Railway NTPC Pre

Solution

RNP-87249855-E

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

Ans.1(C) A style of temple construction
Ans.2(D) Tamil Nadu
Ans.3(C)
Ans.4(A)
Ans.5(B) 1906
Ans.6(A)
Ans.7(C) River Satluj
Ans.8(C) Union territories
Ans.9(A) Climate Change
Ans.10(C) Ujjivan Small Finance Bank
Ans.11(C) Information and broadcasting
Ans.12(C) Rajiv Gandhi
Ans.13(B) 12 October 2005
Ans.14(C)
Ans.15(B) Citizenship
Ans.16(A)
Ans.17(D) Faizabad
Ans.18(B) Punjab National Bank
Ans.19(A) Yusuff Ali
Ans.20(B) Rice
Ans.21(A) Epithelial tissue
Ans.22(A) Electrons in outer most shell
Ans.23(A) Thyroid gland
Ans.24(D)
Ans.25(C)

Ans.26(A) Micheál Martin has been reappointed as Ireland's Taoiseach (Prime Minister) for the second time.
The reappointment took place on January 24, 2025.
Parliamentary protests caused a delay in the reappointment process.
The protests were related to disputes over extended speaking rights for independent lawmakers.
Micheál Martin's coalition with Fine Gael played a significant role in securing his second term.
He also received support from independent Members of Parliament (MPs).
This marks Micheál Martin's second term as Ireland's Prime Minister.

Ans.27(B) Pratibha Patil became India's first woman to receive Mexico's highest civilian honour "Orden Mexicanadel Aguila Azteca" (Order of the Aztec Eagle) for foreigners.

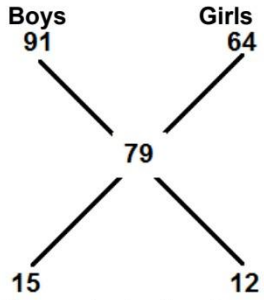
Ans.28(B) Jay Shah, ICC chairman, has been elected to the Marylebone Cricket Club's World Cricket Connects Advisory Board.
The announcement was made on January 24, 2025.
Jay Shah is one of the 13 founding members of the advisory board.
Other prominent founding members include Sourav Ganguly, Kumar Sangakkara, and Graeme Smith.
The advisory board focuses on discussing global cricket issues.
The second World Cricket Connects forum is scheduled to take place in June 2025.

Ans.29(C) Defence Minister Rajnath Singh inaugurated the Battlefield Surveillance System (SANJAY) on January 24, 2025.
SANJAY is an advanced system designed to enhance the Indian Army's reconnaissance capabilities.
The system integrates data from ground and aerial sensors.
It provides real-time surveillance and situational awareness for better decision-making.
SANJAY was developed in collaboration with Bharat Electronics.
The system will be deployed in phases and is expected to be fully operational by October 2025.

Ans.30(A) Recently $ 287 million worth of loan agreement has been signed by World Bank and Tamil Nadu for Health System Reform Programme.

Ans.31(D) Uttar Pradesh Foundation Day celebrations have taken place from January 24 to January 26, 2025, at Awadh Shilp Gram in Lucknow.
The UP Gaurav Samman has been conferred upon six distinguished individuals during the celebrations.
The grand event has been graced by Vice President Jagdeep Dhankhar, Governor Anandiben Patel, and Chief Minister Yogi Adityanath.
The theme for Uttar Pradesh Day 2025 has been "Development and Heritage: Uttar Pradesh on the Path to Progress."
Each UP Gaurav Samman recipient has received ₹11 lakh, a certificate of appreciation, and a shawl.
Awardees include Krishnakant Shukla (Varanasi), Himanshu Gupta (Vrindavan, Mathura), Manish Verma (Kanpur), Krishna Yadav (Bulandshahr), Colonel Subhash Deshwal (Bulandshahr), and Dr Jai Singh (Bahraich).

