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Rajnish Bhatnagar

Railway NTPC Pre

Solution

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

- 1.(C) Virus
- 2.(D) $6 - \frac{1}{x} + 7 - \frac{1}{y} + 8 - \frac{1}{z} = 0$
 $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 21$
- 3.(B) $N + \frac{1}{N} = \frac{\sqrt{7}-\sqrt{3}}{\sqrt{7}+\sqrt{3}} + \frac{\sqrt{7}+\sqrt{3}}{\sqrt{7}-\sqrt{3}}$
 $= \frac{(\sqrt{7}-\sqrt{3})^2 + (\sqrt{7}+\sqrt{3})^2}{(\sqrt{7})^2 - (\sqrt{3})^2}$
 $= \frac{7+3-2\sqrt{21}+7+3+2\sqrt{21}}{4}$
 $= \frac{20}{4} = 5$
- 4.(A) Goa
- 5.(D) a mixture
- 6.(C) Manipur
- 7.(C) AB
- 8.(B) existence of both private and public sectors
- 9.(B) 1949
- 10.(B) Chadwick
- 11.(C) $\left(\frac{\sin \theta}{1+\cos \theta}\right)^2 = \frac{(1+\cos \theta)(1-\cos \theta)}{(1+\cos \theta)^2}$
 $\frac{(1-\cos \theta)}{(1+\cos \theta)}$
- 12.(A) Harappa
- 13.(C) the 42nd Amendment Act, 1976
- 14.(C) > 7
- 15.(C) $43 - 9 + 6 \div 3 \times 8 = 43 - 9 + 2 \times 8$
 $= 43 - 9 + 16 = 43 + 7 = 50$
- 16.(B) Suttlej
- 17.(B) $8 = 2^3$
 $15 = 3^1 \times 5^1$
 $24 = 2^3 \times 3^1$
 $72 = 2^3 \times 3^2$
Least Common Multiple = $2^3 \times 3^2 \times 5^1 = 360$
- 18.(D) Stapes
- 19.(D) Philosophy
- 20.(C) 36 to 51
- 21.(A) $MP = \frac{629}{85} \times 100$
 $MP = ₹ 740$
- 22.(D) Kushinagar
- 23.(B)

S U R G E O N
 $+3 \downarrow -3 \downarrow +3 \downarrow -3 \downarrow +3 \downarrow -3 \downarrow +3 \downarrow$
V R U D H L Q $\xrightarrow{\text{Reverse}}$ QLHDURV

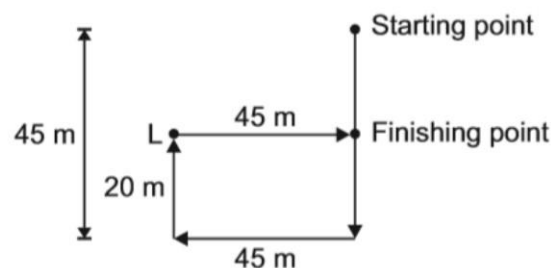
Similarly,

S H A D O W
 $+3 \downarrow -3 \downarrow +3 \downarrow -3 \downarrow +3 \downarrow -3 \downarrow$
V E D A R T $\xrightarrow{\text{Reverse}}$ TRADEV

- 24.(C) Venus
- 25.(B) $14 \div 2 \times 4 > 6 \times 4$
 $28 > 24$

26.(C) $\frac{8268 - 82}{9900} = \frac{8186}{9900} = \frac{4093}{4950}$

27.(B)



Required distance = 45 m

28.(B) Baghelbhim

29.(C) $P = 8000 \times \frac{110}{100} \times \frac{120}{100} = 10560$

30.(B) Edward Jenner

31.(A) Akbar

32.(B) $SI = P = \frac{P \times R \times 10}{100}$

$R = 10\%$

33.(D) NABARD

34.(D) ALU

35.(D) Let the CP is 100%
SP if loss is 5% = 95%
SP if gain is 5% = 105%
So, 10% = 80
100% = ₹ 800

Hence, the cost price of typewriter = ₹ 800

36.(A) We know that any action has some effects but it is difficult to assume that the Government may favourably consider the views of the employees.

37.(C) Hydrogen

38.(B) 12 men → 24 days

1 man → 12×24 days

8 men → $\frac{12 \times 24}{8} = 36$ days

39.(C) Let the number be a, b and c.

