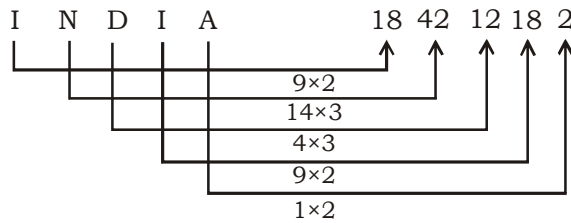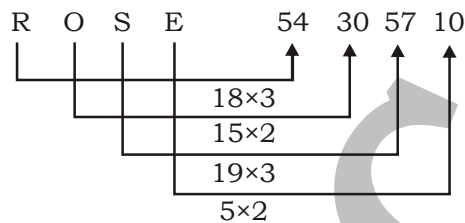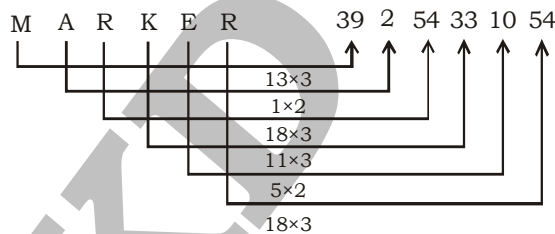## SSC MOCK TEST - 317 (SOLUTION)

1. (A) As,

    $34 \Rightarrow 34 \times (4 - 3) = 34$

    Similarly,

    $25 \Rightarrow 25 \times (5 - 2) = 75$

2. (D) Sinus is the problem related to Nose, while Myopia is the problem related to Eye.

3. (C) Except 3012, others are divisible by 11.

4. (D) Except Clash, others are related to each other.
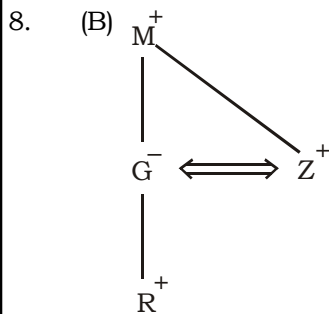
5. (B) As,

    I   N   D   I   A   18   42   12   18   2

    9×2
    14×3
    4×3
    9×2
    1×2

    And,

    R   O   S   E   54   30   57   10

    18×3
    15×2
    19×3
    5×2

    Similarly,

    M   A   R   K   E   R   39   2   54   33   10   54

    13×3
    1×2
    18×3
    11×3
    5×2
    18×3

6. (A) $17 + (1 + 7)^2 = 81$

    $81 + (1 + 8)^2 = 162$

    $162 + (1 + 6 + 2)^2 = 243$

    $243 + (2 + 4 + 3)^2 =$ **324**

7. (C) $A + 1^2 = B$

    $B + 2^2 = F$

    $F + 3^2 = O$

    $O + 4^2 = E$

8. (B)

Hence, Z is the father of R.

9. (C) As,

$25 + (2 + 5)^2 = 74$

$74 + (7 + 4)^2 = 195$

Similarly,

$35 + (3 + 5)^2 = 99$

$99 + (9 + 9)^2 = \textbf{423}$

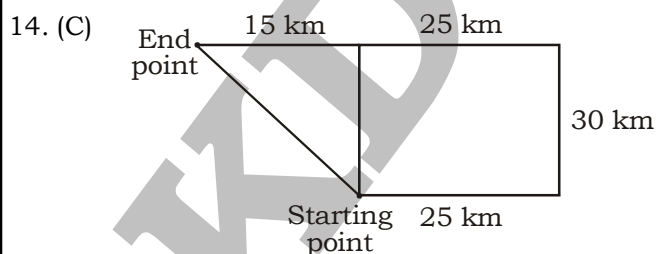10. (A) d**k**lm**o**/d**k**lm**o**/dk**l**mo

11. (B)

