SSC MOCK TEST - 299 (SOLUTION)

1. (A) $258 = 6^3 + 6^2 + 6 = 216 + 36 + 6$

   Similarly,

   584 $= 8^3 + 8^2 + 8 = 512 + 64 + 8$

2. (B) Second is the process of gradual disappearances of the first.

3. (B) All other three gives a sense of words (SAD, BACK and TRUE) by arranging the letters, but the word '**CFG**' does not have such meaning after arranging the letters.

4. (B) All except '**RICE**' are Kharif crops.

5. (D) $12306 \Rightarrow 1 \times 2 \times 3 = 06$

   $24216 \Rightarrow 2 \times 4 \times 2 = 16$

   $32424 \Rightarrow 3 \times 2 \times 4 = 24$

   $41206 \Rightarrow 4 \times 1 \times 2 = 08 \neq 06$

6. (D) S Q, R, X V, W, I K, **J**

   19 17, 18, 24 22, 23, 9 11, 10

   $\frac{19+17}{2}$ $\frac{24+22}{2}$ $\frac{9+11}{2}$

7. (A) 22 31 42 **55** 70 87

   +9 +11 +13 +15 +17

   +2 +2 +2 +2

8. (B) As,

M	A	D	N	E	S	S
@	!	^	%	*	?	?

   and,

L	O	V	E
>	&	$	*

   Similarly,

S	**E**	**L**	**D**	**O**	**M**
?	*****	**>**	**^**	**&**	**@**

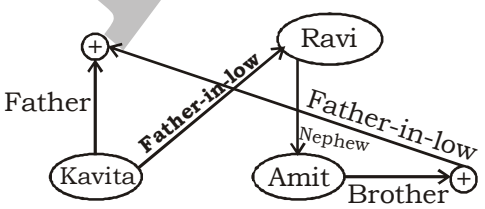
9. (C) As,

   $29 + 21 \Rightarrow 50 - 9 = 41$

   Similarly,

   $39 + 19 \Rightarrow 58 - 9 = 49$

10. (C)



11. (B) **p**svy/b**e**hk/**n**qt**w**

12. (D) As,
$36^2 = 1296$
$64^2 = 4096$
Similarly,
$16^2 = 256$

13. (A) $(4 \times 6) + (7 \times 6) = 66$ and
$(8 \times 9) + (14 \times 5) = 142$
Similarly,
$(11 \times 7) + (6 \times 9) =$ **131**

14. (D) 4. Admission → 2. College → 6. Class → 3. Learn → 5. Assessment → 1. Degree

15. (C) Gopal = 10 years
Priti = $10 \times 3 = 30$ years
Jeet = $30 + 5 = 35$ years
Father's age at time of his son's Gopal birth = $35 - 10 = 25$ years

16. (D) $17 + 12 \times 9 \div 3 - 8$
After Changing the signs as per the given details,

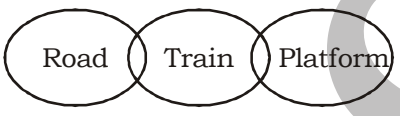
$$17 \div 12 - 9 \times 4 + 8 = \frac{17}{12} - 36 + 8$$

$$= \frac{17}{12} - 28 = \frac{17 - 336}{12} = -\frac{319}{12}$$

17. (C) Number of days from 27 February 2011 to 1 March 2012 = 368
∴ Required day = Sunday + 368 = Sunday + 52 + 4 = Thursday

18. (C) 19. (B) 20. (B) 21. (A) 22. (B) 23. (C)

24. (C)



I. Doubt II. False III. Doubt
Hence, either conclusion I or III follows.

25. (D) $(7)^3 + (4)^3 = 343 + 64 \Rightarrow 407 - 11 = 396$
$(8)^3 + (6)^3 = 512 + 216 \Rightarrow 728 - 19 = 709$
Similarly,
$(5)^3 + (3)^3 = 125 + 27 \Rightarrow 152 - 15 =$ **137**

26. (A) Olfactory receptors are located in nose. In terrestrial vertebrates, including humans, the receptors are located on olfactory receptor cells, which are present in very large numbers (millions) and are clustered within a small area in the back of the nasal cavity, forming an olfactory epithelium.

