Railway NTPC Pre

Solution

RNP-87259858-E

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

Ans.1(B) Vardhamana Mahavira was born in 540 BC in a village Kundagram near Vaishali.

Ans.2(D) Mahabharata was Translated and Renamed as Razmnamah

Text	Works into Persian
Ramayana	Badauni
Lilavati	Faiji
Atharvaveda	Hazi Ibrahim Sarhindi.

Ans.3(B) Article 243 D provides that the entire Panchyayats seat would be reserved for scheduled casted and scheduled tribes in proportion to their population.

Ans.4(B) Yuvraj Singh recently announced his retirement from cricket.

Ans.5(C)

Hausa	north Nigeria
Maoris	New Zealand
Berbers	N. Africa
Ainus	Japan

Ans.6(D) Buland Darwaza is located in Fatehpur Sikri in Agra.

Ans.7(D) Unit Trust of India was established in 1964.

Ans.8(B) Bal Gangadhar Tilak died on the day the non-cooperation movement was launched in 1920.

Ans.9(D) M.C.Mary Kom is the brand ambassador of BSNL.

Ans.10(D) Violet Colour of light shows maximum deviation when passed through a prism.

Ans.11(C) Disinvestment in Public Sector is called Privatisation.

Ans.12(C) Guru Hargovind Sikh Guru called himself the 'Sachcha Badshah'.

Ans.13(C) Subhash Chandra Bose is the autobiographer of 'The Indian Struggle'.

Ans.14(A) Estimates Committee - This committee constitutes of 30 members of Lok Sabha. It does not have Rajya Sabha members.

Ans.15(C) The first African person to become Secretary General of UNO was Boutros Ghali.

Ans.16(C) The theory of Monopolistic Competition has been formulated in the United States of America by Edward Chamberlin.

Ans.17(B) Canis lupus familiaris is the scientific name of Dog

Ans.18(A) BCG stands for Bacilli Calmette Guerin. This is related to Mycobacterium tuberculosis.

Ans.19(D) The kaleidoscope was invented in 1816by Sir David Brewster.

Ans.20(C) Indu Malhotra, a renowned arbitration expert, has become the first woman lawyer to be directly promoted as a judge of the Supreme Court (SC).

Ans.21(B) Heavy Vehicles Factory.

Ans.22(D) Apna

Ans.23(D) Desert soil phosphates and calcium but deficient in Nitrogen and humus.

Ans.24(D) Cotopaxi- Ecuador

Ans.25(A) The constitution of India assures economic Justice to citizens through preamble.

Ans.26(A) Gandhi nagar

Ans.27(D) Singapore dethroned the United States as the most competitive economy in the world as per latest IMD World Competitiveness Ranking.

Ans.28(B) Kishanganga and Ratl

Ans.29(C) CS Dhananjay Shukla

Ans.30(A) Kerala

Ans.31(B) Sun Petrochemicals

Ans.32(D) Uttar Pradesh

Ans.33(A) Justice Alok Aradhe

Ans.34(C) 16%

Ans.35(B) Tropic of Capricorn does not passes through the Bolivia.

Ans.36(B) Largest Indian Folk Variety Dance

Ans.37(C) M. Phil course have been asked to be terminated under the new education policy draft.

Ans.38(B) 20° N and 40° N

Ans.39(B) 06 to 12 May

Ans.40(B) Surface-to-surface missile

Ans.41(B) $\frac{0-5}{X-6} = \frac{0-(-3)}{4-(-2)}$

$\frac{-5}{X-6} = \frac{3}{6}$

-10 = X – 6

x = - 4

Ans.42(D) Interior angle – Exterior angle = 90^0

$\frac{(n-2)\times 180^0}{n} - \frac{360^0}{n} = 90^0$

$\frac{24-4}{6} - \frac{4}{n} = 1$

$\frac{2n-8}{n} = 1$

n = 8

Hence, the polygon contains 8 sides.

Ans.43(A) $(a+b) = a^3+b^3 +3ab\ (a+b)$

$8^3 = 104 + 3ab\ (8)$

512 = 104+24ab

24ab = 408

ab = 17

Ans.44(D) $4N - \frac{4}{N} = -3$

$N - \frac{1}{N} = -3/4$

$(N - \frac{1}{N})^3 = \left(\frac{-3}{4}\right)^3$

$N^3 - \frac{1}{N^3} - 3\times N\times \frac{1}{N}(N - \frac{1}{N}) = \frac{-27}{64}$

