PACE APTITUDE & TALENT HUNT

ADVANCED (CODE : 01) **ANSWERS KEY** **DATE: 15/01/2017**

Question	Answer	Question	Answer
1	D	26	B
2	C	27	D
3	B	28	D
4	D	29	A
5	D	30	C
6	A	31	B
7	C	32	A
8	C	33	A
9	B	34	A
10	B	35	A
11	B	36	C
12	B	37	B
13	B	38	A
14	D	39	B
15	B	40	B
16	D	41	C
17	B	42	A
18	C	43	C
19	B	44	A
20	B	45	B
21	D	46	A
22	D	47	B
23	B	48	B
24	B	49	C
25	C	50	B

PACE APTITUDE & TALENT HUNT
(SOLUTION)

1. **(D)**

$x + y = 60$

6 years ago,

$x - 6 = 5(y - 6)$

$\Rightarrow 60 - y - 6 = 5y - 30$

$84 = 6y \qquad \Rightarrow y = 14$

2. **(C)**

Let distance be 'd' km & actual come to be taken be 't'

$\therefore \qquad \frac{d}{20} = t + \frac{1}{6} \qquad \& \qquad \frac{d}{25} = t + \frac{1}{15}$

Subtract, $d = 10\,km$

3. **(B)**

$2z.2z.z = 256$

$z^3 = 64 \qquad z = 4 \quad x = 8$

4. **(D)**

1 day work of 12 men $= \frac{W}{18}$

$\therefore$ 6 days work $= \frac{6W}{18} = \frac{W}{3}$

Remaining work $= \frac{2W}{3} \qquad ...(i)$

1 men work for 1 day $= \frac{W}{18 \times 12}$

Now there are 16 men

$\therefore$ 16 men work in 1 day $= \frac{16W}{18 \times 12}$

$\therefore \frac{16W}{18 \times 12} \times n = \frac{2w}{3} \Rightarrow n = 9$

5. **(D)**

$3a = 72\sqrt{3} \qquad \Rightarrow \qquad a = 24\sqrt{3}$

$h = \frac{\sqrt{3}}{2}a = \frac{\sqrt{3}}{2} \times 24\sqrt{3} = 36$

6. **(A)** **7.** **(C)**

8. **(C)**

27 Rs. $\rightarrow$ 27 toffees

27 wrapper $\rightarrow$ 9 toffees

9 wrappers $\rightarrow$ 3 toffees

3 wrappers $\rightarrow$ 1 toffee

40 toffees

9. **(B)**

10. **(B)**

Child rate 1 day work $= \dfrac{W}{7\times 40}$

Men rate $= \dfrac{10}{3}\times\dfrac{W}{7\times 40}$

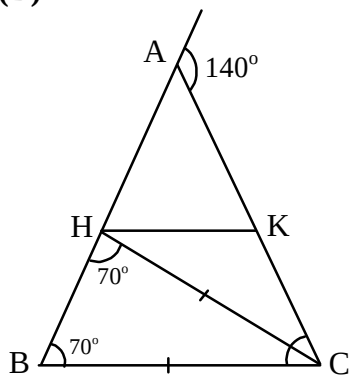
women $= \dfrac{2W}{7\times 40}$

6M, 5W, 5C 1 day work $= \dfrac{6W}{3\times 7\times 40}+\dfrac{5\times 2W}{7\times 40}+\dfrac{5\times W}{7\times 40}$

$\dfrac{35W}{7\times 40}=\dfrac{w}{8}$

$\therefore$ 8 days will be required

11. **(B)**



$\angle B = \angle C = 70^\circ \ (\because AB = AC)$

$\therefore \angle BHC = 70^\circ$

$\therefore \ \angle HCB = 40^\circ \qquad \therefore \ \angle HCK = 30^\circ$

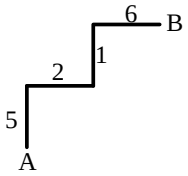
12. **(B)**

$\ell \to \dfrac{3\ell}{2} \qquad b \to \dfrac{5b}{4}$

$\% = \left(\dfrac{\frac{3\ell}{2}\times\frac{5b}{4}-\ell b}{\ell b}\right)\times 100$

