SSC MOCK TEST - 324 (SOLUTION)

1. (A) As, $389 \Rightarrow (3 + 8 + 9)^2 = 400$

    Similarly, $478 \Rightarrow (4 + 7 + 8)^2 = 361$

2. (C) Silicon is a Semiconductor, while Graphite is Conductor.

3. (B) (A) $18^2 = 324$

    (B) $17^2 = 289 \neq 283$

    (C) $16^2 = 256$

    (D) $21^2 = 441$

4. (C) Except Sulphur, others are metal.

5. (B) As,

    M   O   U   T   H   N   L   F   G   S

    Reverse

    Similarly,

    C   H   A   R   G   E   **X   S   Z   I   T   V**

    Reverse

6. (D) 317   344   408   533   **749**

    $+3^3$ $+4^3$ $+5^3$ $+6^3$

7. (C) N   T   Y   C   F   **H**

    +6   +5   +4   +3   +2

8. (C) A is older than P and younger than S.

    $S > A > P$

    L is the oldest and P is older than B.

    $L > S > A > P > B$

    Therefore, P is the second youngest among them.

9. (A) As, $234 + 236 = 470 \Rightarrow 4 + 7 + 0 = 11$

    Similarly, $343 + 543 = 886 \Rightarrow 8 + 8 + 6 = 22$

10. (C) dl**jq**r/**d**l**jq**r/dl**j**qr

11. (C)

12. (D) **In the first row,**

    $24 + 23 = 47 \Rightarrow 47 \times (4 + 7) = 517$

    In the second row,

    $28 + 34 = 62 \Rightarrow 62 \times (6 + 2) = 496$

    In the third row,

    $31 + 39 = 70 \Rightarrow 70 \times (7 + 0) = 490$

13. (C) $324 \div 4 \times 16 + 18 – 15 = 277$

    After changing 4 and 18,

    $324 \div 18 \times 16 + 4 – 15 = 277$

    $18 \times 16 + 4 – 15 = 277$

    $292 – 15 = 277$

    $277 = 277$

14. (B) 27   April   Year   Thursday

    20   October   Same year

    Remaining days (Days left which are not divided by 7 i.e. in May - Out of 31 days, 28 are divided by 7, 3 days are left, so 3 is given for May).

Months	April	May	June	July	Aug	Sep	Oct
Remaining days	3	3	2	3	3	2	6

    Total number of remaining days = 22

    $\dfrac{22}{7}$ (Number of days in a week) = 1 (remainder)

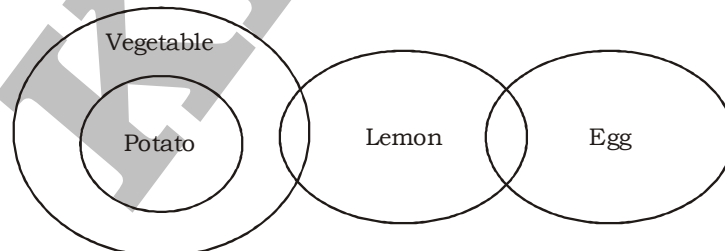   Thus, day on 20th Oct will be (Thursday + 1) = Friday

15. (B) 2. Drubbing → 4. Drudgery → 1. Drum → 3. Drunken → 5. Duster

16. (A) $\overset{-}{P} \Longleftrightarrow \overset{+}{O}$

    $|$

    $\overset{+}{M}$

    $|$

    $\overset{-}{Q}$

    Hence, M is the son of O.

17. (D)

    I. False   II. False   III. False

    Hence, no conclusion follows.

18. (D)   19. (B)

20. (D) As,

```
C   O   R   A   L       M   C   U   S   H
|           |       |   |   |   |   |
            +1
        +2
    +3
+4
+5
```

