SSC MOCK TEST - 248 (SOLUTION)

1. (B) As,

$T_{20} \xrightarrow{+3} W_{23}$
$P_{16} \xrightarrow{-3} M_{13}$
$J_{10} \xrightarrow{+3} M_{13}$
$K_{11} \xrightarrow{-3} H_{8}$

Similarly,

$R_{18} \xrightarrow{+3} U_{21}$
$K_{11} \xrightarrow{-3} H_{8}$
$L_{12} \xrightarrow{+3} O_{15}$
$C_{3} \xrightarrow{-3} Z_{8}$

2. (D) As,

$$5 \times 3 \times 4 \times 2 \Rightarrow \frac{120}{2} = 60$$

Similarly,

$$6 \times 4 \times 5 \times 3 \Rightarrow \frac{360}{2} = 180$$

3. (C) Muslim prays in Mosque, while sikh prays in Gurudwara.
4. (B) Frog, Salamander and Snake are amphibian animals, while Whale is a mammal.
5. (D) (A) $A_1 \xrightarrow{(1)^2} 1 \longrightarrow A$

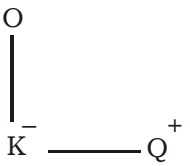
(B) $B_2 \xrightarrow{(2)^2} 4 \longrightarrow D$

(C) $E_5 \xrightarrow{(5)^2} 25 \longrightarrow Y$

But,

(D) $C \xleftrightarrow{\text{Opposite}} X$

6. (C) (A) $(11)^3 = 1331$
(B) $(12)^3 = 1728$
(C) $(16)^3 = 4096$
(D) $(17)^3 = 4913$
Hence, option (C) is different.
7. (B) 5. Certain → 3. Charming → 2. Complex → 1. Compress → 4. Condense
8. (C)



Hence, Q is son of O.

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9. (B) 4096 2744 **1728** 1000

$(16)^3$ $(14)^3$ $(12)^3$ $(10)^3$

−2 −2 −2

10. (B) M O R, P R U, T V **Y**

+2 +3 +2 +3 +2 +3

11. (D)

12. (D) As,

$4 \xrightarrow{(4)^2} 16\boxed{4}$

$8 \xrightarrow{(8)^2} 64\boxed{8}$

$12 \xrightarrow{(12)^2} 144\ \boxed{12}$

Similarly,

$16 \xrightarrow{(16)^2} 256\ \boxed{16}$

13. (C) From I[st] row,

$215 \xrightarrow{2\times1\times5} 10 \xrightarrow{+10} 20 \xrightarrow{2\times0} 0$

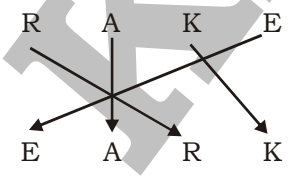
From II[nd] row,

$432 \xrightarrow{4\times3\times2} 24 \xrightarrow{+10} 34 \xrightarrow{3\times4} 12$

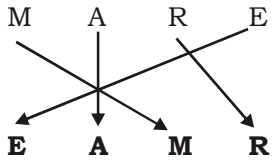
From III[rd] row,

$653 \xrightarrow{6\times5\times3} 90 \xrightarrow{+10} 100 \xrightarrow{1\times0\times0} 0$

14. (C) As,



Similarly,



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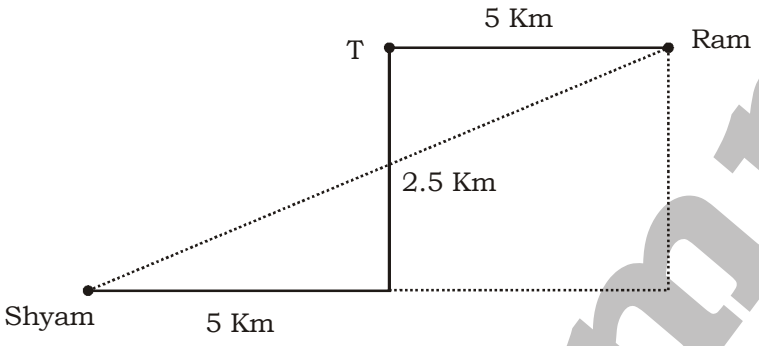
15. (B) B^- — D^+ — M^+ — N

Hence, M is the Grand son of B.