12. (C) **In the first column,**

$16 \times 2 + 4 \times 2 + 15 \times 3 = 85$

In the second column,

$17 \times 3 + 19 \times 3 + 18 \times 2 = 144$

In the third column,

$13 \times 3 + 22 \times 2 + 11 \times 3 = \textbf{116}$

13. (A) $112 \div 4 \times 16 + 13 - 8 = 33$

After changing the 4 and 16 with each other,

$112 \div 16 \times 4 + 13 - 8 = 33$

$7 \times 4 + 13 - 8 = 33$

$41 - 8 = 33$

$33 = 33$

14. (C)
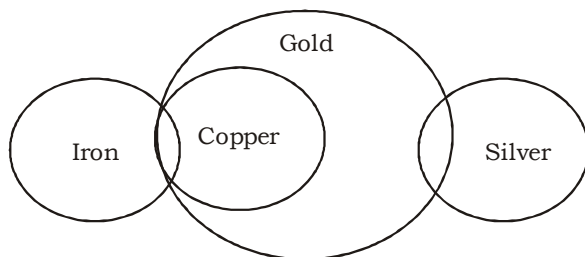

∴ Required distance = $\sqrt{15^2 + 30^2}$

$= \sqrt{225 + 900} = \sqrt{1125} = 15\sqrt{5}$ km

15. (C) 2. Clay → 5. Bricks → 1. Wall → 4. Room → 3. House

16. (D) Angled traced by the hour hand in 6 hours $= \dfrac{360°}{12} \times 6 = 180°$

17. (A)

   I. False   II. True   III. True

   Hence, only conclusion II and III follows.

18. (C)   19. (D)

20. (A) Let B = 100

   A = 120

   $\therefore$ C = (100 + 120) × $\dfrac{60}{100}$ = 132

21. (B) As,

   15 × 3 = 45

   45 × 5 = 225

   Similarly,

   18 × 3 = 54

   54 × 5 = 270

22. (A)   23. (C)   24. (B)   25. (D)

26. (C) After the growth of the Vedic religion the most important development in the history of the so-called Hinduism was the development of bhagavatism.

31. (A) Every year, World Environment Day is observed on June 5. This day is celebrated to encourage awareness and environmental protection.

37. (D) The magnificent 'Ratha' cave temples of Mahabalipuram was built by the Pallava king Narsimha in the 7th and 8th centuries.

38. (C) The IMF was conceived in July 1944 during the United Nations Monetary and Financial Conference. The representatives of 45 countries meeting in the town of Bretton Woods, New Hampshire, United States, agreed on a framework for international economic cooperation, to avoid the disastrous economic policies that had contributed to the Great Depression. The IMF came into formal existence in December 1945, when the first 29 member countries signed its 'Articles of Agreement'. It began operations on 1 March. Later in that year, France became the first country to borrow from the IMF. The IMF has currently 187-member countries. To become a member, a country must apply and then be accepted by a majority of the existing member. Upon joining, each member is assigned a quota, broadly based on its relative size in the world economy. The quota largely determines the member's voting power in IMF decisions. Each IMF member has 250 basis votes plus one additional vote for Special Drawing Rights (SDR) 100000 of the quota. The headquarters of the IMF is in Washington DC, USA.

40. (B) When water is boiled it is changed into water vapour which on cooling condenses back to water. The process of distillation of water is thus reversible and the* is change only in state and not in composition. Hence it is only a physical change and not a chemical change.

41. (B) Raindrops start to form in a roughly spherical structure due to the surface tension of water. This surface tension is the "skin" of a body of water that makes the molecules stick together. The cause is the weak hydrogen bonds that occur between water molecules.

43. (B) Hydroponics is a subset of hydroculture and is a method lof growing plants using mineral nutrient solutions in water without soil.

44. **(C)** Most DNA is located in the cell nucleus (where it is called nuclear DNA), but a small amount of DNA can also be found in the mitochondria (where it is called mitochondrial DNA or mtDNA). Mitochondria are structures within cells that convert the energy from food into a form that cells can use.

45. **(A)** Without this centripetal force, circular motion is not possible. It acts radially towards the centre and if this force is removed there will be no circular motion but the revolving body will fly off at a tangent, (A) is correct.

46. **(C)** The President holds office for a term of five years from the date on which he enters upon his office. However, he can resign from his office at any time by addressing the resignation letter to the Vice-President. Further, he can also be removed from the office before completion of his term by the process of impeachment. The President can hold office beyond his term of five years until his successor assumes charge. He is also eligible for re-election to that office He may be elected for any number of terms. However, in USA, a person cannot be elected to the office of the President more than twice.

48. **(A)** A buffer routine or storage medium used in telecommunications compensates for a difference in rate of flow of data, or time of occurrence of events, when transferring data from one device to another.

51. **(A)** Let the two number be x and (x + 30).

    ATQ,

    $2 \times 75 = x(x + 25)$

    $x^2 + 25x - 150 = 0$

    $x^2 + 30x - 5x - 150 = 0$

    $x(x + 30) - 5(x + 30) = 0$

    $(x - 5)(x + 30) = 0$

    x = 5, (– 30 is not possible)

    ∴ Smaller number = 5

52. **(B)** When nine cylinder are melt and a new cylinder is formed, the total volume remains same.

