SSC SOLUTIONS (FLT 2)

Geography

1. (b)	**2.** (d)	**3.** (d)	**4.** (b)	**5.** (c)	**6.** (b)	**7.** (c)	**8.** (c)	**9.** (c)	**10.** (c)
11. (d)	**12.** (b)	**13.** (d)	**14.** (a)	**15.** (c)	**16.** (b)	**17.** (b)	**18.** (a)	**19.** (a)	**20.** (c)
21. (d)	**22.** (a)	**23.** (c)	**24.** (e)	**25.** (b)					

Maths

26. (3) $x = \dfrac{\sqrt{7}+\sqrt{3}}{\sqrt{7}-\sqrt{3}} = \dfrac{(\sqrt{7}+\sqrt{3})(\sqrt{7}+\sqrt{3})}{(\sqrt{7}-\sqrt{3})(\sqrt{7}+\sqrt{3})}$

(हर का परिमेयकरण करने पर)

$= \dfrac{7+3+2\times\sqrt{7}\times\sqrt{3}}{7-3} = \dfrac{10+2\sqrt{21}}{4} = \dfrac{5+\sqrt{21}}{2}$

$\because \quad xy = 1$

$\therefore \quad y = \dfrac{1}{x} = \dfrac{2}{5+\sqrt{21}} = \dfrac{2(5-\sqrt{21})}{(5+\sqrt{21})(5-\sqrt{21})}$

$= \dfrac{2(5-\sqrt{21})}{25-21} = \dfrac{2(5-\sqrt{21})}{4} = \dfrac{5-\sqrt{21}}{2}$

$\therefore \quad x+y = \dfrac{5+\sqrt{21}}{2} + \dfrac{5-\sqrt{21}}{2} = \dfrac{10}{2} = 5$

अब, $\dfrac{x^2+xy+y^2}{x^2-xy+y^2} = \dfrac{(x+y)^2-xy}{(x+y)^2-3xy}$

$= \dfrac{(5)^2-1}{(5)^2-3\times1} = \dfrac{25-1}{25-3} = \dfrac{24}{22} = \dfrac{12}{11}$

27. (4) अधिकतम मान के लिए,

$a = b = c = d = \dfrac{1}{4}$

$\therefore \ (1+a)(1+b)(1+c)(1+d) = \left(\dfrac{5}{4}\right)^4$

28. (1) $25a^2+40ab+16b^2 = (5a+4b)^2$

$= (5\times23-29\times4)^2 = (115-116)^2 = 1$

29. (3) $\left(x+\dfrac{1}{x}\right)^2 = (3)^2 \Rightarrow x^2+\dfrac{1}{x^2}+2 = 9$

$\Rightarrow \quad x^2+\dfrac{1}{x^2} = 9-2 = 7$

पुन: $\left(x+\dfrac{1}{x}\right)^3 = (3)^3 \Rightarrow x^3+\dfrac{1}{x^3}+3\left(x+\dfrac{1}{x}\right) = 27$

$\Rightarrow 27 = x^3+\dfrac{1}{x^3}+3\times3 \Rightarrow x^3+\dfrac{1}{x^3} = 18$

$\therefore \quad \left(x^2+\dfrac{1}{x^2}\right)\left(x^3+\dfrac{1}{x^3}\right) = 7\times18 = 126$

$\Rightarrow \quad x^5+x+\dfrac{1}{x}+\dfrac{1}{x^5} = 126$

$\therefore \quad x^5+\dfrac{1}{x^5} = 126-3 = 123$

30. (3) $\because x = 5+2\sqrt{6} = 5+2\times\sqrt{3}\times\sqrt{2}$

$= 3+2+2\times\sqrt{3}\times\sqrt{2} = (\sqrt{3}+\sqrt{2})^2$

$\therefore \quad \sqrt{x} = \sqrt{3}+\sqrt{2}$

$\therefore \dfrac{1}{\sqrt{x}} = \dfrac{1}{\sqrt{3}+\sqrt{2}} = \dfrac{\sqrt{3}-\sqrt{2}}{(\sqrt{3}+\sqrt{2})(\sqrt{3}-\sqrt{2})} = \sqrt{3}-\sqrt{2}$