$N^3 - \frac{1}{N^3} - 3\times -\frac{3}{4} = \frac{-27}{64}$

$N^3 - \frac{1}{N^3} = \frac{-9}{4} - \frac{27}{64}$

$N^3 - \frac{1}{N^3} + 3 = 3 - \frac{9}{4} - \frac{27}{64}$

$N^3 - \frac{1}{N^3} + 3 = \frac{192-144-27}{64} = \frac{21}{64}$

Ans.45(D) 3m = 4W

$M = \frac{4W}{3}$

$9M+6W = 9\times \frac{4W}{3} + 6\ W = 18W$

4W×45 = 18W×D

D = 10 Days

Ans.46(B) So, Pipe should be clased after

$\left[\left(1 - \frac{9}{12}\right) \times 16\right]$ = 4 hours

Ans.47(C) Average Speed = $\frac{2\times 84\times 66}{(84+66)}$ = 73.92 km/hr

Ans.48(A) Man's rate in still water = $\frac{19+12}{2}$

= 15.5 kmph

Ans.49(D) Rate% = $\frac{2\times(423.315-414)\times 100}{414}$ = 4.5%

Ans.50(B)

Ans.51(D) $(0.2)^{3n} = 0.008$

$\left(\frac{1}{5}\right)^{3n} = \frac{1}{125} = \left(\frac{1}{5}\right)^3$

N = 1

$\left(\frac{1}{4}\right)^{2\times 1} = \frac{1}{16} = .0625$

Ans.52(C) $\frac{3\sqrt{7}(\sqrt{5}-\sqrt{2})}{(\sqrt{5}+\sqrt{2})(\sqrt{5}-\sqrt{2})} - \frac{-5\sqrt{5}(\sqrt{2}-\sqrt{7})}{(\sqrt{2}+\sqrt{7})(\sqrt{2}-\sqrt{7})} + \frac{2\sqrt{14}-2\sqrt{10}}{2}$

$\sqrt{35}$ - $\sqrt{14}$ + $\sqrt{10}$ − $\sqrt{35}$ + −$\sqrt{14}$ - $\sqrt{10}$ = 0

Ans.53(C) $\frac{\sqrt[9]{l^3 + 3l^3 + 3l + 1}}{\sqrt{(l+1)^3}}$

$\sqrt[3]{l+1} = \sqrt{(999+1)} = 10$

Ans.54(D) $\frac{2}{9} + \frac{4}{9} + \frac{5}{9} + \frac{8}{9} + \frac{31}{99} + \frac{57}{99} = S$

$\frac{22+44+55+88+31+57}{99} = S$

$S = \frac{297}{99} = 3$

Ans.55(B) Let number = x

(55%-15%) of x = 11376

40% × x = 11376

X× 85% = $\frac{11376}{40}$ × 85 = 24176

Ans.56(A) Let side of square = a cm.

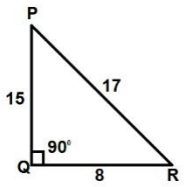
∵ $\sqrt{2}$ .a = 12

a = $6\sqrt{2}$ $cm.$

Area = $\left(6\sqrt{2}\right)^2$ 72 cm²

Ans.57(D) Increased area = 29+29+ $\frac{29\times29}{100}$ = 66.41%

Ans.58(A)



Cos P + Cos R + Sin R = $\frac{15}{17} + \frac{8}{17} + \frac{15}{17} = \frac{38}{17} = 2\frac{4}{17}$

Ans.59(D) $87^0 + 56^0 + 37^0 = 180^0$

$87^0 + 56^0 = 180^0 - 37^0$

Taking tan both sides-

Tan (87^0+56^0) = tan (180^0-37^0) = - tan 37^0

$\frac{\text{Tan } 87^0 + \text{tan } 56^0}{1 - \text{tan } 87^0.\text{Tan } 56^0}$ = - tan 37^0

tan 87^0 + tan 56^0 = - tan 37^0 + tan 87^0 tan 56^0 + an 37^0

tan 87^0 + tan 56^0 + tan 37^0 = tan 87^0 . tan 56^0. tan 37^0

$\frac{tan87°}{tan87°.\ tan56°:tan37°} + \frac{tan\ 56°}{tan87°.\ tan56°:tan37°} + \frac{tan37°}{tan87°.\ tan56°+ tan37°} = 1$

$\frac{1}{tan56°.\ tan37°} + \frac{1}{tan56°.\ tan37°} + \frac{1}{tan87°.\ tan56°} = 1$

Ans.60(A) ∵ We know

If A + B = 45^0

Then (Cot A - 1) (Cot B - 1) = 2

So, In the given equation

$26+19 = 45^0$ and $29^0 + 16^0 = 45$

Hence

2×2 = 4

Ans.61(B) $\sqrt{3} + \frac{1}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} + \frac{1}{3+\sqrt{3}} \times \frac{3-\sqrt{3}}{3-\sqrt{3}} + \frac{1}{\sqrt{3}-3} \times \frac{\sqrt{3}+3}{(\sqrt{3}+3)}$

$\sqrt{3} + \frac{\sqrt{3}}{3} + \frac{3-\sqrt{3}}{6} - \left(\frac{\sqrt{3}+3}{6}\right)$

$\sqrt{3} + \frac{\sqrt{3}}{3} + \frac{1}{2} - \frac{\sqrt{3}}{6} - \frac{\sqrt{3}}{6} - \frac{1}{2}$