28. (C) The sky is blue due to a phenomenon called Raleigh scattering. This scattering refers to the scattering of electromagnetic radiation (of which light is a form) by particles of a much smaller wavelength.

30. (C) The Chief Justice and Judges of the High Courts are to be appointed by the President under clause (1) of Article 217 of the Constitution.

31. (B) Manipur Indian states does not have a common international border with Bangladesh. India enjoys close relations with Bangladesh and shares a 4,096-km-long border which touches Assam, Tripura, Mizoram, Meghalaya and West Bengal.

32. (B) The Battle of Chausa was a notable military engagement between the Mughal emperor, Humayun, and the Afghan, Sher Shah Suri. It was fought on 26 June 1539 at Chausa, 10 miles southwest of Buxar in modern-day Bihar, India.

33. (B) The study of viruses is known as virology, and those who study viruses are known as virologists. It has been argued extensively whether viruses are living organisms.

34. (C) Humans can detect sounds in a frequency range from about 20 Hz to 20 kHz. (Human infants can actually hear frequencies slightly higher than 20 kHz, but lose some high-frequency sensitivity as they mature; the upper limit in average adults is often closer to 15-17 kHz.)

36. (C) Megasthenes visited India sometime during the reign of Chandragupta Maurya.

37. (B) Odisha govt to set up district industry, investment promotion agency. In a step towards the creation of new employment opportunities and boosting of economic activities in rural areas, the State Government has decided to set up district-level Industry and Investment promotion agencies (DIPAs) in different districts.

38. (A) Indian economy is a mixed economy because it consists of both private and public sectors go side by side. Mixed economy implies demarcation and harmonization of the public and private sectors.

41. (D) The opinion of the Chief Justice of India for appointment of a Judge of the Supreme Court should be formed in consultation with a collegium of the four seniormost puisne Judges of the Supreme Court.

42. (C) Fertilization usually takes place in a fallopian tube that links an ovary to the uterus. If the fertilized egg successfully travels down the fallopian tube and implants in the uterus, an embryo starts growing.

45. (C) The monuments of Khajuraho are denotions of the Chandela dysnasty. The monuments were built by the Chandela dynasty between 950 and 1050 AD.

46. (B) Pakyong is the first greenfield airport to be constructed in the northeastern region of India. It is located about 31 kilometres south of Gangtok, capital of Sikkim.

50. (C) The loading operation for the maiden shipping voyage in Green Freight Corridor-2 has been inaugurated recently by the Union Minister of State for Ports, Shipping and Waterways Mansukh Mandaviya. The corridor is in the state of Kerala and connects Kochi to Beypore and Azhikkal ports.

51. (B) Let the speed of train and speed of man be 9x m/s and 2x m/s respectively.

Length of train = 720 m

Time taken to cross a pole = 1 minute 30 seconds = 90 seconds

Speed of train = $\frac{720}{90}$ = 8 m/s

Now, speed of man = $\frac{8}{9} \times 2 = \frac{16}{9}$ m/s

Time taken by train to cross the platform = $\frac{720+480}{8} = \frac{1200}{8}$ = 150 seconds

Time taken by man to cross the platform = $\frac{480}{16} \times 9$ = 270 seconds

$\therefore$ Required difference = 270 – 150 = 120 seconds = 2 minutes

52. (A) Quantity of sugar = $\frac{40}{8}\times 5$ = 25 litres

Quantity of water = $\frac{40}{8}\times 3$ = 15 litres

Let x litres of water should be added in the mixture.

ATQ,

$$\frac{25}{15+x}=\frac{3}{5}$$

$125 = 45 + 3x$

$3x = 80$

$x = \frac{80}{3}$ litres $= 26\frac{2}{3}$ litres

53. (D) 6 women can complete the work in 3 days.

Therefore 4 women can complete the work in $\frac{3\times 6}{4}=\frac{9}{2}$ days

Work done by 4 women in 3 days = $\frac{3}{9}\times 2=\frac{2}{3}$

Remaining work = $1-\frac{2}{3}=\frac{1}{3}$

16 children do $\frac{1}{3}$ work in 3 days.

