

CPO MOCK TEST – 37 (SOLUTION)

1. (C) $A \xrightarrow{+2} C \xrightarrow{+2} E$
 $R \xrightarrow{+2} T \xrightarrow{+2} V$
 $B \xrightarrow{+2} D \xrightarrow{+2} F$
 $F \xrightarrow{+2} H \xrightarrow{+2} J$

2. (C) $(6 \times 6) - 1 = 35$
 $(9 \times 6) - 1 = \mathbf{53}$

3. (A) $8 + 1 = 9 \Rightarrow 9^2 = 81 \xrightarrow{\text{opposite}} 18$

$24 + 1 = 25 \Rightarrow 25^2 = 625 \xrightarrow{\text{opposite}} 526$

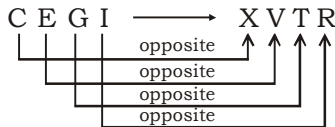
4. (A) Father is responsible for the existence of a child similarly, **writer** is responsible for the existence of a book.

5. (B) TAP $\xrightarrow{\text{opposite}}$ PAT
DAM $\xrightarrow{\text{opposite}}$ **MAD**

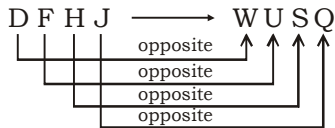
6. (A) $(2)^3 = 8 : (3)^2 = 9$
 $(4)^3 = 64 : (5)^2 = 25$

7. (C) In Library, we find books similarly, in banks we find money.

8. (D) As,



Similarly,



9. (B) ABC $\xrightarrow{+7}$ HIJ
OPQ $\xrightarrow{+7}$ **VWX**

10. (A)

11. (A) We know that Red, Green and Blue are primary colours where as Yellow is not a primary colour.

12. (B) Option (B) comprises only vowels whereas only consonants are present in rest of the options.

13. (A) 216 is a cube of even number whereas rest are cubes of odd number.
Example- $27 = (3)^3$, $125 = (5)^3$, $\mathbf{216 = (6)^3}$,
 $343 = (7)^3$

14. (D) (a) $E \xrightarrow{-3} B \xrightarrow{+2} D$

(b) $I \xrightarrow{-3} F \xrightarrow{+2} H$

(c) $U \xrightarrow{-3} R \xrightarrow{+2} T$

(d) $Y \xrightarrow{-2} W \xrightarrow{+1} X$

15. (C) Except option (C), In other options each letters are increased by 1.

16. (C) Except 481, rest are perfect squares of a number.

17. (C) After observing each options we have,

(a) $(24 \times 2) - 2 = 46$

(b) $(32 \times 2) - 2 = 62$

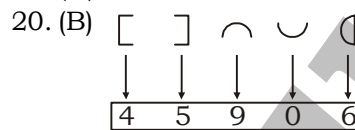
(c) $(\mathbf{30 \times 2}) - 4 = \mathbf{56}$

(d) $(38 \times 2) - 2 = 74$

so, option (C) is different.

18. (D) Sum of 1st three numbers results in the fourth whereas option (d) is not satisfying the same.

19. (D)



21. (B) The letter 'R' of Doctor is missing in word DECOMPOSITION.

22. (C) The letter 'R' of Pointer is missing in word DISAPPOINTMENT.

23. (A) Unit \rightarrow Tens \rightarrow Hundereds \rightarrow Thousands
 2 4 1 3
 \rightarrow Lakhs
 5

24. (A) Lucknow \rightarrow Uttar Pradesh \rightarrow India \rightarrow Asia
 1 2 3 5
 \rightarrow World
 4

25. (B) a b b b / a b b b / a b b b

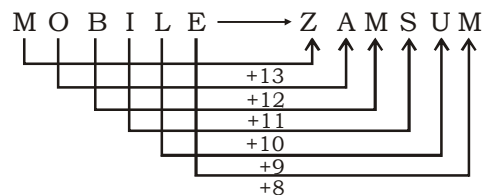
26. (C) 225 336 447 **558** 669
 +111 +111 +111 +111

27. (D) Hari > Chaman > Satish
Vijay > Mukesh > Chaman > Satish.
Hence, we can say that Satish is the smallest among all.

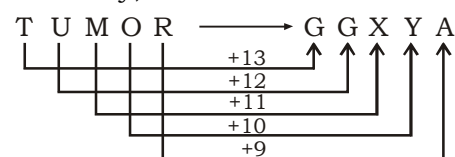
28. (D) $2486 - 85 = 2401$ is a perfect square of 49.

29. (A) Out of 12 questions, 6 questions have one option
so, Total no. of questions = $6 + (6 \times 2) = 18$
As, Each questions has 4 sections
so, Total number of question (including different sections)
= $18 \times 4 = 72$

30. (A) As,



Similarly,



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31. (D) $55 + 66$

$$\Rightarrow 5 + 5 + 6 + 6 = 22 \Rightarrow 22 \times \frac{3}{2} = 33$$

$$22 + 99$$

$$\Rightarrow 2 + 2 + 9 + 9 = 22 \Rightarrow 22 \times \frac{3}{2} = 33$$

$$44 + 88$$

$$\Rightarrow 4 + 4 + 8 + 8 = 24 \Rightarrow 24 \times \frac{3}{2} = \mathbf{36}$$

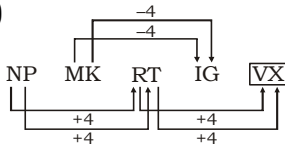
32. (D) From option (D) we have,

$$5 > 8 + 4 = 10 < 4 \times 8$$

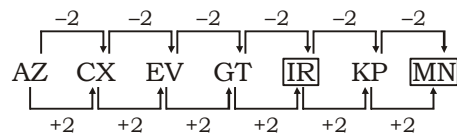
$$\Rightarrow 5 \times 8 \div 4 < 10 - 4 + 8$$

$$= 5 \times 2 < 18 - 4 = 10 < 14$$

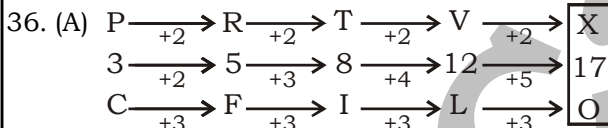
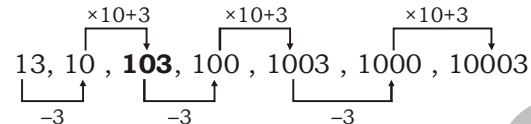
33. (C)



34. (C)



35. (B)



37. (B) 'Sun is a source of light'. This statement doesn't mean that moon is not a source of light and also doesn't mean that light has only one source. So, neither conclusion I nor II follows.

