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CBT I (Mathematics, Mental Ability, General Science & General Awareness)

- Ans.1(A)** Sir William Jones founded the "Asiatic Society" a Calcutta in Colonial India.
- Ans.2(C)** Memory/Keyboard is not a part of the multimedia presentation.
- Ans.3(B)** In human for generation of the artificial pulse, we use Pacemaker.
- Ans.4(D)** Piyush Goyal led an Indian delegation for the G20 ministerial meeting on trade and digital economy held in Japan.
- Ans.5(D)**
- Ans.6(C)**
- Ans.7(D)**
- Ans.8(B)**
- Ans.9(A)**
- Ans.10(D)** Nagaland
- Ans.11(C)**
- Ans.12(C)** Rohit Sharma
- Ans.13(C)** Madison Keys
- Ans.15(B)**
- Ans.16(C)** Russia
- Ans.17(C)** Tamil Nadu
- Ans.18(B)** 1976
- Ans.19(D)** The Parliament
- Ans.20(A)**
- Ans.21(D)**
- Ans.22(C)**
- Ans.23(C)** Uttar Pradesh Chief Minister Yogi Adityanath will unveil a seven-foot tall statue of Lord Ram in Ayodhya City.
- Ans.24(B)**
- Ans.25(C)** Ankia Naat-assam
- Ans.26(B)**
- Ans.27(A)** Razia Sultana
- Ans.28(D)** Variable cost reserve ratios
- Ans.29(C)** 25 years
- Ans.30(D)** Consumer's Equilibrium
- Ans.31(C)** Tertiary
- Ans.32(D)** Credit Rationing
- Ans.33(C)** Isohyets lines
- Ans.34(C)**
- Ans.35(C)**
- Ans.36(C)** Old oil paintings become black due to the formation of PbS.
- Ans.37(A)** The complementary colour of yellow is Blue.
- Ans.38(D)** Blood group B Can receive blood from blood group B and O. blood group O is called a universal donor. and blood group AB is called universal acceptor.
- Ans.39(C)** Shivaji is the name of that Maratha King who bravely fought against Aurangzeb.
- Ans.40(A)** CRPF Mahila Contingent
- Ans.41(C)** $a^3+b^3+b^3-3abc$
 $= \frac{1}{2}(a+b+c)[(a-b)^2(b-c)^2+(c-a)^2]$
 $= \frac{1}{2}(29+25+23)[(29-25)^2+(25-23)^2+(23-29)^2]$
 $= \frac{1}{2} \times 77 \times [4^2+2^2+6^2]$
 $= \frac{1}{2} \times 77 \times 56 = 2156$
- Ans.42(D)** $x + 1/x = 8$
 $x^2 + 1/x^2 + 2 = 64$
 $x^2 + 1/x^2 = 62$
 $\Rightarrow \frac{x^4+3x^3+5x^2+3x+1}{x^4+1}$

$$\begin{aligned} &\Rightarrow \frac{x^4+1+3x^3+3x+5x^2}{x^4+1} \\ &\Rightarrow \frac{x^2(x^2+\frac{1}{x^2})+3x^2(1+\frac{1}{x})+5x^2}{x^2(x^2+\frac{1}{x^2})} \\ &\Rightarrow \frac{(x^2+\frac{1}{x^2})+3(x+\frac{1}{x})+5}{(x^2+\frac{1}{x^2})} \\ &= \frac{62+3 \times 6+5}{62} = \frac{85}{62} \\ &= 1 \frac{23}{62} \end{aligned}$$

Ans.43(B) $(\sin\theta + \cos\theta)(\sin^2\theta + \cos^2\theta - \sin\theta \cdot \cos\theta)$
 $(\sin^3\theta + \cos^3\theta)$

Ans.44(A) $\tan 2A = \frac{2 \times \tan A}{1 - \tan^2 A} = \frac{2 \times \frac{3}{4}}{1 - (3/4)^2} = \frac{3}{2} \times \frac{16}{7} = \frac{24}{7}$
 $\tan(2A+B) = \frac{\tan 2A + \tan B}{1 - \tan 2A \cdot \tan B}$
 $= \frac{\frac{24}{7} + \frac{1}{7}}{1 - \frac{24}{7} \times \frac{1}{7}} = 7$

