# SSC MOCK TEST - 309 (SOLUTION)

1. (B) As,

    $99 \Rightarrow 9 + 9 \Rightarrow 18 \Rightarrow 1 + 8 = 9$

    Similarly,

    $218 \Rightarrow 2 + 1 + 8 \Rightarrow 11 \Rightarrow 1 + 1 = 2$

2. (B) Cells constitute tissues, while atoms consitute molecules.

3. (D) Except Green, others are primary colour.

4. (D) Except 482, in others numbers the sum of first and last digits equal to middle digit.

5. (A) As,

    $U \Rightarrow 21 \Rightarrow 2 - 1 = 1$

    $N \Rightarrow 14 \Rightarrow 4 - 1 = 3$

    $I \Rightarrow 9 \Rightarrow 9 - 0 = 9$

    $T \Rightarrow 20 \Rightarrow 2 - 0 = 2$

    $Y \Rightarrow 25 \Rightarrow 5 - 2 = 3$

    Similarly,

    $M \Rightarrow 13 \Rightarrow 3 - 1 = 2$

    $O \Rightarrow 15 \Rightarrow 5 - 1 = 4$

    $N \Rightarrow 14 \Rightarrow 4 - 1 = 3$

    $D \Rightarrow 4 \Rightarrow 4 - 0 = 4$

    $A \Rightarrow 1 \Rightarrow 1 - 0 = 1$

    $Y \Rightarrow 25 \Rightarrow 5 - 2 = 3$

    Hence, the code of 'MONDAY' is written as '243413'.

6. (B) $16 + 7^2 = 65$

    $65 + 7^3 = 408$

    $408 + 7^4 = 2809$
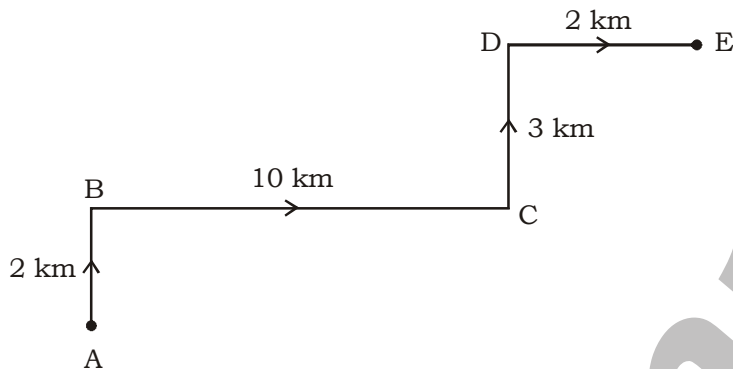
    $2809 + 7^5 = 19616$

7. (C)

8. (D)
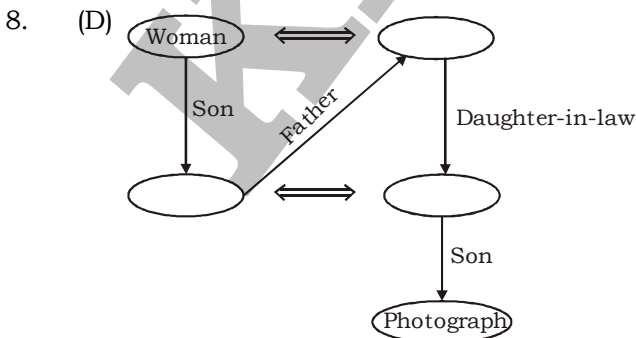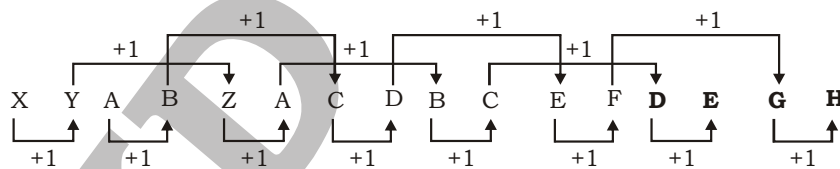
    Hence, the man in the photograph is the grandson of the woman.