38. (D) $(3)^2 + (5)^2 + (1)^2 = 35$

$$(4)^2 + (7)^2 + (2)^2 = 69$$

$$(6)^2 + (3)^2 + (7)^2 = \mathbf{94}$$

39. (D) $(4 + 2)^2 = 36$

$$(3 + 7)^2 = 100$$

$$(2 + 5)^2 = \mathbf{49}$$

40. (A) $\sqrt{16} + \sqrt{25} = 9$

$$\sqrt{49} + \sqrt{36} = 13$$

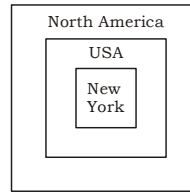
$$\sqrt{64} + \sqrt{81} = \mathbf{17}$$

41. (A)

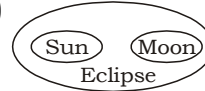
42. (D)

43. (A)

44. (D)



45. (B)



46. (C) $24 * 2 * 4 * 3$

$$\Rightarrow 24 \div 2 = 4 * 3$$

$$\Rightarrow 12 = 12$$

47. (C)

48. (C) $3 \times 5 \times 7 \Rightarrow 3 + 5 + 7 = 15$

$$2 \times 4 \times 6 \Rightarrow 2 + 4 + 6 = 12$$

$$4 \times 7 \times 9 \Rightarrow 4 + 7 + 9 = 20$$

49. (C) As Ramesh and Amit are brothers. Also, Amit is the son of Sushma. So, Ramesh is also the son of Sushma.

50. (C) C \Rightarrow **44, 53**

A \Rightarrow 42, 62, **62**

L \Rightarrow 36, **65**

M \Rightarrow **51**

CALM \Rightarrow 44, 62, 65, 51

53. (A) The foundation stone of new Technology Facility Centre at Jorhat, Assam was laid by Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), Dr Jitendra Singh. The entire fund of the Centre will be borne by the Ministry of Development of North Eastern Region (DoNER). In the first phase Rs 40 crore has been released by the Ministry.

54. (A) Dyarchy was introduced as a constitutional reform by Edwin Samuel Montagu (secretary of state for India, 1917-22) and Lord Chelmsford (Viceroy of India, 1916-21). It marked the first introduction of the democratic principle into the executive branch of the British administration of India. Though much criticized, it signified a breakthrough in British Indian government and was the forerunner of India's full provincial autonomy (1935) and independence (1947).

56. (A) HDFC Bank Limited is an Indian banking and financial services company headquartered in Mumbai, Maharashtra.
CEO: Aditya Puri

Founded: August 1994

57. (B) Gene is a segment of DNA in all living organisms.

58. (C) Vijay Stambh is an imposing structure located in Chittorgarh fort in Rajasthan which was constructed by Mewar king Rana Kumbha in 1442 AD to commemorate his victory over the combine armies of Malwa and Gujarat led by Mahmud Khilji.

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- 59.(B) Qazi Abdul Sattar was an Urdu novelist and short story writer. He had penned several Urdu novels – mainly set in historical contexts – including Shab Gazida, Dara Shikoh, Salahuddin Ayyubi, Khalid Ibn-e-Waleed, and Ghalib.
Born: 8 February 1933
Died -29 October 2018 at New Delhi
- 60.(B) Marginal product of an input (factor of production) is the extra output that can be produced by using one more unit of the input (for instance, the difference in output when a firm's labour usage is increased from five to six units), assuming that the quantities of no other inputs to production change. Marginal product, which occasionally goes by the alias marginal physical product (MPP) is the one of the two measures derived from the total product. The other is average product. Marginal product is directly proportional to total product.
- 63.(D) Veteran Marathi singer, lyricist and music composer Yashwant Deo born on November 1, 1926
Deo trained in music under his father and became a well-known figure in the Marathi film industry and music circles. He was a science graduate from Mumbai and had acquired the Sangeet Visharad degree from Gandharva Mahavidyalaya
- 64.(D) Work done by the string of the simple pendulum during one complete oscillation is zero. Tension in the string exactly cancels the component parallel to the string. This leaves a net restoring force back toward the equilibrium position as it is equal to zero.
- 65.(D) The Confederation of Indian Industry is a business association in India. CII is a non-government, not-for-profit, industry-led and industry-managed organization
President: Rakesh Bharti Mittal
Founded: 1895
Headquarters: New Delhi, India
- 66.(C) Capital markets provide for the buying and selling of long term debt or equity backed securities. When they work well, the capital markets channel the wealth of savers to those who can put it to long term productive use, such as companies or governments making long term investments. Capital Markets allow businesses to raise long-term funds by providing a market for securities, both through debt and equity. Capital markets offer a whole range of complicated products which allow businesses and banks not just to raise capital but also to 'hedge' (protect) against risks.
- 67.(A) State Bank of India is an Indian multinational, public sector banking and financial services company. It is a government-owned corporation headquartered in Mumbai, Maharashtra
Chairperson: Rajneesh Kumar
Headquarters: Mumbai
Founded: 1 July 1955
ICICI Bank Limited is an Indian multinational banking and financial services company headquartered in Mumbai, Maharashtra. In 2014, it was the second largest bank in India in terms of assets and third in term of market capitalisation.
Founded: June 1994
- 68.(B) A strait is a narrow, typically navigable channel of water that connects two larger, navigable bodies of water. It commonly refers to a channel of water that lies between two land masses, but it may also refer to a navigable channel through a body of water that is otherwise not navigable, for example because it is too shallow, or because it contains an un-navigable reef or archipelago.
- 70.(A) According to the Special Theory of Relativity, the mass of a moving object measures more as its velocity increases until, at the speed of light, it becomes infinite. This is because as an object gains speed, it gains more (kinetic) energy.
- 72.(C) The Public Accounts Committee (PAC) is a committee of selected members of Parliament, constituted by the Parliament of India for the auditing of the expenditure of the government of India. Its chief function is to examine the audit report of Comptroller and Auditor General (CAG) after which it is laid in the Parliament CAG to assist the committee during the course in investigation. None of the 22 members shall be a minister in the government.
- 73.(B) The Indian Tri-colour was first unfurled on 26 January, 1930 at Lahore, by Pandit Jawaharlal Nehru. It was on the same day that the Indian National Congress declared 26th January as Independence Day or as the day for Poorna Swaraj (Complete