    Let the radius of smaller cylinders be 'r', that of the new cylinder be 'R' and height of cylinders be 'h'.

    ATQ,

    Volume of the nine small cylinders = Volume of the new cylinder

    $16\pi r^2 h = \pi R^2 h$

    $16r^2 = R^2$

    $4r = R$

    Here, Lateral surface area of a smaller cylinder = $2\pi rh$

    And Lateral surface area of the new cylinder = $2\pi Rh = 2\pi h \times 4r = 8\pi rh$

    Now, difference in Lateral surface areas = $8\pi rh - 2\pi rh = 6\pi rh$

    Therefore, increase in lateral surface area (in %) = $\dfrac{6\pi rh}{2\pi rh} \times 100$ = 300%

53. (D) Let the total quantity of mixture be x litres

Milk	:	Water	
5	:	3	(Initially)
3	:	5	(after replacement)

ATQ,

$$\frac{\text{Remaining quantity}}{\text{Initial quantity}} = 1 - \frac{\text{Re placed quantity}}{\text{Total quanity}}$$

$$\frac{3}{5} = 1 - \frac{20}{x}$$

$$\frac{20}{x} = 1 - \frac{3}{5}$$

$$\frac{20}{x} = \frac{2}{5}$$

$$\therefore \ x = \frac{100}{2} = 50 \text{ litres}$$

54. (A) $\sin x - \cos x = 0$

$\sin x = \cos x$

$\sin x = \sin(90° - x)$

$x = 90° - x$

$2x = 90°$

$x = 45°$

$\therefore \ (\sec x + \csc x)^2 = (\sec 45° + \csc 45°)^2$

$$= \left(\sqrt{2} + \sqrt{2}\right)^2 = \left(2\sqrt{2}\right)^2 = 8$$

55. (C) Length of chord $= 2 \times \sqrt{(\text{Radius})^2 - \left(\dfrac{\text{Distance between chords}}{2}\right)^2}$

$$= 2 \times \sqrt{(6)^2 - \left(\frac{5}{2}\right)^2} = 2 \times \sqrt{36 - 16} = 2 \times \sqrt{20} = 4\sqrt{5} \text{ cm}$$

56. (A) Distance travelled by car in 45 minute $= 72 \times \dfrac{45}{60} = 54$ km

$$\therefore \ \text{Speed required} = \frac{54}{30} \times 60 = 108 \text{ km/hr}$$

57. (B) SP = ₹ 3910

Loss = 15%

$$CP = \frac{3910}{85} \times 100 = ₹ 4600$$

$$\therefore \ SP = 4600 \times \frac{124}{100} = ₹ 5704$$

58. (C) Let the number be N.

Therefore, according to the question,

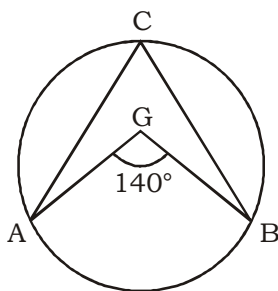$(N - 20) = 2925 \times \dfrac{1}{N}$

$N^2 - 20N = 2925$

$N^2 - 20N - 2925 = 0$

$N^2 - 65N + 45N - 2925 = 0$

$(N - 65)(N + 45) = 0$

∴ N = 65

59. (D)

∴ $\angle ACB = \dfrac{\angle AGB}{2} = \dfrac{140°}{2} = 70°$

(Angle subtended by a sector on rest of the perimeter of the circle is half of that subtended on cetre)

60. (C) $x^4 - 8x^3 + 16x^2$

$= x^2(x^2 - 8x + 16) = x^2(x - 4)^2$

$= \left(2 + \sqrt{3}\right)^2 \left(\sqrt{3} - 2\right)^2 = (3 - 4)^2 = 1$

61. (A) sinx + cosecx – 2 = 0

sinx + cosecx + 2

$\sin x + \dfrac{1}{\sin x} = 2$

sin x = 1 satisfies the given condition.

