac{3}{y} + \frac{3}{z} = 4 + 4 + 4 = 12$

$\Rightarrow \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{12}{3} = 4$

113. (B) $\angle ABD = BDC = x^\circ$ (Alternate angles)
in ΔBDC : $\angle BDC + \angle DCB + \angle CBD = 180^\circ$
$\Rightarrow x^\circ + z^\circ + y^\circ = 180^\circ$

$\Rightarrow \frac{4}{3}y + \frac{8}{3}y + y^\circ = 180^\circ \left[x = \frac{4}{3}y, y = \frac{3}{8}z\right]$

$\Rightarrow 5y = 180^\circ \Rightarrow y = 36^\circ$

$\Rightarrow \therefore x = \frac{4}{3}y = 48^\circ$ and $z = \frac{8}{3}y = 96^\circ$

Now in ΔABD,
$x^\circ + 36^\circ + \angle BAD = 180^\circ$
$\Rightarrow \angle BAD = 180^\circ - 36 - 48 = 96^\circ$

114. (A) $2x + 3x + 5x = 180^\circ - 45^\circ = 135$
$\Rightarrow 10x = 135^\circ$

$\Rightarrow x = \frac{135}{10} = \frac{27}{2}$

$\therefore$ Largest angle

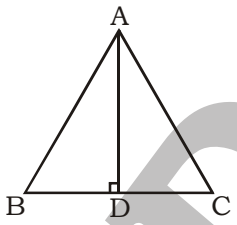
$= 5x + 15^\circ = \left(5 \times \frac{27}{2}\right)^\circ + 15^\circ$

$= \frac{135 + 30}{2} = \frac{165^\circ}{2}$

$\because 180^\circ = \pi$ radian

$\therefore \frac{165^\circ}{2} = \frac{\pi}{180} \times \frac{165}{2} = \frac{11\pi}{24}$ radian

115. (D)



Let AD be the altitude,
Base = x cm

Each equal side = $\frac{5x}{6}$ cm

$\therefore x + 2 \times \frac{5x}{6} = 544$

$\Rightarrow \frac{3x + 5x}{3} = 544$

$\Rightarrow 8x = 544 \times 3$

$\Rightarrow x = \frac{544 \times 3}{8} = 204$

$\therefore$ BD = 102 cm

$\Rightarrow$ AB = $\frac{5x}{6} = \frac{5 \times 204}{6} = 170$ cm

and AD = $\sqrt{AB^2 - BD^2}$

$= \sqrt{170^2 - 102^2}$

$= \sqrt{(170 + 102)(170 - 102)}$

$= \sqrt{272 \times 68} = 136$ cm

$\therefore \Delta ABC = \frac{1}{2} BC \times AD$

$= \frac{1}{2} \times 204 \times 136$

$= 13872$ cm^2

116. (D) (P + Q + R)'s 1 hour's work

$= \left(\frac{1}{8} + \frac{1}{10} + \frac{1}{12}\right) = \frac{37}{120}$

Work done by P, Q and R in 2 hours

$= \left(\frac{37}{120} \times 2\right) = \frac{37}{60}$

Remaining work = $\left(1 - \frac{37}{60}\right) = \frac{23}{60}$

(Q + R)'s 1 hour's work = $\left(\frac{1}{10} + \frac{1}{12}\right) = \frac{11}{60}$

Now, $\frac{11}{60}$ work is done by Q and R in 1 hour.

So, $\frac{23}{60}$ work will be done by Q and R in

$\left(\frac{60}{11} \times \frac{23}{60}\right) = \frac{23}{11}$ hours ≈ 2 hours.

So, the work will be finished approximately 2 hours after 11 A.M., i.e., around 1 P.M.

117. (B) Let C.P. = ₹ 100,
Then, Profit = ₹ 320, S.P. = ₹ 420
New C.P. = 125% of ₹ 100 = ₹ 125
New S.P. = ₹ 420
Profit = ₹ (420 – 125) = ₹ 295
$\therefore$ Required percentage

$= \left(\frac{295}{420} \times 100\right)\% = \frac{1475}{21}\% = 70\%$ (approx.)

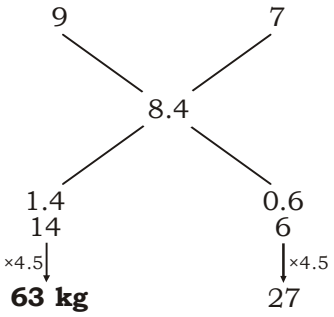
118. (A) Let the present ages of Sameer and

Anand be $5x$ years and $4x$ years respectively.