9. (B) As,

    55 + (5 + 5) = 65

    65 + (6 + 5) = 76

    Similarly,

    98 + (9 + 8) = 115

    115 + (1 + 1 + 5) = 122

10. (A) p**q**rst/t**u**vwx/**x**yza**b**/b**c**def

11. (B)

    $\therefore$ Required distance = AE $= \sqrt{5^2 + 12^2} = 13 \, \text{km}$

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

    $(5 + 7)^3 = 1728$

    In second column,

    $(9 + 8)^3 = 4913$

    In third column,

    $(4 + 6)^3 = $ **1000**

13. (D) $123 \div 3 - 25 + 13 \times 8 = 228$

    After Changing the 25 and 13 each with other,

    $123 \div 3 - 13 + 25 \times 8 = 228$

    $41 - 13 + 200 = 228$

    $241 - 13 = 228$

    $228 = 228$

14. (A) Total number of question attempted by a student = $80 \times \dfrac{80}{100} = 64$

    Let the number of correct questions be x.

    Number of incorrect question = (64 – x)
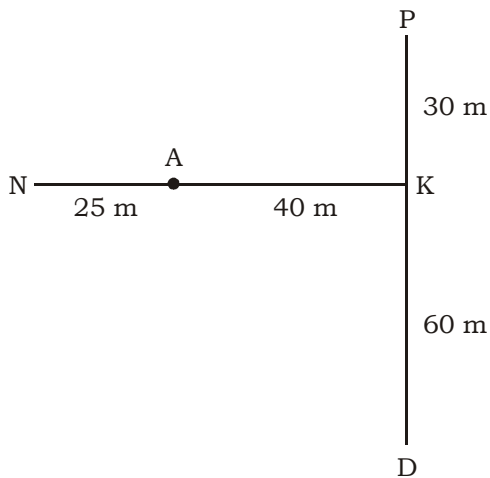
    ATQ,

    x × 1 + (64 – x) × –0.25 = 34

    x – 16 + 0.25x = 34

    1.25x = 34 + 16
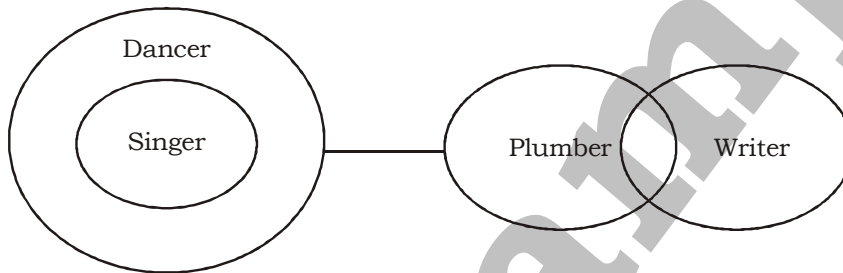
    $x = \dfrac{50}{1.25} = 40$

15. (C) 3. Tittle $\rightarrow$ 2. Contents $\rightarrow$ 5. Introduction $\rightarrow$ 4. Chapter $\rightarrow$ 1. Index

16. (D)

Hence, P is in the North-East of the person who is to the left of K.

17. (D)

I. Doubt   II. Doubt   III. True

Hence, either conclusion I or II and III follow.
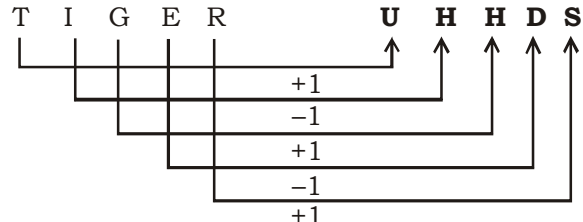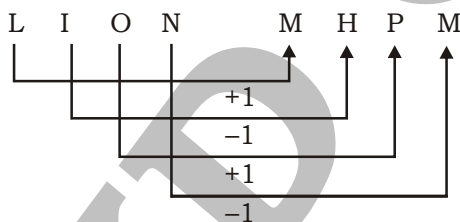
18. (B)   19. (B)   20. (A)

21. (C) As,   Similarly,

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

26. (C) From its headquarters in Rome and more than 80 country offices around the world, the WFP works to help people who are unable to produce or obtain enough food for themselves and their families. It is a member of the United Nations Development Group and part of its Executive Committee.

27. (C) The femur is not a part of the human ear.

28. (C) Araku Valley is a hill station in Visakhapatnam district in the Indian state of Andhra Pradesh, lying 111 km west of Visakhapatnam city. This place is often referred to as Ooty of Andhra.

29. (D) Redworms do not have teeth. They have a structure called 'gizzard', which helps them in grinding their food.