∴ $\sin^{17}x + \cosec^{18}x = 1 + 1 = 2$

62. (B) A = 8000 + 1261 = ₹ 9261

P = ₹ 8000

$A = P\left(1 + \dfrac{R}{100}\right)^T$

$9261 = 8000\left(1 + \dfrac{R}{100}\right)^3$

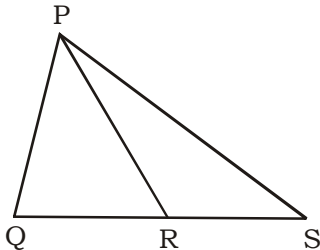$\dfrac{9261}{8000} = \left(1 + \dfrac{R}{100}\right)^3$

$\left(\dfrac{21}{20}\right)^3 = \left(1 + \dfrac{R}{100}\right)^3$

$$1 + \frac{R}{100} = \frac{21}{20}$$

$$\frac{R}{100} = \frac{1}{20}$$

$$\therefore \quad R = \frac{100}{20}\% = 5\%$$

63. (B)

In ΔPRS,

$\angle PRS = 180° - \angle PRQ = 180° - 80° = 120°$

And RS = PR,

Therefore, $\angle RPS = \angle RSP = \dfrac{180° - \angle PRS}{2}$

$= \dfrac{180° - 110°}{2} = \dfrac{60°}{2} = 30°$

Now, given

$\angle QPS = 120°$

$\angle QPR + \angle RPS = 120°$

$\angle QPR = 120° - 30° = 90°$

Now, in ΔPQR,

$\angle PQR + \angle PRQ + \angle QPR = 180°$

$\therefore \quad \angle PQR = 180° - 80° - 90° = 10°$

64. (C) We know that least 5-digit number is 10000.

When we divide this number by 91

we get, $10000 = 91 \times 109 + 81$

In the above expression, we can make the whole equation divisible by 91 by either adding 10 or subtracting 81, but, since we need number greater than 10000, we add 10.

$10000 + 10 = 91 \times 109 + 81 + 10$

$10010 = 91 \times (110)$

$\therefore$ The least 5-digit number divisible by 91 is 10010.

65. (B) Let the capacity of tank be 48 litres.

A's 1 hour work = $\dfrac{48}{12}$ = 4 litres

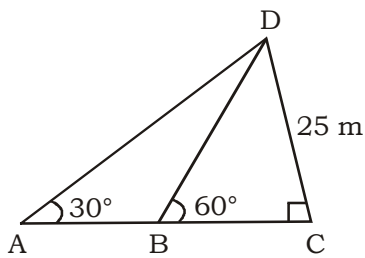B's 1 hour work = $\dfrac{48}{16}$ = 3 litres

C's 1 hour work = $\dfrac{48}{8}$ = 6 litres

Now, A and B both are opened for 3 hours.

(A + B)'s 3 hour work = (4 + 3) × 3 = 21 litres

Remaining part = 48 – 21 = 27 litres

∴ Required time = $\dfrac{27}{6}$ = 4.5 hours

66. (A)

In $\triangle$ ACD,

$\tan 30° = \dfrac{CD}{AC}$

$\dfrac{1}{\sqrt{3}} = \dfrac{25}{AC}$

AC = $25\sqrt{3}$ m

In $\triangle$ BCD,

$\tan 60° = \dfrac{CD}{BC}$

$\sqrt{3} = \dfrac{25}{BC}$

BC = $\dfrac{25}{\sqrt{3}}$ m

∴ AB = $25\sqrt{3} - \dfrac{25}{\sqrt{3}} = \dfrac{50}{\sqrt{3}}$ m

67. (D) $\left(x + \dfrac{1}{x}\right)^2 = 3$

$x^2 + \dfrac{1}{x^2} + 2 = 3$

$x^2 + \dfrac{1}{x^2} = 1$

$\therefore$ $x^3 + \dfrac{1}{x^3} = \left(x + \dfrac{1}{x}\right)\left(x^2 + \dfrac{1}{x^2} - x \times \dfrac{1}{x}\right)$

$= \left(x + \dfrac{1}{x}\right)(1 - 1) = 0$

68. (B) $-18 + 90 \div [89 - \{5 \times 8 + (33 - 3 \times 7)\}]$
     $= -18 + 90 \div [89 - \{72 + 12\}]$
     $= -18 + 90 \div [89 - 84]$
     $= -18 + 90 \div 5$
     $= -18 + 18 = 0$

69. (C) Total sum of 40 numbers = 40 × 32 = 1280
     Sum of first 25 numbers = 25 × 28 = 700
     Sum of last 16 numbers = 16 × 38 = 608
$\therefore$ 25th number = (Sum of first 25 numbers + Sum of last 16 numbers) – Sum of 40 numbers
     = (700 + 608) – 1280 = 1308 – 1280 = 28

70. (A) Slope of the given line = $\dfrac{(7-3)}{(5-2)} = \dfrac{4}{3}$

So the slope of the required line is also $\dfrac{4}{3}$.