Then, $\frac{5x+3}{4x+3} = \frac{11}{9}$

$\Rightarrow 9(5x + 3) = 11(4x + 3)$
$\Rightarrow 45x + 27 = 44x + 33$
$\Rightarrow 45x - 44x = 33 - 27$
$\Rightarrow x = 6$
$\therefore$ Anand's present age = $4x$ = 24 years.

119. (D) Cost price of sugar = ₹ 8.4/kg



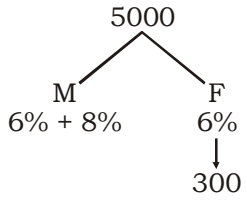
120. (C) 1000 → cost price

False weight ← 920 — 1150 → 15% profit

$\therefore$ Req% $\Rightarrow \frac{230}{920} \times 100$

$\Rightarrow \frac{2300}{92}$ = 25% profit

121. (D)



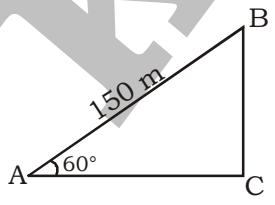
8% = 200
Total no. of females = 2500

122. (B) $9\sqrt{x} = \sqrt{3\times2\times2} + \sqrt{3\times7\times7}$

$\Rightarrow 9\sqrt{x} = 2\sqrt{3} + 7\sqrt{3} = 9\sqrt{3}$
$\therefore x = 3$

123. (B) $\angle AOC = \angle BOD = 31°$ (vertically opposite)
$\therefore \angle BOC = 180° - \angle AOC = 149°$

124. (B)



AB = Length of the thread = 150 metre
$\angle BAC = 60°$
In ΔABC,

$\sin 60° = \frac{BC}{AB} \Rightarrow \frac{\sqrt{3}}{2} = \frac{BC}{150}$

$\Rightarrow BC = 150 \times \frac{\sqrt{3}}{2} = 75\sqrt{3}$ metre

125. (B) $\tan(2\theta + 45°) = \cot 3\theta$
$= \tan(90° - 3\theta)$
$\Rightarrow 2\theta + 45° = 90° - 3\theta$
$\Rightarrow 5\theta = 90° - 45° = 45°$
$\therefore \theta = 9°$

126. (A) Speed of flowing water = 12 cm/s
Time = one hour = 3600 seconds
quantity of water pumped out through pipe

in one second = $\pi \times \left(\frac{7}{2}\right)^2 \times 12$ cm^3

Total quantity in 1 hour

$= \pi \times \left(\frac{7}{2}\right)^2 \times 12 \times 3600$ cm^3

$\frac{22}{7} \times \frac{7\times7\times12\times3600}{4\times1000}$ l

= 1663.2 l

127. (C) Work done by the waste pipe in 1 minute

$= \frac{1}{15} - \left(\frac{1}{20} + \frac{1}{24}\right) = \left(\frac{1}{15} - \frac{11}{120}\right)$

$= -\frac{1}{40}$ [–ve sign means emptying]

$\therefore$ Volume of $\frac{1}{40}$ part = 3 gallons.

$\therefore$ Capacity of tank = 120 l

128. (A) Total sale for 5 months
= ₹ (6435 + 6927 + 7230 + 6562)
= ₹ 34009
$\therefore$ Required sale = ₹ [(6500 × 6) – 34009]
= ₹ (39000 – 34009)
= ₹ 4991

129. (A) Let the sum invested in Scheme A be ₹ x and that in Scheme B be ₹ (13900 – x).

Then, $\left(\frac{x\times14\times2}{100}\right) + \left(\frac{(13900-x)\times11\times2}{100}\right)$

= 3508
$\Rightarrow 28x - 22x = 350800 - (13900 \times 22)$
$\Rightarrow 6x = 45000$
$\Rightarrow x = 7500$
So, sum invested in Scheme B
= ₹ (13900 – 7500) = ₹ 6400

130. (C) Let total no. of voting list = $100x$
Total votes polled = $90x$
Valid votes = $90x - 1200$
Winner gets votes = $68x$
So, loser gets votes = $(90x - 1200) - 68x$
$= 22x - 1200$
So, according to the question,
$68x - (22x - 1200) = 56400$
$46x + 1200 = 56400$
$46x = 56400 - 1200$