Ans.45(D) $T_n = \frac{1}{x(x+1)} = (\frac{1}{x} - \frac{1}{x+1})$
 So, $(\frac{1}{1} - \frac{1}{2}) + (\frac{1}{2} - \frac{1}{3}) + (\frac{1}{3} - \frac{1}{4}) + (\frac{1}{4} - \frac{1}{5}) + \dots + (\frac{1}{x} - \frac{1}{x+1})$
 $\Rightarrow (1 - \frac{1}{x+1}) \Rightarrow \frac{x}{x+1}$

Ans.46(C) Area of garden = $28 \times 22 = 616 \text{ m}^2$
 ATQ-
 $\pi r^2 = 616$
 $r = 14 \text{ m}$
 Perimeter of circle = $2\pi r = 2 \times \frac{22}{7} \times 14$
 $= 88 \text{ m}$

Ans.47(A) $\frac{1}{1+\sqrt{2}} = \frac{(\sqrt{2}-1)}{(\sqrt{2}+1)(\sqrt{2}-1)} = (\sqrt{2}-1)$
 thus, $\frac{1}{\sqrt{3}+\sqrt{2}} = \frac{(\sqrt{3}-\sqrt{2})}{(\sqrt{3}+\sqrt{2})(\sqrt{3}-\sqrt{2})} = (\sqrt{3}-\sqrt{2})$
 $= (\sqrt{2}-1) + (\sqrt{3}-\sqrt{2}) + (\sqrt{4}-\sqrt{3}) + (\sqrt{5}-\sqrt{4})$
 $(\sqrt{6}-\sqrt{5}) + (\sqrt{7}-\sqrt{6}) + (\sqrt{8}-\sqrt{7}) + (\sqrt{9}-\sqrt{8})$
 $= \sqrt{9} - 1 = 3 - 1 = 2$

Ans.48(D) $\frac{3^y}{3} + 3^y \cdot 3 = 270$
 $3^y + 9 \cdot 3^y = 270 \times 3$
 $3^y(1+9) = 810$
 $3^y = \frac{810}{10}$
 $3^y = 3^4$
 $Y = 4$

Ans.49(C) Let side of triangle = a cm
 $\frac{\sqrt{3}}{4}a^2 = 64\sqrt{3}$
 $a = 16 \text{ cm}$
 Perimeter = $3 \times 16 = 48 \text{ cm}$

Ans.50(B) DE || BC
 $\frac{DE}{BC} = \frac{AD}{AB} = \frac{AD}{AD+DB} = \frac{7}{7+11} = \frac{7}{18}$
 $\frac{2}{9} + \frac{3}{9} = \frac{38}{99} = \frac{22+33+38}{99} = \frac{93}{99} = .93$

Ans.51(A)

Ans.52(B) Let numbers are $23x$ and $23y$.
 then $23x + 23y = 184$
 $x+y = 8$

$(1,7)$
 $(3,5)$

So, Required numbers = $(23, 23 \times 7)$ or $(23 \times 3, 23 \times 5)$
 $= (23, 161)$ or $(69, 115)$
 Out of these $(23, 161)$ is available in option.

Ans.53(D) Number = $68 \times 260 = 17680$
 $17680 \div 62$
So, Remainder = 10
Ans.54(D) Least 6 digit number = 100000
 $100000 \div 349$
So, remainder = 186
Required number = $100000 + (349 - 186)$
 $= 100163$

Ans.55(C) $36 \div 36 + 1 + 2 \div (5/2)$
 $1 + 1 + 4/5 = 2 \frac{4}{5} = 2.8$

Ans.56(A) Average after 15 innings = $89 - 3(15 - 1)$
 $= 89 - 3 \times 14$
 $= 89 - 42 = 47$

Ans.57(B) Cost price = $\frac{85.5 \times 100}{11 - (-8)}$
 $= \frac{85.5 \times 100}{19} = ₹ 450$

Ans.58(D) Rate = $[(32)^{1/5} - 1] \times 100$
 $= (2 - 1) \times 100 = 100\%$

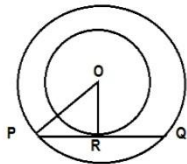
Ans.59(B) A:B = $\frac{1}{8} : \frac{1}{12} = 3:2$
B's share = $\frac{1995}{5} \times 2$
 $= 399 \times 2$
 $= ₹ 798$