Now, $\frac{M_1D_1}{W_1}=\frac{M_2D_2}{W_2}$

$$\frac{16\times 3}{\frac{1}{3}}=9\times D_2$$

$$D_2=\frac{16\times 3\times 3}{9}=16\,\text{days}$$

54. (D) Let the speed of man in still water be x km/hr.

Speed of stream = 3 km/hr

Speed of man in upstream = (x – 3) km/hr

Speed of man in downstream = (x + 3) km/hr

ATQ,

$$\frac{D}{x-3}=9 \qquad \text{.....(i)}$$

$$\frac{D}{x+3}=6 \qquad \text{.....(ii)}$$

Dividing equation (i) by (ii), we get

$$\frac{x+3}{x-3}=\frac{9}{6}$$

$6x + 18 = 9x - 27$

$3x = 45$

$$x=\frac{45}{3} = 15 \text{ km/hr}$$

55. (C) $\sin\theta + \text{cosec}\theta = 4$

$$\sin\theta+\frac{1}{\sin\theta}=4$$

Squaring both sides,

$$\sin^2\theta+\frac{1}{\sin^2\theta}+2\sin\theta.\frac{1}{\sin\theta}=16$$

$$\sin^2\theta+\frac{1}{\sin^2\theta} = 16 - 2$$

$$\frac{\sin^4\theta+1}{\sin^2\theta}=14$$

56. (B) $$\frac{2}{3}\div\frac{3}{10}\text{ of }\frac{4}{9}-\frac{4}{5}\times1\frac{1}{9}\div\frac{8}{15}-\frac{3}{4}+\frac{3}{4}\div\frac{1}{2}$$

$$=\frac{2}{3}\div\frac{12}{90}-\frac{4}{5}\times\frac{10}{9}\div\frac{8}{15}-\frac{3}{4}+\frac{3}{4}\div\frac{1}{2}$$

$$=\frac{2}{3}\times\frac{90}{12}-\frac{4}{5}\times\frac{10}{9}\times\frac{15}{8}-\frac{3}{4}+\frac{3}{4}\times\frac{2}{1}$$

$$=5-\frac{5}{3}-\frac{3}{4}+\frac{3}{2}$$

$$=\frac{60-20-9+18}{12}=\frac{49}{12}=4\frac{1}{12}$$

57. (A) Let the Amount A be ₹ x.

Amount B = ₹(36000 – x)

ATQ,

$$\frac{x\times15\times4}{100}=\frac{(36000-x)\times15\times6}{100}$$

$2x = 108000 - 3x$

$5x = 108000$

$$x=\frac{108000}{5} = ₹\,21600$$

Amount B = 36000 – 21600 = ₹ 14400

$\therefore$ Total interest received $$=\frac{21600\times15\times4}{100}+\frac{14400\times15\times6}{100}$$

= 12960 + 12960 = ₹ 25920

58. (B) $\frac{\sin(A+B)-2\sin A+\sin(A-B)}{\cos(A+B)-2\cos A+\cos(A-B)}$

$= \frac{\sin A.\cos B+\cos A.\sin B+\sin A.\cos B-\cos A.\sin B-2\sin A}{\cos A.\cos B-\sin A.\sin B+\cos A.\cos B+\sin A.\sin B-2\cos A}$

$= \frac{2\sin A\cos B-2\sin A}{2\cos A\cos B-2\cos A} = \frac{2\sin A(\cos B-1)}{2\cos A(\cos B-1)} = \frac{\sin A}{\cos A} = \tan A$

59. (D) Let the present age of Raghav and Ravi be 3x and 4x respectively.
ATQ,

$\frac{3x-12}{4x-12} = \frac{2}{3}$

$9x - 36 = 8x - 24$

$x = 12$ years

∴ Required difference = $(4x - 3x) = x = 12$ years

60. (B) $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$

$7^3 = 217 + 3ab(7)$

$343 - 217 = 21ab$

$21ab = 126$

$ab = \frac{126}{21} = 6$

61. (B) Let the first number be x.
Second number = $(25 - x)$
ATQ,
LCM × HCF = First number × Second number