Similarly,

```
H   E   N   C   E       F   E   Q   I   M
|           |       |   |   |   |   |
            +1
        +2
    +3
+4
+5
```
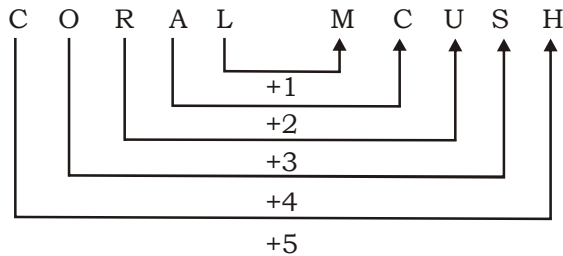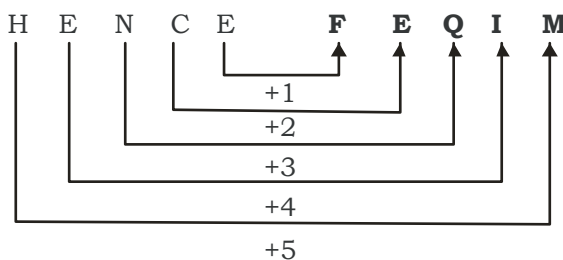
21. (D) As, $374 \Rightarrow 3 \times 7 \times 4 = 84$

$374 + 84 = 458$

Similarly, $295 \Rightarrow 2 \times 9 \times 5 = 90$

$295 + 90 = 385$

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

26. (A) Kush Bhagat has recently won three gold medals in the 1st Western Asia Youth Chess Championships at Al Ain Chess Club in United Arab Emirates (UAE) in all the three categories - rapid, blitz and standard. With this, he became the only Indian to bag all the crowns in the competition.

30. (D) The NTFD is observed every year on December 30 in India to create awareness for the welfare of persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities.

31. (A) When the bacteria use the lactose sugars to reproduce, they change it from "lactose sugar" into "lactic acid," which tastes sour.

33. (C) Blood is normally slightly basic, with a normal pH range of about 7.35 to 7.45. Usually the body maintains the pH of blood close to 7.40. A doctor evaluates a person's acid-base balance by measuring the pH and levels of carbon dioxide (an acid) and bicarbonate (a base) in the blood.

34. (C) Name the characteristic of sound which can distinguish between the 'notes' (musical sounds) played on a flute and a sitar (both the notes having the same pitch and loudness).

35. (B) Telangana is currently witnessing cases of Covidengue, which occurs when a COVID-19 patient is infected with the Dengue virus.

37. (D) Anil Baijal is a retired Central Government Civil Servant of the Indian Administrative Service cadre and is the 21st Lieutenant Governor of Delhi. He took over office on 31 December 2016 after the sudden resignation of Najeeb Jung.

38. (D) Mudrarakshasa is a historical play in Sanskrit by Vishakhadatta that narrates the ascent of the king Chandragupta Maurya to power in India.

39. (D) The Government of India constituted NITI Aayog to replace the Planning Commission, which had been instituted in 1950.

41. (C) judicial review, power of the courts of a country to examine the actions of the legislative, executive, and administrative arms of the government and to determine whether such actions are consistent with the constitution. Actions judged inconsistent are declared unconstitutional and, therefore, null and void.

42. (A) The Anarchical and Revolutionary Crimes Act of 1919, popularly known as the Rowlatt Act, was a legislative council act passed by the Imperial Legislative Council in Delhi on 18 March 1919, indefinitely extending the emergency measures of preventive indefinite detention, incarceration without trial and judicial review ...

45. (A) The world's highest bridge "Beipanjiang Bridge" has been opened to traffic in China. The bridge soars 565 metres (1,854 feet) above a river and connects the two mountainous provinces of Yunnan and Guizhou and is expected to reduce road travel times from Liupanshui to Xuianwei from 4 hours to 2 hrs.

47. (A) The group of small pieces of rock revolving around the sun between the orbits of mars and Jupiter are called asteroids.

48. (D) Tuhin Sinha is an Indian writer who writes novels, non-fiction and also for television. He is credited with redefining the political thriller genre in India. His first novel, That Thing Called Love, was followed by a story based on the fickleness of the public in their loyalty and admiration for public personalities.

49. (C) The excited mercury atoms produce shortwave ultraviolet light that then causes a phosphor to fluoresce, producing visible light. 6500 K is usually printed on a used fluorescent tubelight.

50. (C) Indian weightlifter Jhilli Dalabehera has won the gold medal in the women's 49kg category at the Commonwealth Weightlifting Championships in Tashkent, Uzbekistan.