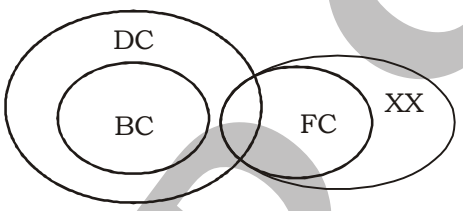
16. (B)



Required distance $= \sqrt{10^2 + (2.5)^2}$

$= \sqrt{100 + 6.25} = \sqrt{106.25}$ Km

17. (B)



Conclusion:

I. Doubt II. True

III. Doubt IV. False

Hence, only conclusion II and either conclusion I and III follow.

18. (A) mnmnmnnnmmnmnmmnmmm

19. (C) 20 * 8 & 3.5 % 3 @.9

After changing the sign.

$= 20 \div 8 \times 3.5 - 3 + 9$

$= 2.5 \times 3.5 - 3 + 9$

$= 8.75 - 3 + 9 = 17.75 - 3 = 14.75$

20. (C)

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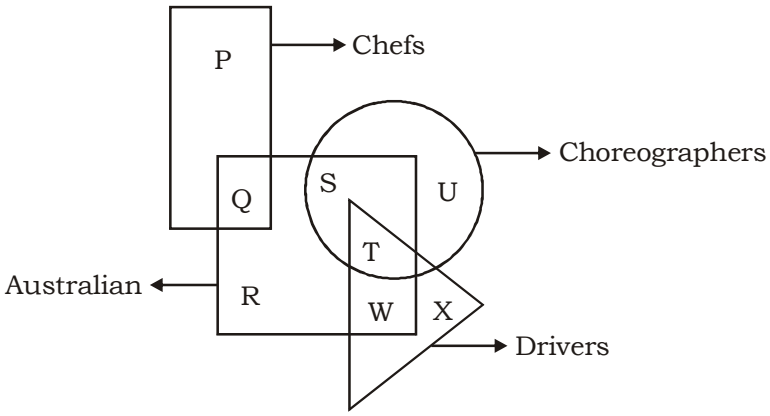
21. (B)



22. (A) Position of Punit from left end = 32
Position of Amit from right end = 26
After changing the position, Punit's position form the left end = 55
∴ Total number of boys in the row = 55 + 26 - 1 = 80

23. (D) 24. (A)

25. (D) N E A T
32 21 41 68

26. (A) In 185 BC, Mauryan king was overthrown by Pushyamitra Sunga, an ambitious commander-in-chief of armed forces. He started Sunga Dynasty in Magadha.

28. (B) Belgium, the Netherlands and Luxemburg are called the Low Countries. These are low countries because much of their land is at or below sea level.

29. (A) Rajasthan is the largest producer of gypsum. This state produces 99% of the total production of India. The main deposits occur in Tertiary clays and shales of Jodhpur, Nagaur and Bikaner.

31. (B) Effect of adding liquid is to make the cylinder more bottom heavy which is a more stable position.

32. (B) In the year 2014, Telangana was carved out of the state of Andhra Pradesh as the 29th state of India under the Andhra Pradesh Reorganisation Act. The capital of the state is Hyderabad and its population is about 3.5 crore.

33. (B) Potassium Chlorate (KCIO3) is a good oxidising agent and is used in the match industry. Hydrogen peroxide is a mild bleaching agent used to bleach the colour of delicate materials like silk, wool and feathers. Copper sulphate is used as a fungicide in agriculture as it is toxic to lower organisms. Bordeaux is used for this purpose. Silver nitrate, also known as lunar caustic, is the source for silver bromide and silver chloride which are used extensively in photographic print papers.

34. (A) Thiokol is a variety of synthetic rubber, Drikold is the trade name of dry ice, Perhydrol is the trade name of hydrogen peroxide and Mannitol is Hexahydric alcohol.

36. (D) CD-ROM disk as based on the technology used in Compact-Disk audio player and is a optical memoiy.

38. (B) Dandia Rasa is a harvest dance of Gujarat. It is performed (only by men) as an essential part of festivals synchronised with different agricultural operations like sowing and harvesting. It is associated with Krishna legend.

40. (A) The CPI-ML (PCC) was one of the very first Naxalite groups to participate in elections. Under his leadership, CPI-ML (PCC) was active in parts of Bengal, Bihar, Jharkhand and Assam. It played a significant role in opposing the CPI-M led government during the Nandigram land agitation, which contributed to the electoral debacle of the Left Front in West Bengal.