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| <p>Independence) which occurred 20 years later.</p> <p>76.(B) United States is the third largest country in terms of population after China and India.</p> <p>78.(A) The sewage obtained from water closets and urinals in known Sanitary waste.</p> <p>80.(A) Higher concentration of Nitrogen and Phosphorus causes Eutrophication.</p> <p>82.(A) The Indian Councils Act 1909, commonly known as parliament of the United Kingdom that brought about a limited increase in the involvement of Indians in the governance of British India.</p> <p>84.(B) If the President is satisfied on the basis of the report of the Governor of the concerned state or from other sources that the governance in a state cannot be carried out according to the provisions in the Constitution, he/she can declare a state of emergency in the state. Such a emergency must be approved by the Parliament within a period of 2 months. Under Article 356 of the Indian Constitution, it can be imposed from six months to a maximum period of three years with repeated parliamentary approval after every six months.</p> <p>86.(D) The Eight Core Industries comprise nearly 40.27% of the weight of items included in the Index of Industrial Production (IIP). These are Electricity , steel, refinery products, crude oil, coal, cement, natural gas and fertilisers.</p> <p>87.(C) Composite volcanoes are most commonly found in island arcs. Most of them are found scattered on the islands adjoining the Pacific Ring of Fire where about 75% of Earth's volcanoes are found. It is a region of high volcanic and seismic activity that surrounds the majority of the Pacific Ocean Basin.</p> <p>89.(B) The Constitution of India mentions certain conditions for a person to be eligible for being a judge of the Supreme court of India. In order to be appointed as a Judge of the Supreme Court, a person must be a citizen of India and must have been for at least five years, a Judge of a High Court or of two or more such Courts in succession, or an advocate of a high Court or of two or more such Courts in succession for at least 10 years or he</p> | <p>must be a distinguished jurist in the opinion of the President.</p> <p>90.(D) The Banking Codes and Standards Board of India is an independent banking industry watchdog that protects consumers of banking services in India. The board oversee compliance with the "Code of Bank's Commitment to Customers".
CEO: Anand Aras (1 Aug 2015)
Founded: 18 February 2006
Headquarters: Mumbai
Agency executive: A C Mahajan, Chairman</p> <p>92.(C) The main source of carbon monoxide is transportation.</p> <p>93.(A) A The World Trade Organization is an intergovernmental organization that regulates international trade.
Headquarters: Geneva, Switzerland
Founded: 1 January 1995
Membership: 164 member states
Leader: Roberto Azevêdo</p> <p>94.(B) India is called a mixed economy because there is both private owned enterprises and state owned enterprises and the government does not intervene on the decisions of enterprises owned by individuals except to govern law and to correct market failures. The product market in this case is determined by the market demand and market supply rather than the decisions of the policy makers.</p> <p>95.(B) Mushroom cultivation has been found to coincide with decrease of incidents of breast cancer. Spent residues after cultivation could be a better source of biologically pre-treated substrates for biogas production and agricultural waste recycling can be can be achieved through controlled cultivation of mushrooms.</p> <p>96.(A) Ozone layer serves as a protective shield against harmful solar ultraviolet radiation.</p> <p>98.(D) Water vapour transpires constantly through pores (stomata) in the surface of plant's leaves.</p> <p>100.(C) The Calcutta High Court is the oldest High Court in India. It has jurisdiction over the state of West Bengal and the Union Territory of the Andaman and Nicobar Islands.
Chief Justice
Currently -Debasish Kar Gupta
Since-30 October 2018</p> |
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101. (A) Let the numbers be a and b .
 $\therefore b^3 - a^2 = b^2 \Rightarrow b^3 = a^2 + b^2$
 $a \cdot b = 300$ and $(a + b)^2 = 1600$
 $\Rightarrow a^2 + b^2 + 2ab = 1600$
 $\Rightarrow b^3 + 2 \times 300 = 1600$
 $\Rightarrow b^3 = 1600 - 600 = 1000 \Rightarrow b = 10$
 $\Rightarrow ab = 300 \Rightarrow a \times 10 = 300 \Rightarrow a = 30$
 \Rightarrow numbers $a, b = 30, 10$

102. (C) $x = a(b - c) \Rightarrow \frac{x}{a} = (b - c)$

$$y = b(c - a) \Rightarrow \frac{y}{b} = (c - a)$$

$$z = c(a - b) \Rightarrow \frac{z}{c} = (a - b)$$

$$\therefore \left(\frac{x}{a}\right)^3 + \left(\frac{y}{b}\right)^3 + \left(\frac{z}{c}\right)^3$$

$$= (b - c)^3 + (c - a)^3 + (a - b)^3$$

$$= 3 \cdot (b - c) \cdot (c - a) \cdot (a - b)$$

[$\because b - c + c - a + a - b = 0$]

$$\Rightarrow 3 \cdot \frac{x}{a} \cdot \frac{y}{b} \cdot \frac{z}{c} = \frac{3xyz}{abc}$$

103. (A) Let the side of regular polygon = x
 \Rightarrow each interior angle = $\frac{(2n - 4) \times 90^\circ}{n}$

ATQ,

$$\frac{(2n - 4) \times 90^\circ}{n} = 2 \times 90^\circ \times \frac{4}{5}$$

$$\Rightarrow n = 10$$

104. (C) $A + B + C$ can fill a cistern in 6 hrs ... (i)

$$\therefore A + B + C \text{ can fill } \frac{1}{3} \text{ of cistern in 2 hrs.}$$

Now, $1 - \frac{1}{3} = \frac{2}{3}$ of cistern is filled up by

$A + B$ in 7 hrs.