$= \dfrac{7}{8}\times 100 = 87.5\%$

13. **(B)**



$\sqrt{6^2+P^2}$

14. **(D)**

Let there be x family

$\therefore 87 = \frac{S_m}{8} \Rightarrow S_m = 87 \times 8$

$S_f = 92 \times x$

$90 = \frac{87 \times 8 + 92 \times x}{x + 8}$

$\Rightarrow 3 \times 8 = 2x$

15. **(B)**

16. **(D)**

$\sqrt[2]{\sqrt[3]{x}} = 3$

$\sqrt[3]{x} = 9$

$x = 9^3 = 3^6$

17. **(B)**

$\frac{4}{3}\pi \times 4^3 = \frac{1}{3}\pi \times 4^2 h$

$h = 16$

18. **(C)**

$10x + 400 - 2x$

19. **(B)**

20. **(B)**

$S_{50} = 50 \times 44$

$\therefore$ new mean $= \frac{50 \times 44 - 73 + 23}{50}$

$= 44 - 1 = 43$

21. **(D)**

Let present ages of person and his son be x years and y years respectively

Using information provided we have

$x - 4 = 3(y - 4)$

$\Rightarrow \quad x - 3y = -8 \quad$ _____(I)

Also $x + 8 = 2(y + 8)$

$\Rightarrow \quad x - 2y = 8 \quad$ _____(II)

Solving (I) and (II) we get x = 40, y = 16.

$\therefore$ Required sum = 56

22. **(D)**

Clearly x = 1 satisfies the given equation

$\therefore x = 1$ is a root

$\because$ roots are equal

$\Rightarrow$ product of roots $= 1 \Rightarrow \frac{c - a}{a - b} = 1 \Rightarrow b + c = 2a$

23. **(B)**

Let total no. of students = x

$\therefore \quad 0.8x - 0.4x = 40 \Rightarrow x = 100$

24. **(B)**

If August starts with Tuesday it will have 5 Tuesday out of 31 days

$P(\text{not a Tuesday}) = \frac{26}{31}$

25. **(C)**

$AE = BE = x$ and $BD = DC = y$

In $\Delta ABD \qquad AB^2 + BD^2 = AD^2$

$\Rightarrow \qquad 4x^2 + y^2 = 292 \qquad$ ____(i)

In $\Delta BCE \qquad EB^2 + BC^2 = CE^2$

$\Rightarrow \qquad x^2 + 4y^2 = 208 \qquad$ ___(ii)

(i) + (ii) $\qquad 5(x^2 + y^2) = 500 \Rightarrow x^2 + y^2 = 100$

$\therefore \quad AC = \sqrt{4(x^2 + y^2)} = \sqrt{400} = 20$

26. **(B)**

$\angle CDF = 70^o \qquad \angle BFE = 100^o$

$\Rightarrow \quad \angle CBF = 30^o$

As in ΔBFD

$\angle CDF + \angle CBF = \angle BFE$

Also $\angle ABC = \angle CDF = 70^o$

$\Rightarrow \quad \angle ABG = 40^o$

27. **(D)**

Let the number of questions attempted correctly by the candidate = C

He attempted all the questions.

$\therefore$ Number of questions attempted wrongly by him = 60 – C

$2C - 1(60 - C) = 90$

$2C - 60 + C = 90$

$C = 50$

28. **(D)**

Minimum balance for August (in Rs)

$= 8000 + \frac{40}{100}(8000)$

$= 8000 + 3200 = 11200$.

29. **(A)**

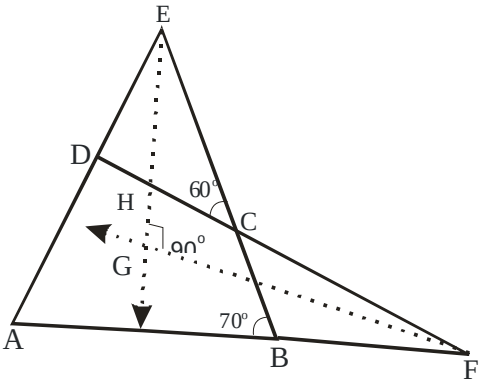
Given $\angle QPR = 25^o$

Since QS is the diameter, $\angle QPS = 90^o$

$\Rightarrow \quad \angle SPR = 90 - 25^o = 65^o$

$\therefore \quad \angle SOR = 2 \times 65^o = 130^o$.

30. (C)



$\angle DAB = \angle DCE = 60^o$ and $\angle EDC =$
$\angle CBA = 70^o$ (exterior angle of a cyclic quadrilateral)
In $\Delta ABE, \angle DEC = 180^0 - \left(60^o + 70^o\right) = 50^0$ Since $\overline{FG}$ bisects $\angle F$,

$$\therefore \quad \angle HEC = \frac{\angle DEC}{2} = \frac{50^o}{2} = 25^o$$

31. (B)
Let the cost price for P be Rs 100x
P's profit = $\frac{20}{100}\left(\text{Rs}100x\right) = \text{Rs } 20x$
The selling price for P = Rs 120x
The cost price for Q = The selling price for P = Rs 120x
Q's profit = $\frac{10}{100}(\text{Rs}120x) = \text{Rs}12x$
Given, 12x = 20x – 24
$\Rightarrow 3 = x \Rightarrow 100x = 300$

32. (A)