Ans.32(A) 500 meters
Ans.33(A) Department of Pension & Pensioners' Welfare
Ans.34(B) Dr. Radhakrishnan
Ans.35(C) DRDO
Ans.36(D) Ayushmann Khurrana
Ans.37(B) "Nothing Like Voting, I Vote for Sure"
Ans.38(C)
Ans.39(D) USA
Ans.40(D) Article 47
Ans.41(D) $R = \frac{(900-750)\times100}{(750\times8-900\times6)} = 25\%$
Ans.42(C) C.P. = (93×100)/(100-25)=Rs.124
Profit % = (163.68-124)×100/124=32%
Ans.43(A) Total cost of sugar
= 38×11+42×15=418+630=Rs.1048
Total quantity of sugar = 38+42=80 kg.
∴S.P. = (125/100)×1048=Rs.1310
Rate per kg = 1310/80 = Rs.16.375
Ans.44(D) Let Rohit's present age = 4x years
The present age of his daughter = x years
Present age of his father = 16x/3 years
According to question -
4x + x + 16x/3 = 139.5
x = 13.5
Required difference
= 16x/3 - 4x = 4x/3 = (4 × 13.5)/3 = 18 years
Ans.45(B) Maximum marks = $\frac{(80+30)}{(64-42)} \times 100 = 500$
Passing marks = $500 \times \frac{42}{100} + 80 = 210 + 80$
= 290
Passing % = $\frac{290}{500} \times 100 = 58\ \%$
Ans.46(A) Average sum = 5688/72 = Rs.79



So, required ratio = boys : girls = 15:12=5:4
So, number of girls = $\frac{4}{(5+4)} \times 72 = 32$

Ans.47(C) Let the length of a rectangle be 3y meter.
So, breadth = meter
According to question –
$3y \times y = 22707$
$y^2 = \frac{22707}{3} = 7569$
$y = 87$
So, length of a rectangle plot = 87×3 =261 m.

Ans.48(D) Relative speed = 84 + 168 = 252 km/hr.
$= (252 \times \frac{5}{18})$ m/s = 70 m/s
Let the length of the second train be x meters.
Then, $\frac{x+305}{9} = 70$
x = 325 m.

Ans.49(A) Work in 3 days by all = 3 × (6 + 5 + 4) = 45 unit
R works for last 3 days R= 4 × 3 = 12 unit
Remaining [120 - (45 + 12) = 63 unit] is done by Q and R in = 63/(5+4) = 7 days
Q, R [120 - (45 + 12) = 63 w] = 63/(5+4) = 7
Total time = 3 + 3 + 7 = 13 days

Ans.50(B) Current Ratio = 3 : 5
Ratio of Next year = 3 × 110% : 5 × 88% = 3 : 4
A's Profit A = रु. 4368
Total Profit = 4368 ÷ 3 × 7 = रु.10192

Ans.51(A) Required average = (460×1000)/6
= 76666.66 ≈ 76667

Ans.52(C) Required % = $\frac{(80+65+85)}{(55+55+95)} \times 100 = \frac{230}{205} \times 100$
$= \frac{46}{41} \times 100 = 112.19 \approx 112\%$

Ans.53(D) Required difference = Q - P = 445000 – 440000
= 5000

Ans.54(B) Required ratio = $\frac{(90+95)}{(80+75)} = \frac{185}{155} = \frac{37}{31}$ = 37:31

Ans.55(D) $2^{256} = (x^n - a^n)$ is divisible by (x+a)
$(2^4)^{64} = (16)^{64}$
$\therefore (16^{64} - 1^{64})$ is divisible by (16+1)
So, remainder = 1