$\therefore \dfrac{x-1}{\sqrt{x}} = (5+2\sqrt{6}-1)(\sqrt{3}-\sqrt{2})$

$= (4+2\sqrt{6})(\sqrt{3}-\sqrt{2})$

$= 4\sqrt{3}+2\sqrt{18}-4\sqrt{2}-2\sqrt{12}$

$= 4\sqrt{3}+6\sqrt{2}-4\sqrt{2}-4\sqrt{3} = 2\sqrt{2}$

31. (1) प्रश्नानुसार, $x+\dfrac{1}{x} = 3$

दोनों ओर वर्ग करने पर,

$\left(x+\dfrac{1}{x}\right)^2 = 9 \quad \Rightarrow \quad x^2+\dfrac{1}{x^2} = 9-2 = 7$

दोनों ओर घन करने पर,

पुन: $\left(x+\dfrac{1}{x}\right)^3 = 27$

$\Rightarrow \quad x^3+\dfrac{1}{x^3}+3\left(x+\dfrac{1}{x}\right) = 27$

$\Rightarrow \quad x^3+\dfrac{1}{x^3} = 27-3\times3 = 18$

$\therefore \quad \left(x^2+\dfrac{1}{x^2}\right)\left(x^3+\dfrac{1}{x^3}\right) = 7\times18$

$\Rightarrow \quad x^5+\dfrac{1}{x^5}+\left(x+\dfrac{1}{x}\right) = 126$

$\therefore \quad x^5+\dfrac{1}{x^5} = 126-3 = 123$

32. (4) $x^2+1 = 2x$ (दिया है)

$\Rightarrow \quad x+\dfrac{1}{x} = 2$

व्यंजक $= \dfrac{x^4+\dfrac{1}{x^2}}{x^2-3x+1} = \dfrac{\dfrac{x^6+1}{x^2}}{(x^2-3x+1)}$

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

$= -\left(\dfrac{x^6+1}{x^3}\right) = -\left(\dfrac{x^6}{x^3}+\dfrac{1}{x^3}\right) = -\left(x^3+\dfrac{1}{x^3}\right)$

$= -\left[\left(x+\dfrac{1}{x}\right)^3-3\left(x+\dfrac{1}{x}\right)\right]$

$= -[2^3-3\times2] = -2$

33. (2) $x = 1 - \sqrt{2}$

$\therefore \quad \frac{1}{x} = \frac{1}{1-\sqrt{2}} \times \frac{1+\sqrt{2}}{1+\sqrt{2}} = -1 - \sqrt{2}$

$\therefore \quad \left(x - \frac{1}{x}\right)^3 = (1 - \sqrt{2} + 1 + \sqrt{2})^3 = 2^3 = 8$

34. (c) $a \quad \frac{1}{a} \quad 2$

Now $a \quad 1$

$a^{200} \quad \frac{1}{a^{200}} \quad (1)^{200} \quad \frac{1}{(1)^{200}} \quad 1 \quad 1 \quad 2$

35. (d)

$x^{150} + \frac{1}{x^{150}} = \frac{\sqrt{36}-\sqrt{21}}{\sqrt{36}+\sqrt{21}} + \frac{\sqrt{36}+\sqrt{21}}{\sqrt{36}-\sqrt{21}} = \frac{2(36+21)}{36-21}$

$= \frac{2\times 57}{15} = \frac{2\times 19}{5} = 7.6$

36. (b)

$c + \frac{1}{c} = 3,$

$(c-3) + \frac{1}{c} = 0$

$(c-3) = -\frac{1}{c}$

$(c-3)^7 + \frac{1}{c^7} = \frac{-1}{c^7} + \frac{1}{c^7} = 0$

37. (d)

$\frac{x^{42}+1}{x^{21}} = 7, \quad x^{21} + \frac{1}{x^{21}} = 7,$

$\frac{x^{84}+1}{x^{42}} = x^{42} + \frac{1}{x^{42}} = 7^2 - 2 = 47$

38. (d)

$x^{2019} = 11 - 2\sqrt{30}$

$\downarrow$

$121 - 120 = 1$

$1/x^{2019} = 11 + 2\sqrt{30}$

$x^{2019} + \frac{1}{x^{2019}} = 2\times 11 = 22,$

$x^{4038} + \frac{1}{x^{4038}} = 22^2 - 2$

$= 484 - 2 = 482$

39. (d)