Ans.60(C) $\frac{P}{Q} : \frac{Q}{R} : \frac{R}{S} = \frac{8}{5} : \frac{5}{3} : \frac{3}{8} = 192:200:45$

Ans.61(B) Required Ratio = $\frac{3}{2} : \frac{6}{3} : \frac{10}{4}$
 $= \frac{18:24:30}{12} = 3:4:5$

Ans.62(A) Y axis, x = 0
 $-3y = -9$
 $y = 3$
Required point = (0,3)

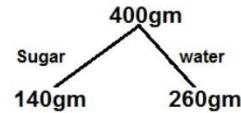
Ans.63(D)



PQ is tangent at point R
OP = 17cm
OR = 15cm
 $\angle PRO = 90^\circ$
From ΔOPR ,
 $PR = \sqrt{17^2 - 15^2}$
 $= \sqrt{64} = 8 \text{ cm}$
 $PQ = 2PR = 8 \times 2 = 16 \text{ cm}$
Required sum = $(n - 2) \times 180 = 540^\circ$

Ans.64(A)

Ans.65(C)



Let x gm sugar be added.
 $\frac{140+x}{260} = \frac{60}{40}$
 $\frac{140+x}{260} = \frac{3}{2}$
 $140+x = 390$
 $x = 250 \text{ gm}$

Ans.66(B) usual time = $\frac{9}{1 \div \frac{3}{5} - 1} = \frac{9}{\frac{2}{3}} = 13.5 \text{ minutes}$

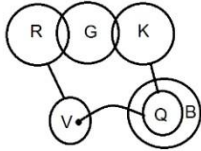
Ans.67(D) Required distance = $\frac{9 \times (12^2 - 4^2)}{2 \times 12} = \frac{9 \times 128}{24} = 48 \text{ km}$

Ans.68(B) Required difference = $G - Y = 960000 - 900000 = 60000$

Ans.69(C) Required % = $\frac{(175+165)-(155+125)}{(155+125)} \times 100$
 $= \frac{(340-280)}{280} \times 100 = \frac{60}{280} \times 100$
 $= 21.4285\% \approx 21.5\%$

Ans.70(D) Required average = $\frac{(145+135+185+175) \times 1000}{4}$
 $= \frac{640000}{4}$
 $= 160000 = 1.6 \text{ lakh}$

Ans.(71-73)

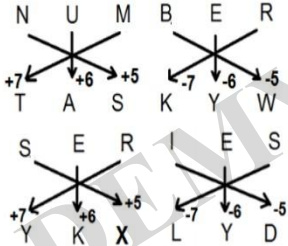


Ans.71(C)

Ans.72(A)

Ans.73(A)

Ans.74(B)



Ans.75(C) $(15)^3 = 3375$
 $(18)^3 = 5832$

Ans.76(D)

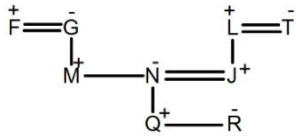
Ans.77(D)

Ans.78(B)

Ans.79(A)

Ans.80(D)

Ans.(81-83)



Ans.81(C)

Ans.82(D)

Ans.83(A)

Ans.(84-87)

Floor	Person
8	Mohan
7	Omkar
6	Qamran
5	Jatin
4	Lokesh
3	Kamlesh
2	Rahul
1	Pankaj

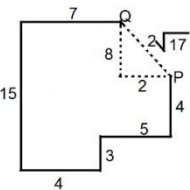
Ans.84(B)

Ans.85(C)

Ans.86(D)

Ans.87(A)

Ans.(88-89)

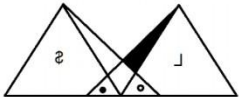


Ans.88(B)
Ans.89(C)
Ans.(90-92)

Word	Code
Darshan	zmn
Dinesh	zpq
Harsh	zas
Adarsh	zbn
Aman	zcd
Bhuvan	zyi
Shivani	zst

Ans.90(B)
Ans.91(D)
Ans.92(A)
Ans.93(A)
Ans.94(B)

Ans.95(A)



Ans.96(A) $364 - 28 + 14 \times 321 \div 264$
After sign change
 $364 \div 28 \times 14 + 321 - 264 = 239$

Ans.97(C)

Ans.98(D) F Opposite B
E Opposite C
A Opposite D

Ans.99(D)

Ans.100(C)

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