Ans.56(A) 130, 260, 390, 520, 650, 780 and 910

Ans.57(B) Let Numbers are 3x and 4x.
H.C.F = 6
Numbers = 18 and 24
L.C.M = 72

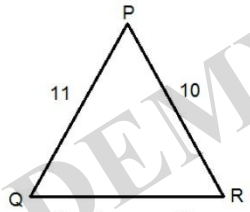
Ans.58(C) $5 \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} \times \frac{6}{7} \times \frac{7}{8} = x$
$5 \times \frac{2}{8} = x$
$x = \frac{5}{4} = 1.25$

Ans.59(D) Let $y = \sqrt{812 + y}$
$y^2 = 812 + y$
$y^2 - y - 812 = 0$
$y = 29, -28(\times)$
So: y=29

Ans.60(D) If a+b+c=0
$\therefore (a+b+c)^2 = 0$
$a^2+b^2+c^2+2ab+2bc+2ca=0$
$a^2+b^2+c^2=-2(ab+bc+ca)$
$(a^2+b^2+c^2)^2=4(ab+bc+ca)^2$---(I)
$\therefore (ab+bc+ca)^2=$
$\Rightarrow a^2b^2+b^2c^2+c^2a^2+2a^2bc+2ab^2c+2abc^2$
$\Rightarrow a^2b^2+b^2c^2+c^2a^2+2abc(a+b+c)$
But a+b+c=0
$(ab+bc+ca)^2=a^2b^2+b^2c^2+c^2a^2$----(II)
$\frac{(a^2+b^2+c^2)^2}{(a^2b^2+b^2c^2+c^2a^2)} = \frac{4(ab+bc+ca)^2}{(ab+bc+ca)^2} = 4$

Ans.61(A) $l^2+m^2+n^2=lm+mn+nl$
$l^2+m^2+n^2-lm-mn-nl=0$
$2l^2+2m^2+2n^2-2lm-2mn-2nl=0$
$(l^2+m^2-2lm)+(m^2+n^2-2mn)+(n^2+l^2-2nl)=0$
$(l-m)^2+(m-n)^2+(n-l)^2=0$
$\therefore l-m=0 \Rightarrow l = m$
$m-n=0 \Rightarrow m=n$
$n-l=0 \Rightarrow n=l$
$\therefore \frac{l+n}{m} = \frac{2l}{l} = 2$

Ans.62(B)



According to question –
$\angle Q + \angle R = 120^0$
$\angle P = 60^0$
From cosine rule :-
$QR^2 = PQ^2 + PR^2 - 2\,PQ.\,PR.\,Cos\,P$
$QR^2 = 11^2 + 10^2 - 2 \times 11 \times 10.Cos60^0$
$QR^2 = 121 + 100 - 2 \times 11 \times 10 \times \frac{1}{2}$
$QR^2 = 221 - 110$
$QR^2 = 111$
$QR = \sqrt{111}$
Required perimeter = $11+10+\sqrt{111}$
$= (21 + \sqrt{111})$cm.

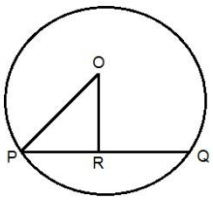
Ans.63(A) $\frac{1-tan\beta}{1+tan\beta} = \frac{Cos\beta - Sin\beta}{Cos\beta + Sin\beta}$
$\Rightarrow \frac{Cos\beta - Sin\beta}{Cos\beta + Sin\beta} \times \frac{(Cos\beta - Sin\beta)}{(Cos\beta - Sin\beta}$
$\Rightarrow \frac{(Cos\beta - Sin\beta)^2}{Cos2\beta}$
$\Rightarrow \frac{Cos^2\beta + Sin^2\beta - 2Cos\beta.Sin\beta}{Cos2\beta}$
$\Rightarrow \frac{1 - Sin2\beta}{Cos2\beta}$
$\because Cos2\,\beta \sqrt{\frac{1-tan\beta}{1+tan\beta}} = \sqrt{Cos^2 2\beta \left(\frac{1-Sin2\beta}{Cos2\beta}\right)}$
$\Rightarrow \sqrt{Cos2\beta(1 - Sin2\beta)}$
$\Rightarrow \sqrt{Cos2\beta - Sin2\beta.\,Cos2\beta}$
$\Rightarrow \sqrt{Cos2\beta - \frac{2Sin2\beta Cos2\beta}{2}}$
$\Rightarrow \sqrt{Cos2\beta - \frac{Sin4\beta}{2}}$