33. (A)
Since a die has six faces, the total number of outcomes is six, out of which one is favorable. Therefore, $P(3) = \frac{1}{6}$

34. (A)
We note that $\angle ABC$ is right angle (angle in a semicircle)
Thus $\angle ACB = 180^o - \left(70^o + 90^o\right)$
$= 20^o$
Now, in ΔBCD, we have (using the angle sum property):
$x^o = 180^0 - \left(90^o + 20^o\right)$
$= 70^o$

35. (A)
Since $\angle OBA = \angle OAB = 25^o$ as well, we have:
$x^o = 180^o - \left(25^o + 25^o\right)$
$= 130^o$

36. (C)

We note that $\angle CBD = \angle CAD = 40^o$. using the angle sum property in ΔBCD, we have:

$x^o = 180^0 - \left(40^o + 60^o\right)$

$= 80^o$

37. (B)

We have :

$\angle OFE = 180^O - \angle CFE$

$= 180^o - 140^o = 40^o$

$\angle FOE = 180^o - \angle AOF$

$= 180^o - y$

In ΔEOF, the exterior angle x^0 is equal to the sum of two opposite interior angles.

Therefore,

$x^0 = 40^0 + 180^0 - y^0$

$\Rightarrow x + y = 220$

38. (A)

We have :

$$x + \frac{1}{x} = a$$

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

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

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

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

39. (B)

40. (B)

Column 1: $11^2 - 1^2 = 120$

Column 2: $7^2 - 2^2 = 45$

Column 3: $5^2 - 3^2 = 16$

Hence, the answer is (B)

41. (C)

The rule is $3 \times 5 + 4 = 19; 5 \times 7 + 6 = 41; 4 \times 6 + 5 = 29$

$\therefore$ the missing number is 41. Hence the answer is (C)

42. (A)

Usually we start from the end and keep on simplifying. Daughter of uncle's father means uncle's sister. Uncle's sister means mother and son of the mother means her brother. So the boy is Sarita's brother. The answer is (A).

43. (C)

Sohan's son's uncle means Sohan's brother. So, the old man's son is Sohan's brother, i.e., the old man is the father of Sohan. The answer is (C)

44. (A)

Area of the floor of the room $= 5\frac{1}{2} \times 3\frac{3}{4} m \quad = \frac{165}{8} m^2$

Cost for paving the floor $= \text{Rs.} \frac{165}{8} \times 800 \quad = \text{Rs. } 16500$

45. (B)

Area of the room $= 25m \times 16m$

$= 400\ m^2$

Area of the brick $= 20cm \times 10cm$

$= \frac{1}{5} m \times \frac{1}{10} m \quad = \frac{1}{50} m^2$

$\therefore$ Number of bricks required $= \left(400 \div \frac{1}{50} \right)$

$= 20{,}000$

46. (A)

The two figures approach each other and get overlapped. Similar relationship will be figure (a) from figure C, Hence, the answer is (A)

47. (B)

In ΔBAC and ΔADC, we have

$\angle BAC = \angle ADC = 90^0$

And $\angle ACB = \angle DCA = \angle C$

$\therefore \Delta BAC \sim \Delta ADC \quad [\text{AA similarity}]$

$\therefore \frac{\text{ar}(\Delta ABC)}{\text{ar}(\Delta DAC)} = \frac{BC^2}{AC^2} = \frac{(13)^2}{(5)^2} = \frac{169}{25}$

48. (B)

We, have $AR = AP$ and $CR = CQ$

$\therefore OQ = BP$ [radius of the circle]

$AP = AB - PB, AP = 8 - x$

And $CQ = BC - BQ = 6 - x$

In $AC = AR + RC = 8 - x + 6 - x = 14 - 2x$

Now in ΔABC

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

$(14 - 2x)^2 = (8)^2 + (6)^2$

$196 - 56x + 4x^2 = 64 + 36$

$\Rightarrow 4x^2 - 56x + 96 = 0$

$\Rightarrow x^2 - 14x + 24 = 0$

$(x - 12)(x - 2) = 0$

$x = 2, x = 12, \text{but } x \neq 12$

$\therefore x = 2\,cm$

49. (C)

$x + y + 2 = 0$

$x + y = -2$ ……. (i)

Taking cube both sides

$x^3 + y^3 + 3xy(x + y) = -8$

$x^3 + y^3 + 8 = -3xy(-2)$ from (i)

$x^3 + y^3 + 8 = 6xy$

50. (B)

$LCM(a, b) = 2 \times 2 \times 2 \times 3 = 24$

$LCM(b, c) = 2 \times 2 \times 3 \times 5 = 60$

$LCM(c, a) = 2 \times 2 \times 2 \times 5 = 40$

$\therefore LCM(a, b, c) = 2 \times 2 \times 2 \times 3 \times 5 = 120$