$\therefore A + B$ can fill up the whole cistern in

$$\frac{7 \times 3}{2} = \frac{21}{2} \text{ hrs} \quad \dots \text{(ii)}$$

From (i) and (ii), C can fill the cistern in

$$= \frac{6 \times \frac{21}{2}}{\frac{21}{2} - 6} = \frac{6 \times 21}{9} = 14 \text{ hrs.}$$

105. (C) Distance travelled by Ravi
 $= (60 - 12) \text{ km}$
 $= 48 \text{ km}$
 and distance travelled by Ajay
 $= (60 + 12) \text{ km}$
 $= 72 \text{ km}$

Difference between the distance travelled by them
 $= (72 - 48) \text{ km}$
 $= 24 \text{ km}$

Time required by Ravi = $\frac{24}{4} \text{ hr} = 6 \text{ hr}$

Speed of Ravi = $\frac{48}{6} \text{ km/hr}$

$= 8 \text{ km/hr}$

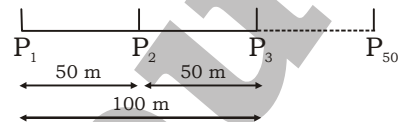
106. (C) Speed = 45 km/hr

Time = 4 hr

Distance = Speed \times time

$= 45 \times 4 = 180 \text{ km}$

$= 180 \times 1000 = 1,80,000 \text{ m}$



Here $P =$ Pole

i.e. in 100 m we have 3 poles so,

Required No. of poles = $\frac{180000}{50} + 1$

$= 3600 + 1 = 3601$

107. (A) $\frac{P}{F} = \frac{25x}{4x}$

Total = $29x$

5 more had appeared then the number of students would have been $29x + 5$

ATQ,

$$\frac{29x + 5}{4x - 2} = \frac{25x}{3x}$$

$$87x + 15 = 100x - 50$$

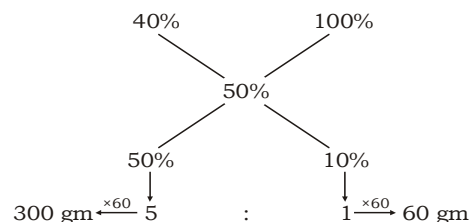
$$65 = 13x$$

$$x = 5$$

Total no. of appeared students

$$= 29 \times 5 = 145$$

108. (C) The existing solution has 40% sugar. And sugar is to be mixed, so the other solution has 100% sugar. So by alligation method



\therefore The two mixture should be added in the ratio $5 : 1$

$5x = 300 \text{ gms}$

Therefore, required sugar

$$= \frac{300}{5} = 60 \text{ gms}$$

109. (D) Let the number be x .
Then ATQ,

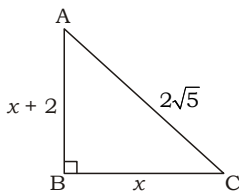
$$\frac{40}{100} \times \frac{60}{100} \times \frac{3}{5} \times x = 504$$

$$x = 3500$$

Required number

$$= \frac{25}{100} \times \frac{2}{5} \times 3500 = 350$$

110. (A) In right angled $\triangle ABC$



$$\angle B = 90^\circ, BC = x, AB = x + 2, AC = 2\sqrt{5}$$

$$\therefore AB^2 + BC^2 = AC^2$$

$$\therefore (x + 2)^2 + x^2 = (2\sqrt{5})^2$$

$$\therefore x^2 + 4 + 4x + x^2 = 20$$

$$\Rightarrow 2x^2 + 4x = 16$$

$$\Rightarrow x^2 + 2x = 8 \Rightarrow x^2 + 2x - 8 = 0$$

$$\Rightarrow x^2 + 4x - 2x - 8 = 0 \Rightarrow (x + 4)(x - 2) = 0$$

$$\Rightarrow x + 4 \neq 0 \text{ but } x - 2 = 0 \Rightarrow x = 2$$

$$\cos^2 A = \left(\frac{x+2}{2\sqrt{5}} \right)^2 = \left(\frac{2+2}{2\sqrt{5}} \right)^2 = \frac{16}{20} = \frac{4}{5}$$

$$\cos^2 C = \left(\frac{x}{2\sqrt{5}} \right)^2 = \left(\frac{2}{2\sqrt{5}} \right)^2 = \frac{1}{5}$$

$$\therefore \cos^2 A - \cos^2 C = \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

111. (C) Diameter of circle = breadth of park = 28 m.

$$\therefore \text{radius of circle} = \frac{28}{2} = 14 \text{ m.}$$

$$\therefore \text{area of circle} = \pi r^2 = \frac{22}{7} \times 14 \times 14 = 616 \text{ m}^2$$

$$\text{and area of rectangle} = 40 \times 28 = 1120 \text{ m}^2$$

$$\therefore \text{required area} = 1120 - 616 = 504 \text{ m}^2$$

112. (C) Short trick

$$\frac{S_1}{S_2} = \sqrt{\frac{t_2}{t_1}}$$

$$\text{Where } S_2 = 56 \text{ km/hr, } t_1 = 64 \text{ minutes, } t_2 = 100 \text{ minutes}$$

$$\Rightarrow \frac{S_1}{56} = \sqrt{\frac{100}{64}}$$

$$\Rightarrow S_1 = 56 \times \frac{10}{8} = 70 \text{ km/hr}$$

113. (C) Installment (I) = ₹ 1210, R = 10%
We know (for two installment)

$$I = \frac{\text{Principle}}{\left(\frac{100}{100+R} \right) + \left(\frac{100}{100+R} \right)^2}$$

$$\Rightarrow 1210 = \frac{\text{Principle}}{\frac{10}{11} + \frac{100}{121}}$$

$$\Rightarrow \text{Principle} = 1210 \times \left(\frac{110+100}{121} \right)$$

$$= \frac{1210 \times 210}{121}$$

$$\text{Principle} = ₹ 2100$$

114. (A) Fresh fruit has 68% water, so 32% is fruit content. Dry fruit has 20% water, so 80% is fruit content.