$a : b = 2 : 3$, $b : c = 4 : 5$

$a : b : c = 8 : 12 : 15$

$b = \frac{315}{35} \times 12 = 108$

40.(D) Monte Carlo

41.(A) Common part of carnivorous and plant which is not green is 'd'. So, 'd' represents carnivorous plants which are not green.

42.(A) Steel is an alloy, and zinc is a metal.

43.(B)

Q I O K
 $-4 \downarrow +4 \downarrow -4 \downarrow +4 \downarrow$
M M K O

Similarly,

Y A W C
 $-4 \downarrow +4 \downarrow -4 \downarrow +4 \downarrow$
U E S G

∴ ? = UESG

44.(B) $0.01 \xrightarrow{(0.01)^2} 0.0001$

Similarly,

$0.05 \xrightarrow{(0.05)^2} 0.0025$

$\therefore ? = 0.0025$

45.(B) Common part of yellow and Birds is $25 + 7 = 32$. So, there will be 32 yellow birds.

46.(B) Decreases

47.(A) $\frac{26000}{100} \times 8 = ₹ 2080$

48.(C) $(42 - 15) \times \frac{26000}{100} = ₹ 7020$

49.(B) $\frac{26000 - 22000}{100} \times 17 = ₹ 680$

50.(B) Common part of water and tap + common part of water and shower = $43 + 68 = 111$

51.(B) Only II is implicit.

52.(B) In $\triangle BOC$,
 $\angle BOC = 2(180 - 100) = 160^\circ$

$\angle OCB = \angle OBC = \frac{20}{2} = 10^\circ$

53.(B) $A = 7500 \left(1 + \frac{2}{100}\right)^2$

$A = ₹ 7803$

54.(D) Vitamin D

55.(A) Speed of boating in downstream is twice of the speed in upstream.

Rate of river = $\frac{2U - U}{2}$

$4 \times 2 = U$

$U = 8 \text{ km/hr}$

$D = 2U = 2 \times 8 = 16 \text{ km/hr}$

Speed of men's boating in still water = $\frac{D + U}{2}$

$= \frac{16 + 8}{2} = 12 \text{ km/hr}$

56.(B) $\frac{3 + x}{5 + x} = \frac{5}{6}$

$18 + 6x = 25 + 5x$

$x = 25 - 18 = 7$

57.(D) Fe

58.(C) Both I and II are strong.

59.(A) Code for F is 9. 'F' is common in all the words and so is the number '9'.

60.(A) $\frac{1}{7} \times \sqrt{1764} = 112 - ?$

$\Rightarrow \frac{1}{7} \times 42 = 112 - ?$

$\Rightarrow 6 = 112 - ?$

$\Rightarrow ? = 112 - 6$

Hence, '?' = 106

61.(D) I does not follow because neuroticism is a non stupid person and II also not follows because normal persons can behave like an stupid.

62.(B) $\sin(\theta + 23^\circ) = \sin(90 - 58) = \sin 32$
 $\theta = 9^\circ$

$\cos 45^\circ = \frac{1}{\sqrt{2}}$

63.(B) $90 \text{ km/hr} = 90 \times \frac{5}{18} = 25 \text{ m/sec}$

$30 = \frac{I_T + I_P}{25}$

Where, I_T = length of Train, I_P = length of platform

Or $I_T + I_P = 750$ (1)

Now, as given $I_T = 250 \text{ m}$

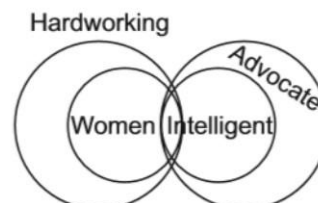
So, $I_P = 750 - 250 = 500 \text{ m}$

64.(C) Guru Hargovind

65.(C) $\frac{\pi r_1^2 l}{\pi r_2^2 l} = \frac{1}{4}$

$r_1 : r_2 = 1 : 2$

66.(D)



All conclusions follow.