One point on this line is (–4, 0).

Hence the equation of the line = $y - 0 = \dfrac{4}{3}(x + 4)$

$\therefore$ 3y = 4x + 16

71. (B) 72° = ₹1875

Then, monthly income of the family = 360° = $\dfrac{1875}{72} \times 360 = ₹\,9375$

72. (D) Percentage of savings = $\dfrac{108}{360} \times 100$ = 30%

73. (B) Ratio of expenses on rent and food = 72 : 90 = 4 : 5

74. (A) Monthly income of the family (360°) = 15000

Now, average of expenses on rent, food and misellaneous = $\dfrac{72 + 90 + 72}{3}$ = 78°

As, 360° = ₹ 15000

Then, 78° = $\dfrac{15000}{360} \times 78$ = ₹ 3250

75. (C) Ratio of average of expenses on food, rent and miscellaneous items to the average of expenses

on savings and clothing = $\dfrac{72 + 72 + 90}{3} : \dfrac{108 + 18}{2}$

$= \dfrac{234}{3} : \dfrac{126}{2} = 26 : 21$

MEANINGS IN ALPHABETICAL ORDER

Accomplice	a person who helps another commit a crime	सह-अपराधी
Advent	the arrival of a notable person, thing, or event	आगमन
Alibi	a claim or piece of evidence that one was elsewhere when an act, typically a criminal one, is alleged to have taken place	अनुपस्थिति
Amateur	a person who engages in a pursuit, especially a sport, on an unpaid rather than a professional basis	शौकीन व्यक्ति
Arena	a level area surrounded by seats for spectators, in which sports, entertainments, and other public events are held	अखाड़ा
Assess	evaluate or estimate the nature, ability, or quality of	आकलन
Casino	a public room or building where gambling games are played	कैसीनो
Conjure	call upon (a spirit or ghost) to appear, by means of a magic ritual	जादू
Determination	firmness of purpose; resoluteness	दृढ़ निश्चय
Devout	having or showing deep religious feeling or commitment	धार्मिक
Estimate	roughly calculate or judge the value, number, quantity, or extent of	आकलन
Instability	lack of stability; the state of being unstable	अस्थिरता
Intrigue	arouse the curiosity or interest of; fascinate	साज़िश
Persistence	firm or obstinate continuance in a course of action in spite of difficulty or opposition	अटलता
Proficient	competent or skilled in doing or using something	प्रवीण
Profound	(of a state, quality, or emotion) very great	प्रगाढ़
Reluctant	unwilling and hesitant; disinclined	अनिच्छुक
Steady	firmly fixed, supported, or balanced; not shaking or moving	नियमित

SSC MOCK TEST - 317 (ANSWER KEY)

1.	(A)	26.	(C)	51.	(A)	76.	(B)
2.	(D)	27.	(B)	52.	(B)	77.	(C)
3.	(C)	28.	(C)	53.	(D)	78.	(C)
4.	(D)	29.	(A)	54.	(A)	79.	(C)
5.	(B)	30.	(A)	55.	(C)	80.	(A)
6.	(A)	31.	(A)	56.	(A)	81.	(A)
7.	(C)	32.	(A)	57.	(B)	82.	(D)
8.	(B)	33.	(B)	58.	(C)	83.	(C)
9.	(C)	34.	(A)	59.	(D)	84.	(C)
10.	(A)	35.	(D)	60.	(C)	85.	(A)
11.	(B)	36.	(B)	61.	(A)	86.	(C)
12.	(C)	37.	(D)	62.	(B)	87.	(A)
13.	(A)	38.	(C)	63.	(B)	88.	(C)
14.	(C)	39.	(C)	64.	(C)	89.	(D)
15.	(C)	40.	(B)	65.	(B)	90.	(D)
16.	(D)	41.	(B)	66.	(A)	91.	(A)
17.	(A)	42.	(C)	67.	(D)	92.	(D)
18.	(C)	43.	(B)	68.	(B)	93.	(D)
19.	(D)	44.	(C)	69.	(C)	94.	(B)
20.	(A)	45.	(A)	70.	(A)	95.	(B)
21.	(B)	46.	(C)	71.	(B)	96.	(A)
22.	(A)	47.	(B)	72.	(D)	97.	(B)
23.	(C)	48.	(A)	73.	(B)	98.	(C)
24.	(B)	49.	(C)	74.	(A)	99.	(D)
25.	(D)	50.	(B)	75.	(C)	100.	(B)