$30 \times 5 = x \times (25 - x)$

$x^2 - 25 + 150 = 0$

$x^2 - 15x - 10x + 150 = 0$

$x(x - 15) - 10(x - 15) = 0$

$(x - 10)(x - 15) = 0$

$x = 10$ and 15

∴ Required difference = $15 - 10 = 5$

62. (C) $(2a - 5)^2 + (2b + 3)^2 + (c + 1)^2 = 0$

$(2a - 5)^2 = 0$

$a = \frac{5}{2}$

$(2b + 3)^2 = 0$

$b = \frac{-3}{2}$

$(c + 1)^2 = 0$

$c = -1$

Now, $a + b + c = \frac{5}{2} - \frac{3}{2} - 1 = \frac{5-3-2}{2} = 0$

$\therefore$ $a^3 + b^3 + c^3 - 3abc = 0$

Now, $\dfrac{a^3 + b^3 + c^3 - 3abc}{a^3 + b^3 + c^3} + 4$

$= \dfrac{0}{a^3 + b^3 + c^3} + 4 = 4$

63. (B) When A gets 100 paise, B gets 90 paise

When B gets 100 paise, C gets 110 paise

When B gets 90 paise, C gets $\dfrac{110}{100} \times 90$ = 99 paise

Now, A : B : C = 100 : 90 : 99

$\therefore$ Required difference = $\dfrac{115600}{289} \times 1$ = ₹ 400

64. (B) QR is direct common tangent of circle O and O'.

$QR = PR = PQ = 2\sqrt{r_1 r_2} = 2\sqrt{9 \times 4} = 12$ cm

In radius of ΔPQR = $\dfrac{12}{2\sqrt{3}} = 2\sqrt{3}$ cm

Area of ΔPQR = $\dfrac{\sqrt{3}}{4} \times 12 \times 12 = 36\sqrt{3}$ cm^2

Required area of shaded portion = Area of ΔPQR – Area of circle

$= 36\sqrt{3} - \pi \times \left(2\sqrt{3}\right)^2 = 36\sqrt{3} - \dfrac{22}{7} \times 12$

$= 12\left(3\sqrt{3} - \dfrac{22}{7}\right) = 12\left(\dfrac{21\sqrt{3} - 22}{7}\right)$ cm^2

65. (B) The smallest 3 digit number divisible by 6 is 102 and the largest one is 996.

Let there be n such numbers.

The set of numbers forms an arithmetic sequence:

$t_n = a + (n - 1)d$

Here, d = 6, a = 102

996 = 102 + (n – 1) 6

(n – 1)6 = 996 – 102 = 894

$n - 1 = \dfrac{894}{6} = 149$

n = 149 + 1 = 150

66. (C) Let the speed of the current be a km/hr and speed of boat in still water be 5a km/hr.

ATQ,

$$\frac{x}{\frac{5a+a}{5}} = \frac{x-75}{\frac{5a-a}{4}}$$

$$\frac{5x}{6a} = \frac{4x-300}{4a}$$

$20x = 24x - 1800$

$4x = 1800$

$$x = \frac{1800}{4} = 450$$

67. (A) Let the breadth be x cm

Length = (4 + x)cm

ATQ,

$x(4 + x) = (4 + x - 2)(x + 1)$

$4x + x^2 = (2 + x)(x + 1)$

$4x + x^2 = 2x + 2 + x^2 + x$

$4x = 3x + 2$

$x = 2$

Breadth = 2 cm

Length = (2 + 4) = 6 cm

$\therefore$ Perimeter of rectangle = $2(2 + 6) = 2 \times 8 = 16$ cm

68. (D) Let the total marks be x.

ATQ,

$$x \times \frac{45}{100} + 45 = x \times \frac{50}{100} + 25$$

$$\frac{50x}{100} - \frac{45x}{100} = 45 - 25$$

$$\frac{5x}{100} = 20$$

$$x = \frac{20 \times 100}{5} = 400$$

Now, passing marks = $400 \times \frac{45}{100} + 45 = 225$

Marks scored by Shashi, when he scored 58% = $400 \times \frac{58}{100} = 232$

$\therefore$ Shashi passed the exam by 7 marks.