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41. (B) Babar defeated Ibrahim Lodhi in the First Battle of Panipat on April 21, 1526 and established Mughal Dynasty which lasted till the establishment of British Rule in India.

42. (B) Ganymede, the satellite of Planet Jupiter, is the largest and heaviest of all satellites in the Solar System.

44. (C) The judges of a high court are appointed by the President. The Chief Justice is appointed by the President after consultation with the Chief Justice of India and the Governor of the state concerned.

46. (B) The scheme ensures the delivery of ration cards, senior citizen identity and health cards at the door steps of citizens.
The newly launched scheme is a part of the 'Sakala' scheme of the state and will cover as many as 53 services of 11 state departments.

48. (D) High frequency sound attacks the tympanic membranae and makes it defective. 120 decibels are too high a pitch to be heard and therefore it impairs the hearing ability.

49. (D) Tritium is an isotope of Hydrogen which is radio-active, also Astatine and Francium are radioactive.

51. (C) $12\frac{1}{2}\% = \frac{25}{2}\% = \frac{1}{8}$

Initial	Final
8	7
8	7
8	7
512	343

343 unit = ₹ 2401
1 unit = ₹ 7
512 unit = ₹ 7 × 512 = ₹ 3584

52. (A) $\left(4+\sqrt{3}\right) : x : \left(16-\sqrt{48}\right)$

a : b : c
Mean proportion $\Rightarrow$ $b^2 = a \times c$

$x^2 = \left(4+\sqrt{3}\right)\left(16-\sqrt{48}\right)$

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

$x^2 = 4 \times (16 - 3)$
$x^2 = 52$
$\therefore$ $x = \sqrt{52} = 2\sqrt{13}$

53. (B)

	Total Work	Unit/day
A → 12	36	3
B → 18		2

A's 7 days work = 7 × 3 = 21 unit
So, (36 - 21) = 15 unit of work would have been done by A and B together.

Required time = $\frac{15}{(3+2)} = 3\,\text{days}$

So, B worked for 3 days.

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54. (B) $\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\frac{1}{30}+\frac{1}{42}+\frac{1}{56}+\frac{1}{72}+\frac{1}{90}$

$=\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+\frac{1}{4\times5}+\frac{1}{5\times6}+\frac{1}{6\times7}+\frac{1}{7\times8}+\frac{1}{8\times9}+\frac{1}{9\times10}$

$\left(\frac{1}{1}-\frac{1}{2}\right)+\left(\frac{1}{2}-\frac{1}{3}\right)+\left(\frac{1}{3}-\frac{1}{4}\right)+\left(\frac{1}{4}-\frac{1}{5}\right)+\left(\frac{1}{5}-\frac{1}{6}\right)+\left(\frac{1}{6}-\frac{1}{7}\right)+\left(\frac{1}{7}-\frac{1}{8}\right)+\left(\frac{1}{8}-\frac{1}{9}\right)+\left(\frac{1}{9}-\frac{1}{10}\right)$

$=\left(1-\frac{1}{10}\right)=\frac{10-1}{10}=\frac{9}{10}$

55. (D) 4 digit largest number formed by 0, 3, 4 and 8 = 8430

4 digit smallest number formed by 0, 3, 4 and 8 = 3048

$\therefore$ Average = $\frac{8430+3048}{2}=\frac{11478}{2}$ = 5739

56. (A) Let total share of A, B and C = 24 unit

A's share = $24\times\frac{1}{6}=4\,\text{unit}$

B's share = $24\times\frac{1}{8}=3\,\text{unit}$

C's share = $24\times\frac{1}{3}=8\,\text{unit}$

Let total time for investment = 12 unit

A's time = $12\times\frac{3}{4}=9\,\text{unit}$

B's time = $12\times\frac{1}{2}=6\,\text{unit}$

C's time = $12\times\frac{1}{3}=4\,\text{unit}$

	A	B	C
Investment	4	3	8
Time	9	6	4
Profit	36	18	32
	18	9	16

Profit of B and C = (16 + 9) = 25

$\because$ 25 = 750

$\therefore$ 1 = 30

A's share = 18 × 30 = ₹540

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57. (C) $\sin^4\theta - \cos^4\theta = \frac{1}{5}$

$(\sin^2\theta)^2 - (\cos^2\theta)^2 = \frac{1}{5}$

$\sin^2\theta + \cos^2\theta = 1$ .....(i)

$\sin^2\theta - \cos^2\theta = \frac{1}{5}$ .....(ii)