51. (B) CI for 2 years at 5% = 5% + 5% + $\frac{5 \times 5}{100}$ = 10.25%

SI for 2 years at 5% = 10%
So, difference between the interests = 10.25 % – 10% = 0.25 %
0.25% of x = 12
1% of x = 12 × 4
100% of x = x = 4800
So, the value of x = ₹ 4800

52. (C) Quantity of Milk = $40 \times \frac{3}{5}$ = 24 litres

Quantity of Water = $40 \times \frac{2}{5}$ = 16 litres

If 15 litres of mixture is removed, then amount of milk removed = $15 \times \frac{3}{5}$ = 9 litres and

amount of water removed = $15 \times \frac{2}{5}$ = 6 litres

Remaining milk = 24 – 9 = 15 litres
Remaining water = 16 – 6 = 10 litres
Now, 15 litres of pure milk are added, then quantity of milk = 15 + 15 = 30 litres

∴ Required ratio = 30 : 10 = 3 : 1

53. (A) If N = $2^a \times 3^b \times 5^c \times 7^d$ ....
Then the total number of factors = (a + 1) (b + 1) (c + 1) (d + 1) ......
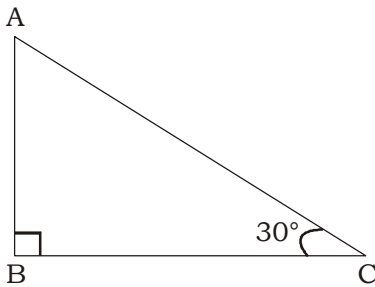ATQ,
46200 = $2^3 \times 3 \times 5^2 \times 7 \times 11$
Hence, the total number of factors = (3 + 1) (1 + 2) (2 + 1) (1 + 1) (1 + 1)
= 4 × 2 × 3 × 2 × 2 = 96

54. (A)

If AB = 20 cm and $\angle C = 30°$,

Then,

$$\tan 30° = \frac{AB}{BC}$$

$$\frac{1}{\sqrt{3}} = \frac{10}{BC}$$

BC = $10\sqrt{3}$ cm

and, sin 30° = $\frac{AB}{AC}$

$$\frac{1}{2} = \frac{10}{AC}$$

AC = 20 cm

Now, in radius of a right angle triangle ABC = $\dfrac{\text{Base + Height – Hypotenuse}}{2}$

$$= \frac{10 + 10\sqrt{3} - 20}{2} = \frac{10\sqrt{3} - 10}{2} = \frac{10(\sqrt{3} - 1)}{2} = 5(\sqrt{3} - 1)\,\text{cm}$$

55. (B) Let his new average be x.

Total runs of 15 innings = 15 (x – 4)

ATQ,

15(x – 4) + 115 = 16x

15x – 60 + 115 = 16x

x = 55

56. (D) Let the length of the train be x km and its speed be y km/h.

Speed of the train relative to first man = (y – 2) km/h

Speed of the train relative to second man = (y – 4) km/h

$$\therefore \frac{x}{(y - 2)} = \frac{9}{(60 \times 60)}$$

and $\dfrac{x}{(y - 4)} = \dfrac{10}{(60 \times 60)}$

y – 2 = 400x and y – 4 = 360x

400x + 2 = 360x + 4

40x = 2

$$x = \frac{1}{20} km$$

$$= \left(\frac{1}{20} \times 1000 \right) m = 50\,m$$

∴ Length of the train = 50 m

57. (C) Let A can do 100 units of work in 40 days.

Then B will complete 25 units of work in 8 days.

Then, A's 1 unit = $\frac{40}{100} = \frac{2}{3}$ days

B's 1 unit = $\frac{8}{25}$ days

50% of work will be completed by A = $50 \times \frac{2}{5}$ = 20 days

B = $50 \times \frac{8}{25}$ = 16 days

∴ Together they can complete the work in

$$\frac{xy}{x+y} = \frac{20 \times 16}{20 + 16} = \frac{320}{36} = 8\frac{8}{9} \text{ days}$$

58. (A) Required passing % = $\left(\frac{240 + 15}{500} \times 100 \right)\% = 51\%$

59. (C) CP = ₹ 120

MP = ₹ 180

SP = $180 \times \frac{75}{100}$ = ₹ 135

Profit% = $\left(\frac{135 - 120}{120} \times 100 \right)\%$ = 12.5%

60. (B) $\dfrac{\sec A}{\sqrt{\sec^2 A - 1}} = x$

$$x = \frac{\sec A}{\sqrt{\dfrac{1}{\cos^2 A} - 1}}$$

$$x = \frac{\sec A}{\sqrt{\dfrac{1 - \cos^2 A}{\cos^2 A}}} = \operatorname{cosec} A$$

61. (B) In these type of questions, we find the different of the numbers to cancel out the same remainder.