69. (B) Required amount a customer has to paid = $25000 \times \frac{80}{100} \times \frac{95}{100} =$ ₹ 19000

70. (A) Let the first term be a and common difference be d.

ATQ,

$a + (3 - 1) \times d = 15$

$a + 2d = 15$ .....(i)

and $a + (5 - 1) \times d = 23$

$a + 4d = 23$ .....(ii)

By subtracting equation (i) from (ii), we get

$a + 2d - a - 4d = 15 - 23$

$2d = 8$

$d = 4$

Put the value of d in equation (i),

$a + 2 \times 4 = 15$

$a = 15 - 8 = 7$

$\therefore a_{15} = a + (15 - 1) \times d$

$= 7 + 14 \times 4 = 7 + 56 = 63$

71. (C) Total number of items sold by shop A in May and June together = 36 + 54 = 90

Total number of items sold by shop A in February and March together = $90 \times \frac{80}{100} = 72$

Number of items sold by shop A in February = 72 – 48 = 24

$\therefore$ Number of items sold by shop A in January = 150 – 24 = 126

72. (A) Total number of items sold by shop C in April and May together = 48 + 64 = 112

Total number of items sold by shop B in February and March together = $\frac{112}{2} \times 1 = 56$

$\therefore$ The total number of items sold by shop B in March = 56 – 42 = 14

73. (B) Total number of items sold in April by all the shop = 32 + 28 + 48 + 56 = 164

Total number of items sold in March by all the shop = 32 + 28 + 48 + 56 = 164

Number of item sold by shop B in March = 164 – (48 + 24 + 74) = 18

$\therefore$ Required percentage = $\left(\frac{18}{36} \times 100\right)\% = 50\%$

74. (D) Number of items sold by shop D in June = $64 \times \frac{150}{100} = 96$

Total number of items sold by shop D in May and June together = 32 + 96 = 128

Total number of items sold by shop A in March and April together = 48 + 32 = 80

$\therefore$ Required difference = 128 – 80 = 48

75. (D) Number of items sold by shop C in May = $81 \times \frac{1}{3} = 27$

Total number of items sold by shop B in February and June together = 42 + 81 = 123

Total number of items sold by shop C in May and June together = 27 + 36 = 63

$\therefore$ Required ratio = 123 : 63 = 41 : 21

MEANINGS IN ALPHABETICAL ORDER

Addictive	(of a substance or activity) causing or likely to cause someone to become addicted	नशे की लत
Adroit	clever or skillful in using the hands or mind	निपुण
Coax	gently and persistently persuade (someone) to do something	मनाना
Commend	praise formally or officially	सराहना
Contagious	(of a disease) spread from one person or organism to another by direct or indirect contact	संक्रामक
Ecstatic	feeling or expressing overwhelming happiness or joyful excitement	उन्मादपूर्ण
Enigmatic	difficult to interpret or understand; mysterious	रहस्यपूर्ण
Exalt	hold (someone or something) in very high regard; think or speak very highly of	प्रशंसा करना
Extensive	covering or affecting a large area	बहुत बड़ा
Extortion	the practice of obtaining something, especially money, through force or threats	जबरदस्ती वसूली
Fanatic	a person filled with excessive and single-minded zeal, especially for an extreme religious	कट्टर
Incorrigible	(of a person or their tendencies) not able to be corrected, improved, or reformed	असंशोधनीय
Infatuated	possessed with an intense but short-lived passion or admiration for someone	मुग्ध
Inquisitive	curious or inquiring	जिज्ञासु
Pew	a long bench with a back, placed in rows in the main part of some churches to seat the congregation	बेंच
Radical	(especially of change or action) relating to or affecting the fundamental nature of something; far-reaching or thorough	उग्र
Reminisce	indulge in enjoyable recollection of past events	याद दिलाना
Resolute	admirably purposeful, determined, and unwavering	दृढ़

SSC MOCK TEST - 299 (ANSWER KEY)

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

76. (A) Replace ‘my’ with ‘our’.

77. (A) Replace “little” with “a little”.

90. (D) The correct spelling of 'Existensial' is 'Existential'.

91. (B) The correct spelling of 'Adreneline' is 'Adrenaline'.