67.(D) The word is coded by moving the letters 3 steps forward

C L I C K
 $+3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow$
 F O L F N

Similarly,

P A I D
 $+3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow$
 S D L G

68.(C) Sea

69.(D) 1 man = 2 women = 3 boys

So, according to question,

$3 \times 44 = \left(3 + \frac{3}{2} + 1\right) \times x$

$x = \frac{44 \times 3 \times 2}{11} = 24$

70.(A) ARM

71.(B) Let $PS = x$

Area of trapezium = $\frac{1}{2}(PS + QR)PQ$

$= \frac{1}{2} \times 24x^2 = 12x^2$

or $(PQT) = \frac{1}{2} \times 16x^2 = 8x^2 = 128$

$x^2 = 16$

$12x^2 = 12 \times 16 = 192$

or $(PTRS) = 192 - 128 = 64 \text{ cm}^2$

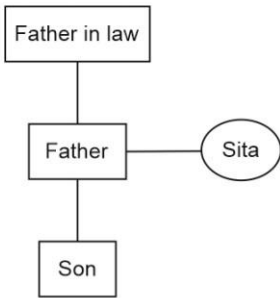
72.(C) Let the average weight is A and weight of new person is x.

So, $6A - 100 + x = 6(A + 3)$

$- 100 + x = 18$

$x = 118 \text{ kg}$

73.(B)

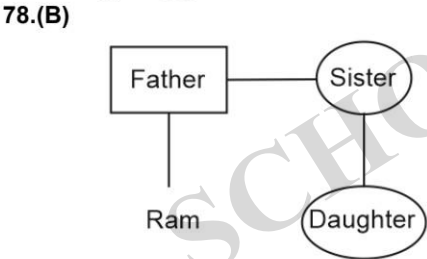


74.(C) Let the CP = 100x
So, 120x - 115x = 100
5x = 100
x = 20
For 25% profit = 125x = 125 x 20
= ₹ 2500

75.(B)
C +2 -> E +2 -> G +2 -> I
G +3 -> J +3 -> M +3 -> P
K +5 -> P +5 -> U +5 -> Z
∴ ? = IPZ

76.(D)
27 +5 -> 32 -2 -> 30 +5 -> 35 -2 -> 33
+5 -> 38
∴ ? = 38

77.(A)
1 3 6
A +2 -> C +3 -> F +4 -> J
26 24 21
Z -2 -> X -3 -> U -4 -> Q
∴ ? = JQ



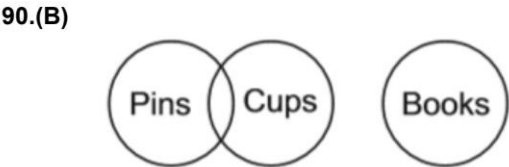
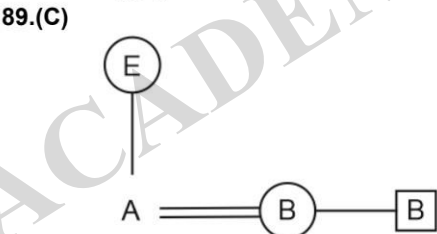
79.(B) 2√6 + 6√6 / 4√6 = 8√6 / 4√6 = 2

80.(D) All are hill stations except Agra.
81.(D)

A +1 -> B +1 -> C
G +1 -> H +1 -> I
D +1 -> E +1 -> F

But, J +2 -> L -1 -> K
Hence, J, L, K are odd letters.

- 82.(B) New Delhi is a Union Territory or Capital of India (a country). But, Mumbai, Chennai and Kolkata are the capitals of states.
- 83.(C) 1560 - 1365 = 195
1755 - 1560 = 195
1365 is divisible by 195.
- 84.(D) All of the above
- 85.(C) H
- 86.(C) CD
- 87.(D) G
- 88.(B) 5 years ago,
2x + x = 100 - 10
x = 30
Their ages after 10 years from present.
Father = 75
Son = 45
Father : Son = 75 : 45
= 5 : 3



- Common part of pins and cups can never be book. So, some pins are not book is definitely true.
- 91.(A) Bhangra
- 92.(A) Carrier Sense Multiple Access
- 93.(B) 12 January
- 94.(B) 30 Jan 2020
- 95.(A) Percent reduction = (1.25 - 1) / 1.25 x 100 = 20%
- 96.(A) USA
- 97.(B) 28th September
- 98.(B) Uttar Pradesh
- 99.(D) Ambala Airbase
- 100.(D) Thailand