$x = \frac{55200}{46}$

Votes in favour of losing candidate

$\Rightarrow 22 \times \frac{55200}{46} - 1200 = 25200$

131. (C) $x = 5 + 2\sqrt{6}$

$\therefore \frac{1}{x} = \frac{1}{5+2\sqrt{6}} = \frac{5-2\sqrt{6}}{(5+2\sqrt{6})(5-2\sqrt{6})}$

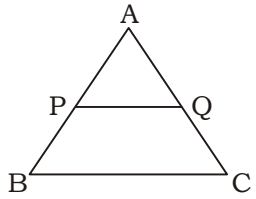
$= \frac{5-2\sqrt{6}}{25-24} = 5 - 2\sqrt{6}$

$\therefore \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 = x + \frac{1}{x} + 2$

$= 5 + 2\sqrt{6} + 5 - 2\sqrt{6} + 2 = 12$

$\therefore \sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{12} = 2\sqrt{3}$

132. (C)



PQ||BC
$\therefore \angle APQ = \angle ABC = 60°$
and $\angle AQP = \angle ACB = 60°$

$\therefore$ Area of $\Delta APQ = \frac{\sqrt{3}}{4} \times (PQ)^2$

$= \frac{\sqrt{3}}{4} \times 25 = \frac{25\sqrt{3}}{4}$ cm^2

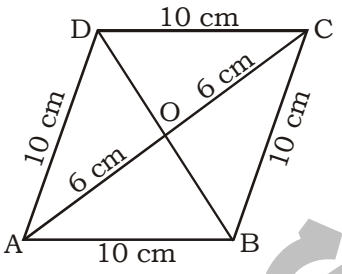
133. (C) Area of the base = $40 \times 40 = 1600$ cm^2
We know, Volume of pyramid

$= \frac{1}{3} \times$ area of base $\times$ height

$\Rightarrow 8000 = \frac{1}{3} \times 1600 \times h$

$\Rightarrow h = \frac{8000 \times 3}{1600} = 15$ cm

134. (C)



4 × side = 40 cm [given]

$\Rightarrow$ Side = $\frac{40}{4} = 10$ cm

In ΔAOB,

OB = $\sqrt{(10)^2 - (6)^2}$

$= \sqrt{100-36} = \sqrt{64} = 8$ cm
$\therefore$ Diagonal BD = 8×2
$= 16$ cm

135. (D) 1st student get 46% and failed by 55 marks
2nd student get 81% and passed by 15 more marks

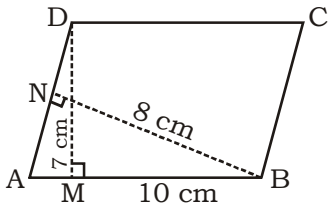
$\therefore$ Total marks = $\frac{70}{35} \times 100 = 200$

136. (D) Expression = $(x-2)(x-9)$
$= x^2 - 11x + 18 = ax^2 + bx + c$

Minimum value = $\frac{4ac - b^2}{4a}$

$= \frac{4 \times 1 \times 18 - 121}{4} = \frac{-49}{4}$

137. (C)



Area of ||gm = Base × Height
$\therefore$ ar(||gm ABCD) = AB × DM
$= (10 \times 7)$ cm^2 ...(i)
also, ar(||gm ABCD) = AD × BN
$= (AD \times 8)$ cm^2 ...(ii)
from (i) and (ii), we have,
$10 \times 7 = AD \times 8$

$\Rightarrow$ AD = $\frac{35}{4} = 8.75$ cm

138. (B) Radius of circular wire

$= \frac{42}{2} = 21$ cm

Circumference of wire = $2\pi r$

$= 2 \times \frac{22}{7} \times 21 = 132$ cm

Let the length and breadth of rectangle be $6x$ and $5x$ respectively.
$\therefore$ Perimeter of rectangle
$= 2(6x + 5x) = 22x$
According to the question,
$22x = 132$

$\Rightarrow x = \frac{132}{22} = 6$

$\therefore$ Length of rectangle
$= 6x = 6 \times 6 = 36$ cm
Breadth of rectangle
$= 5x = 5 \times 6 = 30$ cm
$\therefore$ Area $= 36 \times 30$
$= 1080$ cm^2