30. (D) Roe arrived at the port of Surat in September 1615 with a letter from King James I to the then reigning Mughal Emperor, Jahangir, seeking a trade agreement. The ambassador would go on to spend four years of negotiations at the Mughal court, eventually returning to England in 1619 without the trade agreement he sought.

31. (A) The scientific study of domestic dogs is called Cynology.

32. (B) Among his widely recognised paintings which soon became a signature motif with Husain were the lively and free spirited horses.

33. (C) Vertebrates include mammals, birds, fish, amphibians, and reptiles. Snails are invertebrates.

34. (D) Vinegar is no less than 4% acetic acid by volume, making acetic acid the main component of vinegar apart from water.

37. (D) The synthase enzyme converts the amino acids sulfoxides of the onion into sulfenic acid. The unstable sulfenic acid rearranges itself into syn-Propanethial-S-oxide.

38. (C) Ajatashatru, Ajatashattu or Ajatasatru (Sanskrit: Ajatasatru, Pali: Ajatasattu; 492 to 460 BCE or early 5th century BCE) was a king of the Haryanka dynasty of Magadha in East India. He was the son of King Bimbisara and was a contemporary of both Mahavira and Gautama Buddha.

39. (B) He was honored at the Silver Jubilee International Conference of Art held in Dhaka by Bangladesh Culture Minister K.M. Khalid. He was honored for the contribution of Nagaswamy in art, archaeology, history, and culture.

40. (D)

41. (A) Capitalist is an economic system characterized by private ownership of the means of production, especially in the industrial sector. Capitalism depends on the enforcement of private property rights, which provide incentives for investment in and productive use of productive capital.

42. (C) The Gol Gumbad (Gumbaz) of Bijapur is the mausoleum of Muhammad Adil Shah. Gol Gumbaz is the most famous monument in Vijayapura or Bijapur.

45. (B) Article 17 and Article 18 og Indian Constitution. "Untouchability" is abolished and its practice in any form is forbidden. The enforcement of any disability arising out of Untouchability" shall be an offence punishable in accordance with law.

46. (B) Vedic civilization flourished along the river Saraswati. The Vedic Period is estimated to be from 1500 BC and 500 BC.

47. (D) In the 4th century BCE, the capital of Magadha was shifted to Pataliputra.. Impressed by its strategic location, successors of Ajatshatru, Udayabhadra or Udayin shifted the capital of Magadha kingdom from Rajgriha to Pataliputra.

48. (D) Delhi's Khari Baoli is Asia's largest spice market, and its journey to this fame has been a long yet an interesting one. It came into being during the 17th century, dating back to the Mughal era.

49. (B) The Asian Development Bank (ADB) and Government of India on Wednesday signed a 300-million-dollar loan agreement as additional financing to scale up rural connectivity in Maharashtra.

51. (B) Required average = $\left(\dfrac{50.25 \times 16 + 45.15 \times 8}{16 + 8}\right)$

$= \left(\dfrac{804 + 361.20}{24}\right) = \dfrac{1165.20}{24} = 48.55$

52. (B)
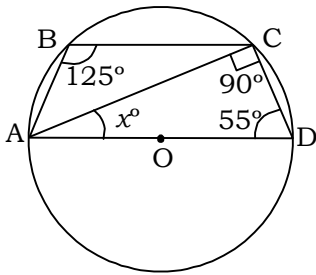
AD is diameter of circle, so $\angle ACD = 90°$ and ABCD is a cyclic quadrilateral.

So, $\angle ABC + \angle ADC = 180°$

$125° + \angle ADC = 180°$

$\angle ADC = 55°$

In $\triangle ACD$,

$\angle x + \angle ACD + \angle CDA = 180°$

$x + 90 + 55° = 180°$

$x = 35°$

53. (B) $\dfrac{p^2 - p}{2p^3 + 6p^2} = \dfrac{p(p^2 - 1)}{2p^2(p + 3)} = \dfrac{(p - 1)}{2p(p + 3)}$

$\dfrac{p^2 - 1}{p^2 + 3p} = \dfrac{(p - 1)(p + 1)}{p(p + 3)}$

$\therefore \quad \dfrac{p - 1}{2p(p + 3)} + \dfrac{(p - 1)(p + 1)}{p(p + 3)} + \dfrac{p^2}{p + 1} = \dfrac{1}{2p^2}$

54. (A) Let speed = $\dfrac{x}{y} = \dfrac{4}{3}$

Then, usual time = $\dfrac{x}{x - y} \times t = \dfrac{4}{4 - 3} \times 10 = 40$ minutes