   After this, we find the HCF of the resultant numbers.

   Required number = HCF of (91 – 43), (183 – 91) and (183 – 43)

   = HCF of 48, 92 and 140 = 4

62. (B) $\cot\theta + \tan\theta = 2\sec\theta$

   Let $\theta = 30°$

   $\cot 30° + \tan 30° = 2\sec 30°$

   $$\sqrt{3} + \frac{1}{\sqrt{3}} = 2 \times \frac{2}{\sqrt{3}}$$

   $$\frac{4}{\sqrt{3}} = \frac{4}{\sqrt{3}}$$

   Hence, $\theta = 30°$, satisfies the equation,

   $$\frac{\tan 2\theta - \sec\theta}{\cot 2\theta + \csc\theta}$$

   $$= \frac{\sqrt{3} - \frac{2}{\sqrt{3}}}{\frac{1}{\sqrt{3}} + 2} == \frac{\frac{1}{\sqrt{3}}}{\frac{2\sqrt{3}+1}{\sqrt{3}}}$$

   $$= \frac{1}{2\sqrt{3}+1} \times \frac{2\sqrt{3}-1}{2\sqrt{3}-1}$$

   $$= \frac{\left(2\sqrt{3}-1\right)}{11}$$

63. (D) Perimeter of wheel of bicycle = $\dfrac{\text{Distance}}{\text{Number of rotation}} = \dfrac{1760}{400}$ = 4.4 m

   Perimeter = $2\pi r$

   $2\pi r = 4.4$

   $$2 \times \frac{22}{7} \times r = 4.4$$

   $$r = \frac{4.4 \times 7}{44} = \frac{7}{10}\,m = 70\,cm$$

64. (C) Let height and radius of cylinder are h = 100 and r = 100

   Then, Volume $= \pi r^2 h = \pi(100)^2 \times 100 = 10^6 \pi$

   Radius increased by 150 and height decreased by 20 cm respectively.

   New height = 100 – 20 = 80

   New radius = 100 + 150 = 250

   New volume = $\pi(250)^2 \times 80 = 5\pi \times 10^6$

   Increase in volume $= 5\pi \times 10^6 - 10^6\pi = 4\pi \times 10^6$

   Percentage increase in volume = $\dfrac{4\pi \times 10^6}{\pi \times 10^6} \times 100$ = 400%

65. (C) Part filled by (A + B) in 1 hour = $\dfrac{1}{8}$

   Part filled by (B + C) in 1 hour = $\dfrac{1}{12}$

   Part filled by (A + C) in 1 hour = $\dfrac{1}{16}$

   Now, part filled by 2(A + B + C) in 1 hour = $\dfrac{1}{8} + \dfrac{1}{12} + \dfrac{1}{16}$

   $= \dfrac{6+4+3}{48} = \dfrac{13}{48}$

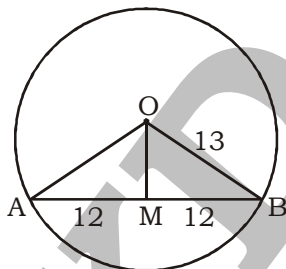   Part filled by (A + B + C) in 1 hour = $\dfrac{13}{96}$

   $\therefore$ Required time = $\dfrac{96}{13}$ hours = $7\dfrac{5}{13}$ hours

66. (B) $\dfrac{14\dfrac{2}{5} \div \dfrac{2}{15} \text{ of } \dfrac{1}{4} + \dfrac{5}{6} \times 7}{\dfrac{7}{8} \text{ of } 168 - 40 + 13}$

   $= \dfrac{\dfrac{72}{5} \times \dfrac{60}{2} + \dfrac{35}{6}}{147 - 40 + 13}$

   $= \dfrac{432 + \dfrac{35}{6}}{120} = \dfrac{2627}{720}$

67. (B)

   In ΔOBM,
   OB^2 = OM^2 + BM^2 (By Pythagoras theorem)
   13^2 = OM^2 + 12^2
   OM^2 = 169 – 144
   OM^2 = 25
   OM = 5 cm

68. (D) $(3x + y)^3 = 27x^3 + y^3 + 9xy\,(3x + y) = 27x^3 + y^3 + 27x^2y + 9xy^2$
   $\therefore$ Co-officient of x^2 = 27y

69. (B) $T_3 = a + 2d = 17$ ......(i)

   $T5 = a + 4d = 27$ ......(ii)