Let weight of dry fruit is y kg.

ATQ,

$$\therefore \frac{32}{100} \times 100 = \frac{80}{100} \times y$$

$$\Rightarrow y = 40 \text{ gm}$$

115. (D) He gives after discount = $\frac{80 \times 120}{100} = 96$ cms

Promise is that he will provides 96 cm

but he gives = 80 cm

$$P = 96 - 80 = 16 \text{ cms}$$

$$\therefore P\% = \frac{16 \times 100}{80} = 20\%$$

116. (B) $t = \frac{1}{2}$ years, $r = 4\%$ pa

$$\text{S.I.} = ₹ 150$$

$$\text{Here, } 150 = \frac{P \times 4}{100} \times \frac{1}{2}$$

$$\therefore P = 150 \times 25 \times 2 = ₹ 7500$$

117. (C) Let distance = x km and speed = y km/h
Then ATQ,

$$\frac{x}{y} - \frac{x}{y+3} = \frac{40}{60} \quad \dots(i)$$

$$\frac{x}{y-2} - \frac{x}{y} = \frac{40}{60} \quad \dots(ii)$$

By equation (i), we have

$$9x = 2y(y-3) \quad \dots(iii)$$

By equation (ii), we have

$$6x = 2y(y-2) \quad \dots(iv)$$

by solving equation (iii) and (iv) we have

$$x = 40 \text{ km and } y = 12 \text{ km/hr}$$

118. (C) $x + \frac{1}{x} = 2 \Rightarrow \left(x + \frac{1}{x}\right)^2 = 2^2$

$\therefore x^2 + \frac{1}{x^2} + 2 = 4 \Rightarrow x^2 + \frac{1}{x^2} = 2$

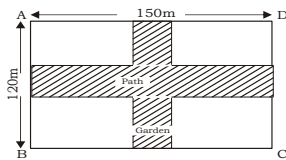
$\Rightarrow \left(x^2 + \frac{1}{x^2}\right)^3 = 2^3$

$\Rightarrow (x^2)^3 + \left(\frac{1}{x^2}\right)^3 + 3 \cdot x^2 \cdot \frac{1}{x^2} \left(x^2 + \frac{1}{x^2}\right) = 8$

$\Rightarrow x^6 + \frac{1}{x^6} + 3 \times 1 \times 2 = 8$

$\Rightarrow x^6 + \frac{1}{x^6} = 8 - 6 = 2$

119. (A) Area of two paths = $10 \times (150 + 120 - 10)$
= $10 \times 260 = 2600\text{m}^2$



Cost of graveling the path = 2600×2
= ₹ 5200

120. (D) $x = \sqrt{11} + \sqrt{5}$

$\Rightarrow x^2 = 11 + 5 + 2\sqrt{55} = 16 + 2\sqrt{55}$

$y = \sqrt{10} + \sqrt{6}$

$\Rightarrow y^2 = 10 + 6 + 2\sqrt{60} = 16 + 2\sqrt{60}$

$z = \sqrt{3} + \sqrt{13}$

$\Rightarrow z^2 = 3 + 13 + 2\sqrt{39} = 16 + 2\sqrt{39}$

Hence, $y > x > z$

121. (B) Sum of angles of regular pentagon

= $(2n - 4) \times 90^\circ$

= $(2 \times 5 - 4) \times 90^\circ = 540^\circ$

\Rightarrow each angle of regular pentagon

= $\frac{540^\circ}{5} = 108^\circ$

sum of angle of regular hexagon

= $(2n - 4) \times 90^\circ$

= $(2 \times 6 - 4) \times 90^\circ = 720^\circ$

\Rightarrow each angle of regular hexagon

= $\frac{720^\circ}{6} = 120^\circ$

\Rightarrow ratio between each angle

= $108 : 120 = 9 : 10$

122. (D) \therefore Slant height (l) = $\sqrt{h^2 + r^2}$

\Rightarrow Slant surface area = $\pi r l = \pi r \cdot \sqrt{h^2 + r^2}$

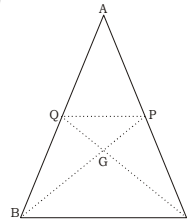
and volume = $\frac{1}{3} \pi r^2 h$

$\Rightarrow \frac{1}{3} \pi r^2 h = \pi r \sqrt{h^2 + r^2} \Rightarrow \frac{rh}{3} = \sqrt{h^2 + r^2}$

$\Rightarrow \left(\frac{rh}{3}\right)^2 = h^2 + r^2 \Rightarrow \frac{h^2 + r^2}{h^2 r^2} = \frac{1}{9}$

$\Rightarrow \frac{1}{r^2} + \frac{1}{h^2} = \frac{1}{9}$ units

123. (B)



In the figure BP and CQ are medians meeting at point G.

$\Rightarrow \Delta BGC = \frac{1}{3} \times \Delta ABC$

$\therefore QP = \frac{BC}{2}$

$\Rightarrow \Delta PGQ : \Delta BGC = 1 : 4$

$\Rightarrow \Delta PGQ : \frac{1}{3} \Delta ABC = 1 : 4$

$\Rightarrow \Delta PGQ : \Delta ABC = 1 : 12$

124. (C) Required run rate = $\left(\frac{300 - (2.5 \times 15)}{35}\right)$

= $\frac{262.5}{35} = 7.5$

125. (C) Given series $1 + 3 + 5 + 7 + \dots + 99$
Number of terms between 1 to 99

= $\frac{1 + 99}{2} = 50$

So, sum of 50 terms/odd numbers

= $50^2 = 2500$

126. (B) Let Rate = R%, then time = R years

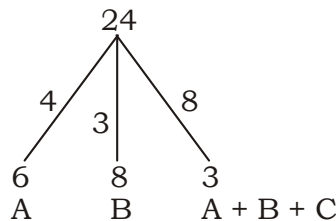
P = ₹ 5,00,000, S.I = ₹ 80,000

$80,000 = \frac{5,00,000 \times R \times R}{100}$

$\Rightarrow R^2 = 16$

$\Rightarrow R = 4\%$

127. (B)