55. (C) A can type $\dfrac{75}{25} = 3$ pages in 1 hour

A + B can type $\dfrac{135}{27} = 5$ pages in 1 hour

B can type $(5 - 3) = 2$ pages in 1 hour

$\therefore$ B can type 42 pages in $\dfrac{42}{2} = 21$ hours

56. (B) C.P. of the article = $\dfrac{450}{90} \times 100 = ₹\ 500$

$\therefore$ Gain% = $\left(\dfrac{540 - 500}{500} \times 100\right)\% = 8\%$

57. (D) Let side of equilateral triangle = x cm

Area = $\frac{\sqrt{3}}{4} x^2$

New side = $(x - 2)$ cm

New area = $\frac{\sqrt{3}}{4} (x - 2)^2$ cm^2

Now we have,

$\frac{\sqrt{3}}{4} [(x^2 - (x - 2)^2] = 4\sqrt{3}$

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

$4x - 4 = 16$

∴ $x = 5$ cm

58. (A) $2x + 3y = \frac{11}{2}$ and $xy = \frac{5}{6}$

Cubing both sides,

$8x^3 + 27y^3 + 3 \times 2x \times 3y(2x + 3y) = \left(\frac{11}{2}\right)^3$

$8x^3 + 27y^3 = \frac{1331}{8} - 18 \times \frac{5}{6} \times \frac{11}{2}$

∴ $8x^3 + 27y^3 = \frac{1331}{8} - \frac{165}{2} = \frac{671}{8}$

59. (C) $\sin^6\theta + \cos^6\theta$

$= (\sin^2\theta)^3 + (\cos^2\theta)^3$

$= (\sin^2\theta + \cos^2\theta)(\sin^4\theta + \cos^4\theta - \sin^2\cos^2\theta)$

$= (\sin^2\theta)^2 + (\cos^2\theta)^2 - \sin^2\theta \cos^2\theta$

$= (\sin^2\theta + \cos^2\theta)^2 - 2\sin^2\theta \cos^2\theta - \sin^2\theta \cos^2\theta$

$= 1 - 3\sin^2\theta \cos^2\theta$

60. (D) Let the cost of low priced chair is = ₹ x

Then, the cost of high priced chair = ₹ $(900 - x)$

ATQ,

$\frac{4x}{5} + \frac{5}{4}(900 - x) = 900 + 90$

$\frac{4x}{5} - \frac{5x}{4} = 990 - 1125$

$\frac{16x - 25x}{20} = -135$

$\frac{-9x}{20} = -135$

∴ $x = \frac{135 \times 20}{9} = ₹ 300$

61. **(C)** Marked price = ₹ 60

Selling price of article = $60 \times \dfrac{85}{100}$ = ₹ 51

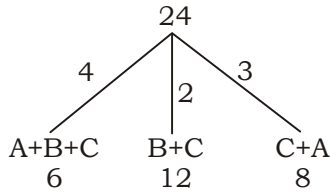Actual selling price after giving gift = 51 – 3 = ₹ 48

∴ Cost price = $48 \times \dfrac{100}{120}$ = ₹ 40

62. **(B)** Required Time = $\dfrac{\text{Distance between them}}{\text{Relative speeds}}$

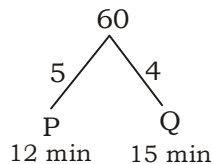= $\dfrac{5}{90-75}$ = $\dfrac{5}{15}$ = $\dfrac{1}{3}$ hour = 20 minutes

63. **(C)**

```
                24
          4   /  |  \   3
             /   2   \
        A+B+C   B+C   C+A
          6      12    8
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Efficiency of A = 4 – 2 = 2
Efficiency of B = 4 – 3 = 1

∴ (A + B) will do the work in $\dfrac{24}{2+1}$ = 8 days

64. **(D)**

```
            60
        5  /   \  4
          P     Q
       12 min  15 min
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Part of cistern filled in 3 minutes = (5 + 4) × 3 = 27
Remaining part = 60 – 27 = 33

∴ Q will take = $\dfrac{33}{4}$ minutes = $8\dfrac{1}{4}$ minutes

65. **(A)** Speed of second train = $\dfrac{360}{4}$ = 90 km/hr

Ratio of speeds of first and second train = 8 : 9

Speed of first train = $\dfrac{90}{9} \times 8$ = 80 km/hr

∴ Distance travelled in 3 hour by first train = 80 × 3 = 240 km

66. **(C)** Downstream speed of boy = 10 + 5 = 15 km/hr
Upstream speed of boy = 10 – 5 = 5 km/hr