$a + \frac{1}{a} = K$

$a^2 + \frac{1}{a^2} = K^2 - 2$

$a + \frac{1}{a} = \frac{2(9+7)}{9-7} = 16$

$a^2 + b^2 - 2ab + ab$

$= a^2 + b^2 - ab$

$= K^2 - 2 - 1$

$= K^2 - 3$

$= 256 - 3 = 253$

40. (a)

$2x - \frac{1}{2x} = 6,$

$(2x)^2 + \frac{1}{(2x)^2} = 6^2 + 2, \quad \frac{1}{4}\left(4x^2 + \frac{1}{4x^2}\right) = \frac{38}{4}$

$\boxed{x^2 + \frac{1}{16x^2} = \frac{19}{2}}$

41. (a)

$x = 11 + 3\sqrt{11}$

Let $y = x - 1 = 10 + 3\sqrt{11}$

$y = 10 + 3\sqrt{11}$

$y + \frac{1}{y} = 2\times 10 = 20,$

$\sqrt{y} - \frac{1}{\sqrt{y}} = P.$

$(\sqrt{y})^2 + \frac{1}{(\sqrt{y})^2} = 20 - 2 = 18$

$\left(\sqrt{y} - \frac{1}{\sqrt{y}}\right)^2 = 18$

$\sqrt{y} - \frac{1}{\sqrt{y}} = \sqrt{18} = 3\sqrt{2}$

42. (b)

$p^2 - 4p + 4 = 16p$

$p^2 + 4 = 20p$

$p + \frac{4}{p} = 20,$

$p^2 + \frac{16}{p^2} = 20^2 - 2\cdot p\cdot\frac{4}{p}$

$= 20^2 - 8$

$= 400 - 8 = 392$

43. (a)

$a + \frac{1}{a} = 2\sqrt{8}$

$a^2 + \frac{1}{a^2} = (4\times 8) - 2 = 30$

$\frac{a^2 + \frac{1}{a^2} - 3}{a^2 + \frac{1}{a^2} + 1}$

$= \frac{30-3}{30+1} = \frac{27}{31}$

44. (d)

$x^4 + \frac{1}{x^4} = 194$

$x^2 + \frac{1}{x^2} = 14$

$x + \frac{1}{x} = 4 \Rightarrow x^2 + 1 = 4x$

$x^2 - 4x = -1$

$x^2 - 4x + 4$

$= -1 + 4$

$= 3$ Ans.

45. (b)

$\frac{A+B}{\sqrt{AB}} = \sqrt{\frac{A}{B}} + \sqrt{\frac{B}{A}} = 10\sqrt{2}$

$x + \frac{1}{x} = 10\sqrt{2}$

$\frac{A-B}{\sqrt{AB}} = \sqrt{\frac{A}{B}} - \sqrt{\frac{B}{A}} = x - \frac{1}{x} = \sqrt{K^2 - 4}$

$= \sqrt{200 - 4} = \sqrt{196} = 14$

46. (a)

$$3\left(2x-\frac{5}{9x}\right)=3\times3$$

$$6x-\frac{5}{3x}=9$$

$$6x+\frac{5}{3x}=\sqrt{9^2+4\times6\times\frac{5}{3}}=\sqrt{81+40}=11$$

$$36x^2-\frac{25}{9x^2}=9\times11=99$$

47. (b)

$$2x^2+5x-2=6x$$

$$2x^2-x-2=0$$

$$x-\frac{1}{x}=\frac{1}{2}$$

$$x+\frac{1}{x}=\sqrt{\frac{1}{4}+4}=\sqrt{\frac{17}{4}}$$

$$x^3+\frac{1}{x^3}$$

$$=\frac{17}{4}\sqrt{\frac{17}{4}}-3\sqrt{\frac{17}{4}}$$

$$=\frac{17\sqrt{17}}{8}-\frac{12\sqrt{17}}{8}$$

$$=\frac{5\sqrt{17}}{8}\ \text{Ans.}$$

48. (b)

$$x^2+1=3x$$

$$x+\frac{1}{x}=3,$$

$$\frac{(x^4+1/x2)1/x}{(x^2+5x+1)1/x}=\frac{x^3+1/x^3}{x+5+1/x}$$

$$=\frac{18}{8}=\frac{9}{4}=2\frac{1}{4}\ \text{Ans.}$$

49. (d)

$$\frac{a^3+b^3}{a+b}=\frac{1344}{28}=48$$

50. (a)

$$\sqrt[3]{p^3+3p^2+3p+1}=\sqrt[3]{(p+1)^3}=p+1$$

$$=999+1=1000$$

51. The Correct Answer is D

As mentioned in para " A good soldier, for instance, mainly wishes to do his fighting well." Hence right answer is option (d).