C's share = $3 \times \frac{8 - (4 + 3)}{24} \times 32000$

= ₹ 4000

128. (B) HCF of 25.97 & 16.43 = 0.53

Required number of tiles = $\frac{25.97 \times 16.43}{0.53 \times 0.53}$
= 1519

129. (B) $\left[\left\{ \sqrt{\left(\sqrt{5}\right)^{\frac{1}{2}}} \right\}^{\frac{3}{8}} \right]^{32} - \left[\left\{ \sqrt{\left(5\right)^{\frac{1}{8}}} \right\}^{\frac{1}{2}} \right]^{16}$

= $\left[\left\{ 5^{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} \right\}^{\frac{3}{8}} \right]^{32} - \left[5^{\frac{1}{8} \times \frac{1}{2}} \right]^{16}$

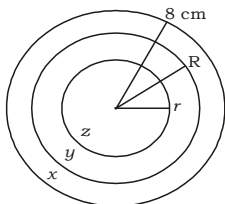
= $\left[5^{\frac{1}{8} \times \frac{3}{8} \times 32} \right] - \left[5^{\frac{1}{2} \times 16} \right]$

= $5^{\frac{3}{2}} - 5^{\frac{1}{2}} = 5\sqrt{5} - \sqrt{5}$

130. (C) Area of $z = \frac{\pi 8^2}{3}$

$\therefore \pi r^2 = \frac{\pi \cdot 8^2}{3} \Rightarrow r^2 = \frac{8^2}{3}$

$\therefore r = \frac{8}{\sqrt{3}}$



area of $y = \frac{\pi 8^2}{3}$

$\therefore \pi R^2 - \pi r^2 = \frac{\pi 8^2}{3}$

$R^2 - r^2 = \frac{8^2}{3}$

$\therefore R^2 - \frac{8^2}{3} = \frac{8^2}{3}$

$\Rightarrow R^2 = \frac{8^2}{3} + \frac{8^2}{3} = \frac{64}{3} + \frac{64}{3} = \frac{128}{3}$

$\therefore R = \sqrt{\frac{128}{3}} = \frac{8\sqrt{2}}{\sqrt{3}}$

\therefore The ratio of radii = $8 : R : r$

= $8 : \frac{8\sqrt{2}}{\sqrt{3}} : \frac{8}{\sqrt{3}}$

= $1 : \frac{\sqrt{2}}{\sqrt{3}} : \frac{1}{\sqrt{3}} = \sqrt{3} : \sqrt{2} : 1$

\therefore The ratio in ascending order = $1 : \sqrt{2} : \sqrt{3}$

131. (B) $\frac{\cos \theta}{1 - \sin \theta} + \frac{\cos \theta}{1 + \sin \theta} = 4$

$\frac{\cos \theta (1 + \sin \theta + 1 - \sin \theta)}{1 + \sin^2 \theta} = 4$

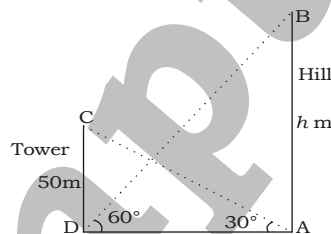
$\frac{\cos \theta \times 2}{\cos^2 \theta} = 4 \Rightarrow \frac{2}{\cos \theta} = \frac{4}{1}$

$4 \cos \theta = 2 \Rightarrow \cos \theta = \frac{1}{2} = \cos 60^\circ$

$\Rightarrow \cos \theta = \cos 60^\circ \Rightarrow \theta = 60^\circ$

132. (B) In the figure CD is tower and AB is hill on the same plane

In $\triangle ADC$, $\tan 30^\circ = \frac{CD}{AD}$



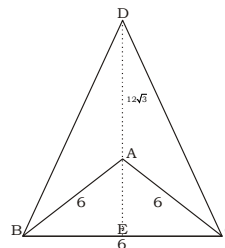
$\therefore \frac{1}{\sqrt{3}} = \frac{50}{AD} \Rightarrow AD = 50\sqrt{3} \text{ m}$

In $\triangle ABD$, $\tan 60^\circ = \frac{AB}{AD}$

$\therefore \sqrt{3} = \frac{h}{50\sqrt{3}} \Rightarrow h = \sqrt{3} \times 50\sqrt{3} = 150 \text{ m}$

\therefore height of the hill AB = 150 m.

133. (A)



In the figure, equilateral triangle ABC is the base of the pyramid.

Where $AB = BC = CA = 6 \text{ cm}$

\Rightarrow Volume of the pyramid

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

= $\frac{1}{3} \times \frac{\sqrt{3}}{4} \times 6 \times 6 \times 12\sqrt{3} = 108 \text{ cm}^3$

134. (D) $2 \sin \alpha + 15 \cos^2 \alpha = 7$

$\Rightarrow 2 \sin \alpha + 15 (1 - \sin^2 \alpha) = 7$

$\therefore 2 \sin \alpha + 15 - 15 \sin^2 \alpha = 7$

$$\begin{aligned} \Rightarrow 15 \sin^2 \alpha - 2 \sin \alpha - 8 &= 0 \\ \therefore 15 \sin^2 \alpha - 12 \sin \alpha + 10 \sin \alpha - 8 &= 0 \\ \therefore 3 \sin \alpha (5 \sin \alpha - 4) + 2(5 \sin \alpha - 4) &= 0 \\ \therefore (5 \sin \alpha - 4) (3 \sin \alpha + 2) &= 0 \\ \therefore 3 \sin \alpha + 2 \neq 0 \text{ but } 5 \sin \alpha - 4 &= 0 \end{aligned}$$

$$\begin{aligned} \therefore 5 \sin \alpha = 4 \Rightarrow \sin \alpha &= \frac{4}{5} = \frac{\text{Perpendicular}}{\text{hypotenuse}} \\ \therefore \text{base}^2 &= \text{hypotenuse}^2 - \text{perpendicular}^2 \\ &= 25 - 16 = 9 \\ \Rightarrow \text{Base} &= 3 \end{aligned}$$

$$\therefore \cot \alpha = \frac{\text{base}}{\text{Perpendicular}} = \frac{3}{4}$$