Solving equation (i) and (ii),

$2\cos^2\theta = \frac{4}{5}$

$\cos^2\theta = \frac{2}{5}$

$\therefore \cos^2\theta + 1 = \frac{2}{5} + 1 = \frac{7}{5}$

58. (A)

Amount (₹)	**Time (years)**
2056	3/2
2133	1/2
77	1/2

Hence, Interest in $\frac{1}{2}$ year = ₹ 77

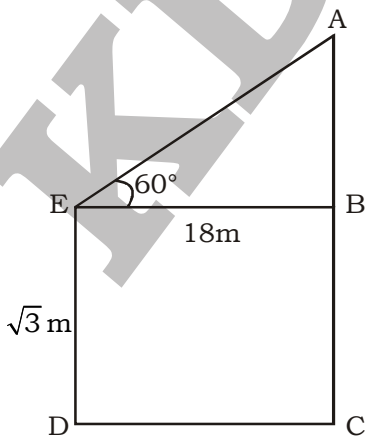
Interest in 1 year = ₹ 77 × 2 = 154

Interest in $\frac{3}{2}$ years = ₹ 77 × 3 = 231

$\therefore$ Principal = 2056 - 231 = ₹ 1825

Required Rate% = $\frac{154}{1825} \times 100 = \frac{154}{1825} \times 100 = 8\%$ p.a

59. (C)



EB = CD

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In ΔABE,

$\tan 60° = \frac{AB}{EB}$

$\sqrt{3} = \frac{AB}{18}$

$AB = 18\sqrt{3}$

Height of pole = $\left(18\sqrt{3} + \sqrt{3}\right)\text{m} = 19\sqrt{3}\,\text{m}$

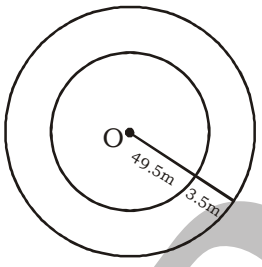
60. (B) $\frac{3\frac{5}{4}}{5\frac{2}{3}} \div \frac{7}{8} \times \left(\frac{1}{2} + \frac{2}{3}\right) + \frac{5}{7} \div 3\frac{1}{3} \text{ of } \frac{2}{7}$

$\frac{\frac{17}{4}}{\frac{17}{3}} \div \frac{7}{8} \times \frac{7}{6} + \frac{5}{7} \div \frac{10}{3} \text{ of } \frac{2}{7}$

$\frac{3}{4} \times \frac{8}{7} \times \frac{7}{6} + \frac{5}{7} \div \frac{20}{21}$

$= 1 + \frac{5}{7} \times \frac{21}{20} = 1 + \frac{3}{4} = 1\frac{3}{4}$

61. (D)



Area of path = Area of bigger circle - Area of smaller circle

$= \pi r_1^2 - \pi r_2^2$

$= \frac{22}{7} \times (49 + 3.5)^2 - \frac{22}{7}(49)^2$

$= \frac{22}{7} \times \left(52.5^2 - 49^2\right)\text{m}^2$

$= \frac{22}{7} \times (52.5 + 49) \times (52.5 - 49)\text{m}^2$

$= \frac{22}{7} \times 101.5 \times 3.5\,\text{m}^2 = 1116.5\ \text{m}^2$

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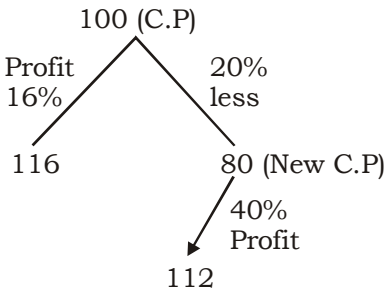
62. (B) Speed of train = 54 km/h

$= 54 \times \frac{5}{18}\text{m/s} = 15\text{ m/s}$

Total distance travelled by train = Length of platform + length of train
= (300 + 150)m = 450 m

$\therefore$ $\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \left(\frac{450}{15}\right) = 30\,\text{second}$

63. (A) Let the CP of the radio = 100
ATQ,



Difference = (116 - 112) = 4
4 units = 16
1 unit = 4
100 units = ₹ 400

64. (C) M.P of a watch = ₹ 3600
S.P of a watch = 85% of 3600

$= \frac{85}{100} \times 3600$ = ₹ 3060

C.P. of a watch = $3060 \times \frac{100}{153}$ = ₹ 2000

If discount is not allowed, then profit = 3600 - 2000 = ₹ 1600

Profit% = $\frac{1600}{2000} \times 100 = 80\%$

65. (B) Let the number of sides of polygon be n
Sum of angle of polygon having side n = (n - 2) × 180°
ATQ,
(n – 2) × 180 = 1260