Ans.64(D) $\frac{y-y1}{x-x1} = \tan 135^0$
$\frac{y-7}{x-5} = -1$
y-7= - x+5
x+y-12=0

Ans.65(C) $\frac{(n-2).180^0}{n} : \frac{360^0}{n}$
(n-2) : 2
(17-2) : 2

15:2

Ans.66(C)



OR = 24 cm , PR = RQ = 7 cm.
∴Radius 'OP' = $\sqrt{OR^2 + PR^2}$
= $\sqrt{24^2 + 7^2}$
= $\sqrt{625}$
= 25 cm.
∴Diameter of circle = 25×2=50 cm. = 0.5 m

Ans.67(D) $24=\frac{1}{2}\times 8\times d_2 \Rightarrow d_2=6$ cm.

Ans.68(B) Let length = l
Breadth = b
2 (l+b) = 94
l+b = 47
l+16=47
l = 31
Area of the reactance = 31×16
= 496 cm^2

Ans.69(A) $\tan\theta=2-\sec\theta$
$\tan^2\theta = 4+\sec^2\theta-4\sec\theta$
$\sec^2\theta-\tan^2\theta=4\sec\theta-4$
$4\sec\theta-4=1$ [$\because \sec^2\theta-\tan^2\theta=1$]
$\sec\theta = \frac{5}{4}$
$\therefore \cos\theta=\frac{4}{5}$ and $\sin\theta=\sqrt{1-\left(\frac{4}{5}\right)^2}=\frac{3}{5}$
Then, $\frac{Sin\theta+\cos\theta}{21} = \frac{\frac{3}{5}+\frac{4}{5}}{21} = \frac{7}{5\times 21} = \frac{1}{15}$

Ans.70(B) 8.924 – m=0.4
M = 8.924-0.4
M = 8.524

Ans.(71-73)

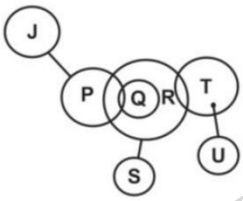
Word		Code
wants	→	rza
Raj	→	rla
Shivam	→	rsa
Shalini	→	rna
looks	→	rda
the	→	rfa
Delhi	→	rwa
to	→	rka / rga
go	→	rga / rka

Ans.71(B)
Ans.72(D)
Ans.73(C)
Ans.(74-77)

Boxes

Doll
Egg
Handkerchief
Flower
Apple
Coins
Books
Grapes

Ans.74(C)
Ans.75(B)
Ans.76(A)
Ans.77(B)
Ans.(78-80)

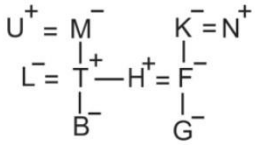


Ans.78(B)
Ans.79(C)
Ans.80(B)
Ans.81(B)
Ans.82(D)
Ans.83(A)
Ans.84(D)

Ans.85(A) Diamond is made from carbon similarly Ruby is made from Corundrum

Ans.86(B) 34 × 28 = 952
42 × 28 = 1176

Ans.87(D) Except "D" all contain vowel.
Ans.88(D) Except "D" all are divisible by "19" .
Ans.89(D) Except "D" all grow underground .
Ans.90(D)
Ans.91(C)
Ans.92(B)
Ans.93(A)
Ans.94(D)
Ans.95(B)
Ans.(96-98)



Ans.96(B)
Ans.97(D)
Ans.98(A)
Ans.99(B)
Ans.100(B)