Boy can go downstream = $\dfrac{60}{15}$ = 4 hours

Boy can go upstream = $\dfrac{60}{5}$ = 12 hours

∴ Boy can go upstream in 12 hours

67. (B) By option = $\sqrt[3]{9261}$ = $\sqrt[3]{21 \times 21 \times 21}$ = 21

68. (B) $a^{2x+2} = 1$

$a^{2x+2} = a^0$

$2x + 2 = 0$

$2x = -2$

$x = -1$

69. (D) $\sqrt{5 \div 5 \div 5 \div 5}$ = $\sqrt{5 \times \dfrac{1}{5} \times \dfrac{1}{5} \times \dfrac{1}{5}}$ = $\sqrt{0.04}$ = 0.2

70. (C) $l = b \times 3$

$b = \dfrac{l}{3}$

$l = h \times 5$

$h = \dfrac{l}{5}$

V = lbh

14400 = $l \times \dfrac{l}{3} \times \dfrac{l}{5}$

l^3 = 144 × 1500

$l = \sqrt[3]{216000}$

$l = 60$

$b = \dfrac{60}{3}$ = 20

$h = \dfrac{60}{5}$ = 12

∴ Total surface area = 2($lb + bh + lh$)

= 2(60 × 20 + 20 × 12 + 12 × 60)

= 2(1200 + 240 + 720) = 4320 cm²

71. (B) $\dfrac{K}{6} \neq \dfrac{1}{2}$

∴ K ≠ 3

72. (A) Required ratio = 3 : 2

73. (B) Average Demand of all companies = $\dfrac{3000 + 600 + 2500 + 1200 + 3300}{5}$ = 2120

Average production of all companies = $\dfrac{1500 + 1800 + 1000 + 2700 + 2200}{5}$ = 1840

∴ Required difference = 2120 – 1840 = 280

74. (C) Production of company D = 2700

Production of company A = 1500

∴ Required answer = $\dfrac{2700}{1500}$ = 1.8 times

75. (A) Required% = $\left(\dfrac{600}{2500} \times 100\right)\%$ = 24%

MEANINGS IN ALPHABETICAL ORDER

Aggressive	ready or likely to attack or confront; characterized by or resulting from aggression	आक्रामक
Dejected	sad and depressed; dispirited	उदास
Ductile	(of a metal) able to be drawn out into a thin wire	नमनीय
Emigrant	a person who leaves their own country in order to settle permanently in another	उत्प्रवासी
Exert	apply or bring to bear (a force, influence, or quality)	खींचना
Flatter	lavish insincere praise and compliments upon (someone), especially to further one's own interests	चापलूसी
Fragile	(of an object) easily broken or damaged	भंगुर
Frugal	sparing or economical with regard to money or food	मितव्ययी
Glittering	shining with a shimmering or sparkling light	शानदार
Malady	a disease or ailment	रोग
Melody	a sequence of single notes that is musically satisfying	राग
Nuisance	a person, thing, or circumstance causing inconvenience or annoyance	बाधा
Obligatory	required by a legal, moral, or other rule; compulsory	अनिवार्य
Parody	an imitation of the style of a particular writer, artist, or genre with deliberate exaggeration for comic effect	हास्यानुकृति
Pierce	(of a sharp pointed object) go into or through	प्रवेश करना
Piteous	deserving or arousing pity	दयनीय
Pursue	follow (someone or something) in order to catch or attack them	लक्ष्य रखना
Quisecent	in a state or period of inactivity or dormancy	मौन
Reckless	(of a person or their actions) without thinking or caring about the consequences of an action	लापरवाह
Remedy	a medicine or treatment for a disease or injury	निदान
Render	provide or give (a service, help, etc.)	प्रस्तुत करना
Scintillating	sparkling or shining brightly	जुटाकर
Stinging	having a sting; capable of wounding or piercing with a sting	डंसने वाला

SSC MOCK TEST - 309 (ANSWER KEY)

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

76. (C) Use plural form 'pairs' instead of singular form 'pair'

77. (C) Use singular verb 'finds' instead of plural verb 'find'.

90. (B) The correct spelling of 'Patrner' is 'Partner'.

91. (A) The correct spelling of 'Negociate' is 'Negotiate'.