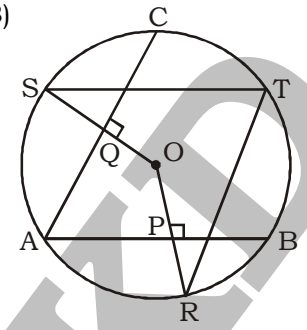
139. (A) $15\% = \frac{3}{20}$, $10\% = \frac{1}{10}$, $5\% = \frac{1}{20}$

Actual	Remain
20	17
10	9
20	19
4000	2907
$\downarrow \times 5$	$\downarrow \times 5$
20,000	**14535**

140. (C) $x + y + z = 13$
$x^2 + y^2 + z^2 = 69$
$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$
$\Rightarrow (13)^2 = 69 + 2(xy + yz + zx)$
$\Rightarrow 2(xy + yz + zx)$
$= 169 - 69 = 100$

$\Rightarrow xy + yz + zx = \frac{100}{2} = 50$

141. (B)



$\angle OQA = \angle OPA = 90°$
$\angle QOP + \angle QAP = 180°$
$\Rightarrow \angle QOP = \angle SOR = 2\angle STR$

$\therefore \angle RTS = \frac{148}{2} = 74°$

142. (C) Given Exp.
$= \sec^2 A + \cos^2 A - 2 + \text{cosec}^2 A + \sin^2 A - 2 - \cot^2 A - \tan^2 A + 2$
$= (\sec^2 A - \tan^2 A) + (\cos^2 A + \sin^2 A) + (\text{cosec}^2 A - \cot^2 A) - 2$
$= 1 + 1 + 1 - 2 = 1$

143. (C) $p + \frac{1}{4}\sqrt{p} + k^2$

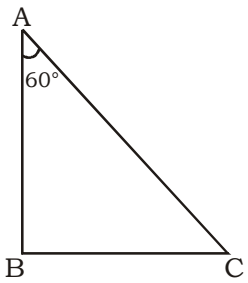
$= \left(\sqrt{p}\right)^2 + 2 \cdot \sqrt{p} \cdot \frac{1}{8} + \left(\frac{1}{8}\right)^2 - \left(\frac{1}{8}\right)^2 + k^2$

$\Rightarrow k^2 = \left(\frac{1}{8}\right)^2$

$\Rightarrow k = \pm\frac{1}{8}$

144. (A) $\cos(180° + A) + \cos(180° + B) + \cos(180° + C) + \cos(180° + D)$
$= -\cos A - \cos B - \cos C - \cos D$
$= -\cos(180° - C) - \cos(180° - D) - \cos C - \cos D$
[$\because$ A + C+ = B + D = 180° cyclic quadrilateral]
$= \cos C + \cos D - \cos C - \cos D$
$= 0$

145. (D)