$\Rightarrow (n-2) = \frac{1260}{180}$

$\Rightarrow$ n - 2 = 7

$\therefore$ n = 9

Number of diagonals = $\frac{n(n-3)}{2}$

$= \frac{9(9-3)}{2} = \frac{9 \times 6}{2} = 27$

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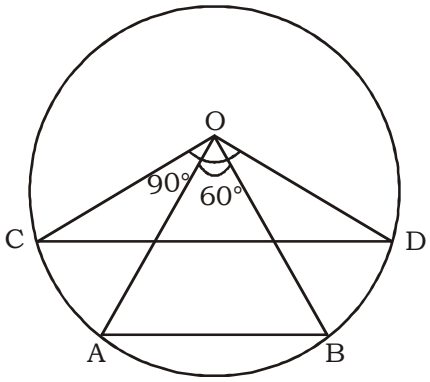
66. (B)



Let the radius of circle be r.

In ΔAOB,

$AB^2 = OB^2 + OA^2 - 2 \times OA \times OB \times \cos\angle AOB$ (cosine rule)

$AB^2 = r^2 + r^2 - 2 \times r \times r \times \cos 60°$

$AB^2 = 2r^2 - 2r^2 \times \frac{1}{2}$ $\left(\because \cos 60° = \frac{1}{2}\right)$

$x^2 = r^2$

$x = r$

In ΔCOD,

$CD^2 = OC^2 + OD^2 - 2 \times OC \times OD \times \cos\angle COD$

$CD^2 = r^2 + r^2 - 2 \times r \times r \times \cos 90°$

$CD^2 = 2r^2$ $(\because \cos 90° = 0)$

$y = \sqrt{2}\, r$

$y = \sqrt{2}\, x$ $(\because\ r = x)$

67. (B) $\frac{4x}{x^2 + 6x - 4} = 1$

$\Rightarrow x^2 + 6x - 4 = 4x$

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

Dividing both sides by x,

$\Rightarrow x + 2 - \frac{4}{x} = 0$

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

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Cubing both sides,

$$\left(x-\frac{4}{x}\right)^3=-8$$

$$x^3-\frac{64}{x^3}-3\times x\times\frac{4}{x}\left(x-\frac{4}{x}\right)=-8$$

$$x^3-\frac{64}{x^3}-12\times -2=-8$$

$$x^3-\frac{64}{x^3}=-32$$

68. (D) LCM of 2, 4, 12, 15 and 18

2	2, 4, 12, 15, 18
2	1, 2, 6, 15, 9
3	1, 1, 3, 15, 9
	1, 1, 1, 5, 3

LCM = $2\times2\times3\times5\times3=180$

Let the number be $180K+1$

$$\frac{180K+1}{11}=16K+\frac{4K+1}{11}$$

Putting the value of K in equation we get,

K = 8

Required number = $(180\times8+1)=1441$

69. (D) Diameter of iron sphere = 7 cm

Radius of iron sphere = $\frac{7}{2}$cm

Volume of iron sphere = $\frac{4}{3}\pi r^3=\frac{4}{3}\pi\times\left(\frac{7}{2}\right)^3$ cm^3

Radius of conical vessel = 7 cm

Volume of conical vessel = $\frac{1}{3}\pi r^2h=\frac{1}{3}\pi\times(7)^2\times h$

ATQ,

$$\frac{1}{3}\pi(7)^2\times h=2\times\frac{4}{3}\pi\times\frac{7\times7\times7}{2\times2\times2}$$

$$h=\frac{(7)^3}{(7)^2}$$

$\therefore$ h = 7 cm

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70. (D) **Divisibility of 12:** If any number in divisible by both 3 and 4, then the number is divisible by 12.

Divisibility of 3: If sum of digits of number is divisible by 3, then the number is divisible by 3.

Divisibility of 4: If the last two digit of number is divisible of 4, then the number is divisible by 4.

2y72x4 is divisible by both 3 and 4, then value of x may be 0, 2, 4, 6 and 8.