   Subtracting (i) and (ii),

   $a + 4d - a - 2d = 27 - 17$

   $2d = 10$

   $d = 5$

   Put the value of d in equation (i),

   $a + 2d = 17$

   $a + 10 = 17$

   $a = 17$

   ∴ $T_{13} = a + 12d = 7 + 12 \times 5 = 67$

70. (A) $x^4 + x^2y^2 + y^4 = 391$

   $(x^2 - xy + y^2)(x^2 + xy + y^2) = x^4 + x^2y^2 + y^4$

   $x^2 + xy + y^2 = \dfrac{391}{17} = 23$ ....(i)

   $x^2 - xy + y^2 = 13$ ......(ii)

   Subtracting equation (ii) from (i),

   $x^2 + xy + y^2 - x^2 + xy - y^2 = 23 - 13$

   $2xy = 10$

   $xy = 5$

71. (C) Percentage increase/decrease in the income of company in the year

   2012 = $\left(\dfrac{6-5}{5} \times 100\right)\%$ = 20%

   2013 = $\left(\dfrac{6-5.5}{6} \times 100\right)\%$ = 8.33%

   2014 = $\left(\dfrac{7-5.5}{5.5} \times 100\right)\%$ = 27.27%

   2015 = $\left[\dfrac{7-6.5}{7} \times 100\right]\%$ = 7.14%

   2016 = $\left(\dfrac{6.5-5.5}{6.5} \times 100\right)\%$ = 15.38%

   ∴ Required answer is 2014.

72. (D) Profit % = $\left(\dfrac{5-2.25}{2.25} \times 100\right)\%$ = 122.22%

73. (A) Profit% = $\left(\dfrac{I-E}{E} \times 100\right)$

   $20 = \left(\dfrac{(7-E)}{E} \times 100\right)$

   $20E = 700 - 100E$

   $E = \dfrac{700}{120}$ = ₹ 5.83 lakh

74. (D) Required average = $\dfrac{4 + 4.5 + 5 + 4 + 5 + 5.5}{6}$ = $\dfrac{28}{6}$ = ₹4.66 lakh

75. (B) Required more% = $\left(\dfrac{5.5 - 4}{4} \times 100\right)$% = 37.5% more

MEANINGS IN ALPHABETICAL ORDER

Animosity	strong hostility	बैर
Arduous	involving or requiring strenuous effort	कठिन
Assiduous	showing great care and perseverance	परिश्रमी
Benevolence	the quality of being well meaning; kindness	भलाई
Charismatic	exercising a compelling charm which inspires devotion in others	करिश्माई
Conscience	an inner feeling or voice viewed as acting as a guide to the rightness or wrongness of one's behaviour	अंत:करण
Conscientious	(of a person) wishing to do what is right, especially to do one's work or duty well and thoroughly	ईमानदार
Contamination	the action or state of making or being made impure by polluting or poisoning	दूषण
Dismissive	feeling or showing that something is unworthy of consideration	खारिज
Exhilaration	a feeling of excitement, happiness, or elation	ज़िंदादिली
Feuds	a prolonged and bitter quarrel or dispute	झगड़ों
Harmony	the combination of simultaneously sounded musical notes to produce chords and chord progressions having a pleasing effect	सद्भाव
Heterogeneous	diverse in character or content	विजातीय
Homogenous	of the same kind; alike	सजातीय
Horrendous	extremely unpleasant, horrifying, or terrible	खराब
Idiosyncrasy	a mode of behavior or way of thought peculiar to an individual	लत
Mercurial	(of a person) subject to sudden or unpredictable changes of mood or mind	अस्थिर
Onerous	(of a task, duty, or responsibility) involving an amount of effort and difficulty that is oppressively burdensome	कष्टदायक
Pandemonium	wild and noisy disorder or confusion; uproar	विप्लव
Recalcitrant	having an obstinately uncooperative attitude toward authority or discipline	आज्ञा न मानने वाला
Sarcasm	the use of irony to mock or convey contempt	कटाक्ष
Turbulence	violent or unsteady movement of air or water	अशांति
Uninspiring	not producing excitement or interest	फीके
Uproar	a loud and impassioned noise or disturbance	कोलाहल
Vapid	offering nothing that is stimulating or challenging	नीरस
Volatile	(of a substance) easily evaporated at normal temperatures	परिवर्तनशील

SSC MOCK TEST - 324 (ANSWER KEY)

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