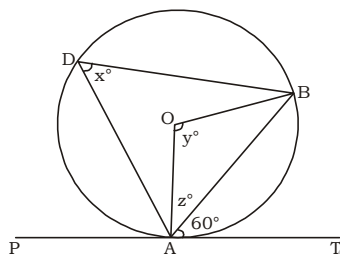
135. (A) $a + \frac{1}{a} = 1 \Rightarrow \left(a + \frac{1}{a}\right)^3 = 1^3$

$$\Rightarrow a^3 + \frac{1}{a^3} + 3 \times a \times \frac{1}{a} \times \left(a + \frac{1}{a}\right) = 1$$

$$\Rightarrow a^3 + \frac{1}{a^3} + 3 = 1 \Rightarrow a^3 + \frac{1}{a^3} = -2$$

$$\Rightarrow a^3 + \frac{1}{a^3} = -1 - 1 \Rightarrow a^3 = -1$$

136. (C)



$\therefore x^\circ$ is a angle in the alternative segment for $\angle BAT$

$$\Rightarrow \angle BAT = x = 60^\circ$$

$\therefore y^\circ$ is angle at centre and x° is angle in remaining arc

$$\Rightarrow y^\circ = x \times 2 = 120^\circ$$

\therefore in $\triangle OAB$, $\angle OBA = \angle OAB = z^\circ$

$$\Rightarrow y + z + z = 180^\circ$$

$$\Rightarrow 120^\circ + 2z = 180^\circ$$

$$\Rightarrow z = 30^\circ$$

137. (A)

$$5m + 5w = \frac{660}{3} = 220$$

$$\times 2 \quad 10m + 20w = \frac{3500}{5} = 700 \quad \dots(ii)$$

$$10m + 10w = 220 \times 2 = 440 \quad \dots(i)$$

(Subtracting (i) from (ii))

$$10w = 700 - 440 = 260$$

$$\therefore 1 w = \frac{260}{10} = ₹ 26$$

$$\text{Now, } 5m + 5w = 220$$

$$5m + 5 \times 26 = 220$$

$$\therefore 1 m = \frac{220 - 130}{5} = \frac{90}{5} = ₹ 18$$

Now, the required number of days

$$= \frac{1060}{(6 \times 18 + 4 \times 26)} = \frac{1060}{212} = 5 \text{ days}$$

138. (B) Let B join the business for x months.

ATQ,

$$450 \times 12 : 300 \times x = 2 : 1$$

$$\Rightarrow \frac{5400}{300x} = \frac{2}{1}$$

$$\Rightarrow x = 9 \text{ months}$$

Hence, after $12 - 9 = 3$ months B joins the business.

139. (A) $x + \frac{1}{x} = 4$

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

$$\Rightarrow \left(x - \frac{1}{x}\right)^2 = 12$$

$$\Rightarrow x - \frac{1}{x} = 2\sqrt{3}$$

140. (B) Let the distances be $2x$, $3x$ and $5x$ km covered by Priyanka. Then,

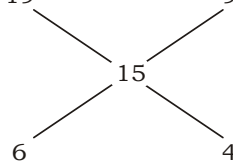
$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Required average speed

$$= \frac{2x + 3x + 5x}{\frac{2x}{10} + \frac{3x}{15} + \frac{5x}{20}} = \frac{10x}{39x} \times 60$$

$$= \frac{200}{13} = 15 \frac{5}{13} \text{ km/hr}$$

141. (B) Gold 19, Copper 9



$$\therefore \text{Gold} : \text{Copper} = 6 : 4 = 3 : 2$$

142. (A) Let the CP of first article = ₹ x then the CP of second article = ₹ $(7500 - x)$

ATQ,

$$\text{SP of first article} = ₹ \frac{6x}{5}$$

Campus
KD Campus Pvt. Ltd

PLOT NO.2, SSI INDUSTRIAL AREA, G.T. KARNAL ROAD, JAHANGIRPURI, DELHI

$$\text{SP of second article} = ₹ \left\{ \frac{7500 - x}{2} \right\}$$

$$\text{Given, } x = ₹ \left\{ \frac{7500 - x}{2} \right\}$$

$$\Rightarrow x = ₹ 2500$$

i.e. CP of first article = ₹ 2500

SP of first article will be = ₹ 3000

i.e. Profit = ₹ 500

and

CP of second article = 7500 - 2500 = 5000

SP of second article will be = 2500

i.e. Loss = ₹ 2500

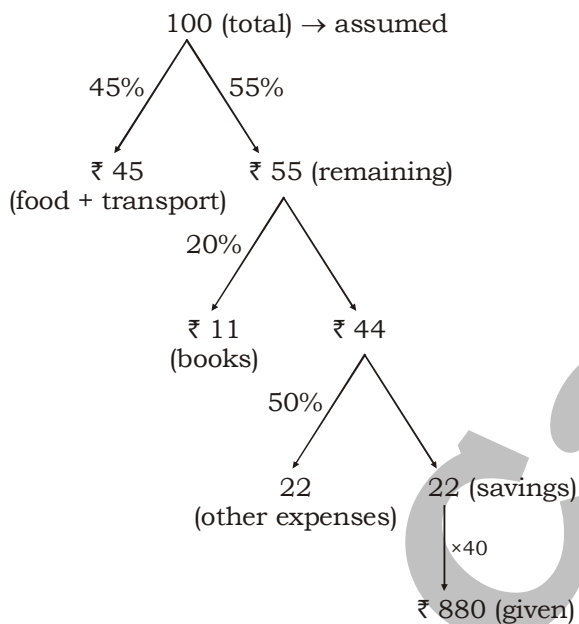
So, over all loss = ₹ 2000

143. (D) Average of 48 numbers = 0

$$\Rightarrow \text{Sum of 48 numbers} = 0 \times 48 = 0$$

It is quite possible that 47 of these numbers may be positive & if their sum is R then 48th number is (-R).