When value of x is 0, then the value of y = 0

So, value of xy = 0 × 0 = 0

71. (D) $a^4 + a^2b^2 + b^4 = 64$

$\Rightarrow (a^2) + (b^2)^2 + 2a^2b^2 - a^2b^2 = 64$

$\Rightarrow (a^2 + b^2)^2 - (ab)^2 = 64$

$\Rightarrow (a^2 - ab + b^2)(a^2 + ab + b^2) = 64$ $[\because x^2 - y^2 = (x + y)(x - y)]$

$\Rightarrow 4 \times (a^2 + ab + b^2) = 64$

$\therefore a^2 + ab + b^2 = \frac{64}{4} = 16$ .....(i)

$a^2 - ab + b^2 = 4$ .....(ii)

Subtract equation (ii) from (i),

$$\begin{array}{r} a^2 + ab + b^2 = 16 \\ -a^2 \mp ab \mp b^2 = 4 \\ \hline 2ab = 20 \\ ab = 10 \end{array}$$

72. (B) Total amount of expenditure = 100%

Expenditure on transport = 12.5%

Required answer = $\frac{100}{12.5} = 8$ times

73. (C) Total expenditure incurred on salary and interest = (20 + 17.5)% = 37.5%

Total expenditure on infrastructure and transport = (20 + 12.5)% = 32.5%

Required ratio = (37.5 : 32.5) = 15 : 13

74. (B) Percentage of expenditure on salary = 20%

$\because$ 20% = 2.8 crores

$\therefore 100\% = \left(\frac{2.8}{20} \times 100\right)$ crores = 14 crores

Difference between expenditure incurred on advertisement and tax = (15 - 10)% = 5%

$\because$ 100% = 14 crores

$\therefore 5\% = \left(\frac{140000000}{100} \times 5\right)$ = ₹ 70 lakhs

75. (B) Required % = $\left(\frac{20-5}{20} \times 100\right)\% = \left(\frac{15}{20} \times 100\right)\%$ = 75%

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MEANINGS IN ALPHABETICAL ORDER

Autonomy	the right or condition of self-government	स्वशासन
Breed	a stock of animals or plants within a species having a distinctive appearance	नस्ल
Broach	raise (a sensitive or difficult subject) for discussion	एक संवेदनशील विषय पर चर्चा छेड़ देना
Broad	having an ample distance from side to side; wide	विस्तृत
Constituent	a component part of something	घटक
Confer	grant or bestow (a title, degree, benefit, or right)	उपाधि प्रदान करना
Confide	tell someone about a secret or private matter	गुप्त बात कहना
Confined	limited to a certain extent	सीमित
Concede	admit that something is true or valid	स्वीकार करना
Desultory	lacking a plan, purpose, or enthusiasm	असंगत
Dung	the excrement of animals	गोबर
Eliminate	completely remove or get rid of something	उन्मूलन करना
Exemplary	serving as a desirable model	अनुकरणीय
Faecal	relating to the solid waste passed out of the body of a human or animal through the bowels	मल-मूत्र संबंधी
Feign	pretend to be affected by (a feeling, state, or injury)	बहाना करना
Hazard	a danger or risk	खतरा
Immaculate	perfectly clean, neat, or tidy	बेदाग
Magnitude	the great size or extent of something	परिमाण, मात्रा
Parity	the state or condition of being equal	समता
Parasites	an organism that lives in or on another organism (its host) and benefits by deriving nutrients at the host's expense.	परजीवी
Pathogens	a bacterium, virus, or other microorganism that can cause disease	एक जीवाणु, वायरस या अन्य सूक्ष्मजीव जिनसे बीमारी फैलती है
Privy	informed of something secret or private	किसी गूढ़ बात से परिचित
Sprout	a shoot of a plant	अंकुर
Sterilised	something made free from bacteria or other living microorganisms	कीटाणुरहित
Valour	great courage in the face of danger	साहस
Venerable	accorded a great deal of respect	आदरणीय
Visceral	of or relating to the viscera	आंत संबंधी

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SSC MOCK TEST - 248 (ANSWER KEY)

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

76. (B) Replace 'his' by 'their' as it comes for its antecedent 'those players'.

77. (D) No error

79. (B) 'Brood over' means 'to worry anxiously or be despondent about something or someone'.

86. (A) Change 'the riches' into 'the rich'. 'Riches' means 'money'.

87. (D) No improvement

90. (B) The correct spelling of 'Beleive' is 'Believe'.

91. (B) The correct spelling of 'Anearobic' is 'Anaerobic'.

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