$\angle B = 90°$
$\angle A = 60°$
$\angle C = 180° - 90° - 60° = 30°$

$\cos C = \frac{BC}{CA}$

$\Rightarrow \cos 30° = \frac{BC}{CA}$

$\Rightarrow \frac{\sqrt{3}}{2} = \frac{BC}{CA} = \sqrt{3} : 2$

146. (C) 20% of 10000 = 2000

MEANINGS IN ALPHABETICAL ORDER

Word	Meaning in English	Meaning in Hindi
Amenities	a desirable or useful feature or facility	सुख-सुविधाएँ
Anthropology	the study of humankind, in particular	मनुष्य जाति का विज्ञान
Archaeology	the study of human history and prehistory through the excavation of sites and the analysis of artifacts and other physical remains.	पुरातत्व विज्ञान
Audit	an official inspection of an individual's or organisation's accounts, typically by an independent body.	लेखा-परीक्षा
Callous	showing or having an insensitive and cruel disregard for others	कठोर, निर्दयी
Cautious	(of a person) careful to avoid potential problems or dangers	सतर्क
Debonair	(of a man) confident, stylish, and charming	खुशमिजाज
Defendant	an individual, company, or institution sued or accused in a court of law.	अभियुक्त
Deponent	a person who makes a deposition or affidavit under oath	बयान देने वाला
Fetch	go for and then bring back (someone or something)	लाना
Figurative	not literal; using figures of speech	प्रतीकात्मक
Implicate	show (someone) to be involved in a crime	फंसाना
Judiciary	the judges of a country or a state, collectively	न्यायपालिका, न्यायतंत्र
Jurisdiction	A fixed territory in which authority can be exercised	अधिकार क्षेत्र
Juristic	of or relating to law or to legal rights and obligations	न्याय-संबंधी
Paranoid	suffering from a mental illness in which someone wrongly believe that other people are trying to harm him	पागल, भ्रमित व्यक्ति
Parapet	a low protective wall along the edge of a roof, bridge or balcony	छत की दीवार
Paraphrase	to express what somebody has said or written using different words, especially in order to make it easier to understand	सविस्तार
Placate	make (someone) less angry or hostile	तसल्ली देना
Poignant	evoking a keen sense of sadness or regret	हृदयविदारक, मार्मिक
Precise	marked by exactness and accuracy of expression or detail	ठीक
Preserver	One who maintains something in its original or existing state	पालक
Self-righteous	having or characterised by certaintly, that one is totally correct or morally superior	स्वयंसिद्ध
Vindicate	to prove that somebody accused of doing something wrong or illegal is not guilty	निर्दोष ठहराना
Vindicator	one who protects somebody being not guilty in a lawsuit	वकील, बचानेवाला
Virulent	(of a disease or poison) extremely severe or harmful in its effects.	विषैला
Vital	absolutely necessary or important; essential	महत्वपूर्ण
Yell	give a loud, sharp cry	चिल्लाना
Zany	strange or unusual in an amusing way	मसखरापूर्ण

CPO MOCK TEST - 16 (ANSWER KEY)

1. (A)	26. (D)	51. (D)	76. (D)	101. (D)	126. (A)	151. (C)	176. (C)
2. (B)	27. (C)	52. (D)	77. (B)	102. (A)	127. (C)	152. (B)	177. (A)
3. (C)	28. (B)	53. (D)	78. (B)	103. (B)	128. (A)	153. (B)	178. (A)
4. (D)	29. (C)	54. (A)	79. (C)	104. (C)	129. (A)	154. (C)	179. (D)
5. (A)	30. (B)	55. (B)	80. (C)	105. (A)	130. (C)	155. (B)	180. (D)
6. (A)	31. (C)	56. (D)	81. (B)	106. (B)	131. (C)	156. (C)	181. (A)
7. (C)	32. (C)	57. (D)	82. (C)	107. (A)	132. (C)	157. (A)	182. (B)
8. (B)	33. (D)	58. (D)	83. (D)	108. (B)	133. (C)	158. (D)	183. (C)
9. (D)	34. (A)	59. (A)	84. (C)	109. (D)	134. (C)	159. (D)	184. (D)
10. (B)	35. (D)	60. (C)	85. (B)	110. (D)	135. (D)	160. (C)	185. (A)
11. (C)	36. (D)	61. (A)	86. (C)	111. (A)	136. (D)	161. (C)	186. (C)
12. (C)	37. (B)	62. (A)	87. (B)	112. (C)	137. (C)	162. (D)	187. (A)
13. (C)	38. (B)	63. (B)	88. (C)	113. (B)	138. (B)	163. (C)	188. (D)
14. (B)	39. (A)	64. (D)	89. (A)	114. (A)	139. (A)	164. (C)	189. (B)
15. (A)	40. (B)	65. (B)	90. (D)	115. (D)	140. (C)	165. (B)	190. (A)
16. (A)	41. (A)	66. (D)	91. (C)	116. (D)	141. (B)	166. (D)	191. (D)
17. (C)	42. (D)	67. (C)	92. (B)	117. (B)	142. (C)	167. (C)	192. (A)
18. (D)	43. (D)	68. (D)	93. (D)	118. (A)	143. (C)	168. (B)	193. (C)
19. (C)	44. (D)	69. (C)	94. (A)	119. (D)	144. (A)	169. (C)	194. (B)
20. (A)	45. (C)	70. (B)	95. (D)	120. (C)	145. (D)	170. (C)	195. (A)
21. (B)	46. (D)	71. (B)	96. (A)	121. (D)	146. (C)	171. (C)	196. (A)
22. (A)	47. (D)	72. (C)	97. (B)	122. (B)	147. (B)	172. (A)	197. (D)
23. (B)	48. (D)	73. (A)	98. (B)	123. (B)	148. (C)	173. (B)	198. (A)
24. (B)	49. (C)	74. (A)	99. (D)	124. (B)	149. (D)	174. (C)	199. (B)
25. (B)	50. (D)	75. (D)	100. (C)	125. (B)	150. (A)	175. (A)	200. (C)