144. (B)



$$\Rightarrow \text{Income} = 100 \times 40 = ₹ 4000$$

145. (A) Decreased angles be $2x^\circ$, $3x^\circ$, $5x^\circ$

\therefore Real angles would be $(2x + 15)^\circ$, $(3x + 15)^\circ$, $(5x + 15)^\circ$

$$\therefore 2x + 15 + 3x + 15 + 5x + 15 = 180$$

$$\therefore 10x + 45 = 180 \Rightarrow 10x = 135 \Rightarrow x = \frac{135}{10}$$

\therefore Greatest angle = $(5x + 15)^\circ$

$$= \left(5 \times \frac{135}{10} + 15 \right)^\circ = \left(\frac{135}{2} + 15 \right)^\circ = \left(\frac{165}{2} \right)^\circ$$

$$\therefore \text{The radian measure} = \left(\frac{165}{2} \right)^\circ \times \frac{\pi}{180^\circ}$$

$$= \frac{11}{24} \pi$$

146. (A) Total number of people in all six cities

$$= \frac{10,000 \times 100}{20} = 50,000$$

Total population of city A

$$= 50,000 \times \frac{20}{100} = 10,000$$

Number of females in city A = 50% = 5000

147. (B) Total_B = $\frac{50,000 \times 10}{100} = 5000$

Males are 30%, so females

$$= 100 - 30 = 70\%$$

$$\text{Difference} = 70 - 30 = 40\%$$

$$\text{Required answer} = \frac{5000 \times 40}{100} = 2000$$

148. (B) Female_E = $50,000 \times \frac{10}{100} \times \left(\frac{100 - 60}{100} \right)$

$$= 5000 \times \frac{2}{5} = 2000$$

$$\text{Female}_F = 50,000 \times \frac{20}{100} \times \left(\frac{100 - 50}{100} \right)$$

$$= 10,000 \times \frac{1}{2} = 5000$$

$$\text{Required \%} = \frac{5000}{2000} \times 100 = 250\%$$

149. (A) Total males = $\frac{50,000}{100 \times 100} \{20 \times 50 + 10 \times$

$$30 + 25 \times 20 + 15 \times 40 + 10 \times 60 + 20 \times 50\}$$

$$= 5 \{1000 + 300 + 500 + 600 + 600 + 1000\}$$

$$= 5 \times 4000 = 20,000$$

150. (D) Total population in all six cities = 50,000

Total females in all six cities

$$= 50,000 - 20,000 = 30,000$$

$$\text{Required \%} = \frac{30,000}{50,000} \times 100 = 3 \times 20 = 60\%$$

MEANINGS IN ALPHABETICAL ORDER

Word	Meaning in English	Meaning in Hindi
Absolve	To state formally that somebody is not guilty or responsible for something	दोष मुक्त करना
Acoustics	Of or relating to sound	ध्वनि संबंधित
Agnostic	A person who believes that it is not possible to know whether God exists or not	अनीश्वरवादी
Agronomy	The science of soil management and crop production	कृषि विज्ञान
Allegory	A story in which the characters and events are symbols that stand for ideas about human life or for a political or historical situation	रूपक कथा, दृष्टांत
Applaud	To express praise for somebody/something because you approve of them or it	सराहना करना
Belligerent	Unfriendly and Aggressive	लड़ाकू
Collusion	Secret agreement especially in order to do something dishonest or to trick people	साँठ-गाँठ, मिली भगत
Comely	Pleasing in appearance : pretty or attractive	सुहावना, मनोरम
Corroborate	To provide evidence or information that supports a statement, theory, etc	पुष्टि करना
Crestfallen	Sad and disappointed because you have failed and you did not expect to	हतोत्साहित, निराश
Despair	The feeling of having lost all hope	निराशा
Despondency	A feeling of being sad and without much hope	निराशा, अवसाद
Elation	A feeling of great happiness and excitement	प्रफुल्लता, उत्साह
Fancies	To want something or want to do something	चाह, इच्छा
Fastidious	Very attentive to and concerned about accuracy and detail	तुनक मिजाज, नकचढ़ा
Hedonist	A person who believes that the pursuit of pleasure is the most important thing in life	सुखवादी
Iconolast	A person who criticizes popular beliefs or established customs and ideas	परम्परा तोड़ने वाला
Indignant	Angered at something unjust or wrong	क्रोधित
Notion	An idea, a belief or an understanding of something	धारणा
Obstruct	To slow or block the movement, progress, or action of (something or someone)	बाधा डालना, रोकना
Paronym	A word that is a derivative of another and has a related meaning	व्युत्पन्न शब्द
Peculiarity	A strange or unusual feature or habit	विलक्षणता, विशेषलक्षण
Philanderer	A person who readily or frequently enters into casual sexual relationships	व्यभिचारी
Pragmatic	Solving problems in a practical and sensible way rather than by having fixed ideas or theories	व्यावहारिक
Reinforce	Make stronger	सुदृढ़ बनाना
Second	To give support or one's approval to	समर्थन करना
Sojourn	A temporary stay	थोड़े समय के लिए कहीं पर ठहरना
Stoic	One who is indifferant to pleasure and pain	तटस्थः
Triumphant	Showing great satisfaction or joy about a victory or success	सफलता का हर्ष मनाने वाला प्रफुल्लित
Urges	To recommend something strongly	जोर देकर समर्थन करना

CPO MOCK TEST - 37 (ANSWER KEY)

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

151. (B) Use 'is' after 'Priya', as the sentence is not interrogative
152. (B) Change 'awaiting' into 'waiting'.
153. (C) Add 'more' before 'amusing'. Both 'more amusing' and 'cleverer' must be in the same degree because both the adjectives are joined by a conjunction.
154. (C) Add 'to' after 'go', as there is a destination already specified.
155. (B) 'Collision' is an appropriate word, which means 'a crash between two or more things'. 'Collusion' means 'secret cooperation for an illegal or dishonest purpose'.
160. (B) Since the sentence is positive question tag must be negative and 'I'll get late' is the main sentence.
176. (B) Going by the sense of the sentence the following sentence should be in passive form (i.e., ... they had been cheated.) as 'they had cheated' means 'they had performed the act of cheating', which gives wrong meaning to the entire sentence.
178. (A) Since, the sentence is in passive form and 'Technology' in this sentence acts as an object to be fed here.
179. (B) 'Beware' is a verb which means 'to be careful'. 'Aware' is an adjective which means 'knowing and understanding'.
180. (B)