$\sqrt{3} + \frac{\sqrt{3}}{3} - \frac{2\sqrt{3}}{6}$

$\sqrt{3} + \frac{\sqrt{3}}{3} - \frac{\sqrt{3}}{3} = \sqrt{3}$

Ans.62(C) Required average

$= \frac{175+200+275+325+425+475}{6}$

$= \frac{1875}{6} = 312.5$

Ans.63(D) Required % increase = $\frac{425-175}{175}$ × 100

= 142.8571% ≈ 143%

Ans.64(B) 2014 → 14. 29% , 2015 → 37.5%

2016 → 18. 18% , 2017 → 30.77%

2018 → 11.76%

Ans.65(A) Required ratio = $\frac{(175+275+475)}{(425+200+325)} = \frac{925}{950} = \frac{37}{38}$

= 37: 38

Ans.66(C) C.P. 2808 × $\frac{100}{130}$ = 2160

Increased S.P = 2160× $\frac{148}{100}$ = 3196.8

Required difference = 3196.8 2160 = 1036.80

Ans.67(D) The required number = $\frac{4158\times54}{378}$ = 594

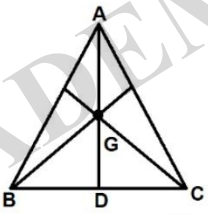
Ans.68(A) $(15^{23}+23^{23})$ is divisible by [(15+23)=38] and hence by 19.

$[15^{23}+23^{23}]$, [15+23=38]

So, on dividing by 19

Remainder = 0

Ans.69(B)



AB = BC = CA = $\frac{48}{3}$ = 16 cm.

BD = DC = 8 cm.

∵ AD ⊥ BC

∴ In Δ ABD

AD = $\sqrt{AB^2 - BD^2} = \sqrt{16^2 - 8^2}$

= $\sqrt{256-64} = \sqrt{192} = 8\sqrt{3}$ cm.

∴ AG = $\frac{2}{3}$ AD = $\frac{2}{3}$ × $8\sqrt{3}$ = $\frac{16}{\sqrt{3}}$ cm.

Ans.70(C) Equation o fine passing through points (1, 5) and (2, 7)

y – 5 = $\frac{7-5}{2-1}$ (x-1)

y = 2x + 3

∵ (K, - 5) lies on this line

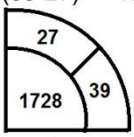
∴ - 5 = 2 K +

-8 = 2 K

K = - 4

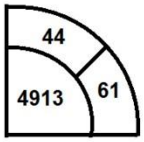
Ans.71(B) In first quadrant

$(39-27)^3 = 1728$



Similarly in second quadrant

$(61-44)^3 = 4913$

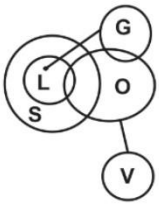


Ans.(72-75)

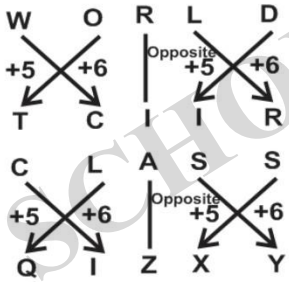
Ans.72(C)
Ans.73(D)
Ans.74(C)
Ans.75(C) Only Omi is looking North direction.
Ans.(76-78)

Word	Code
organisation	zlo
rating	zwe
may	zbg
exchange	zui
India	ztr
credit	zij
board	zte

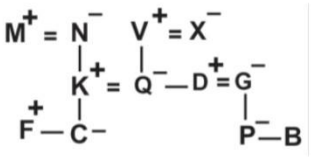
Ans.76(D)
Ans.77(A)
Ans.78(B)
Ans.79(C)
Ans.80(C) Given word does not have "O" .
Ans.(81-83)



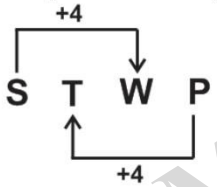
Ans.81(B)
Ans.82(D)
Ans.83(C)
Ans.84(B)
Ans.85(D)
Ans.86(B)



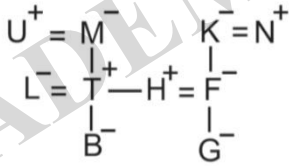
Ans.87(D) Former is country latter is it capital.
Ans.88(C) (17×3) + 9 = 60
(20×3) + 9 =69
Ans.89(A)
Ans.90(C)
Ans.(91-93)



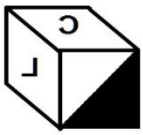
Ans.91(C)
Ans.92(B)
Ans.93(D) Gender of B is not clear.
Ans.94(D) Except "D" all are scientist.
Ans.95(D) Except "D" difference between number is 11
Ans.96(C) Except "C" all follow given pattern.



Ans.(97-98)



Ans.97(C)
Ans.98(C)
Ans.99(B)



Ans.100(A)