52. The Correct Answer is C

The writer tells in the passage that chief object of well educated, healthy-minded & intellectual people is not money but work. Money is important to them and they ought to like them but doing their work properly gives them maximum satisfaction. Writer has given the examples of Doctors and Soldiers to tell that they like to be paid well but can remain unpaid and do their work right than fail in work and get paid. Hence option C follows.

53. The Correct Answer is A

Notion means a conception of or a belief about something which is same as view, idea or concept about something. While 'subject' is a thing or people that is being discussed or is under consideration. Hence option A follows.

54. The Correct Answer is B

As writer has used the words like ill-educated, cowardly and stupid for people who prefer money over work, his attitude may be seen as 'critical'. Pessimistic attitude is seeing bad outcomes in everything, sympathetic attitude is looking upon with favour and ironic attitude is characterised by using words very opposite to what is scenario. Hence option B follows.

55. The Correct Answer is B

As writer has used the words like ill-educated, cowardly and stupid for people who prefer money over work, his attitude may be seen as 'critical'. Pessimistic attitude is seeing bad outcomes in everything, sympathetic attitude is looking upon with favour and ironic attitude is characterised by using words very opposite to what is scenario. Hence option B follows.

56. The Correct Answer is C

From the para "But in every nation, there are a vast number of people who are ill-educated, cowardly and stupid. And with these people, just as certainly, the fee is first and work second, as with brave people the work is first and fee second." Option C follows.

57. The Correct Answer is C

The gist of the passage is that money is important but work should always come first and money second.

58. The Correct Answer is D

In the work of incessant and feverish activity, men have little time to think, much less to consider ideals and objectives. Thus option 4 is right.

59. The Correct Answer is C

The burden of life's problems' refers to the onerous duties of life.

60. The Correct Answer is A

The two world wars are the price that man paid due to the absence of wisdom and sagacity.

61. The Correct Answer is D

According to the writer the adoption of wrong means even for the right end would deflect us from the right path.

62. The Correct Answer is B

Vitiate means to debase.

63. (c) **64.** (a) **65.** (a) **66.** (b)
67. (c) **68.** (d) **69.** (c) **70.** (b)
71. (a) **72.** (b) **73.** (d) **74.** (a)
75. (a)

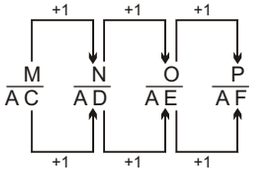
76. (c) बल्ब एक वस्तु जबकि अन्य सभी को आभास किया जाता है।

77. (b) अंग्रेजी वर्णमाला में अक्षर Y का स्थान 25 है जो कि एक विषम संख्या है।
X 24, Y 25,
H 8, D 4

78. (c) अक्षर समूह *IXYOQ* को छोड़कर अन्य सभी मे केवल एक स्वर है।
अक्षर समूह *IXYOQ* में दो स्वर हैं।

79. (c) $B \overset{1}{} C \overset{2}{} E \overset{3}{}$
$H \overset{4}{} L \overset{5}{} Q \overset{6}{} W$

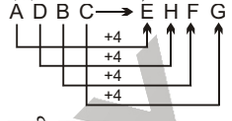
80. (a)



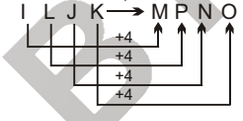
81. (c) जिस प्रकार 6 2 1 11
उसी प्रकार, 11 2 2 20

82. (b) सुअर जहाँ रखे जाते हैं उस स्थान को बाड़ा कहते हैं। उसी प्रकार गायों को गौशाला में रखा जाता है।

83. (b) जिस प्रकार,



उसी प्रकार,

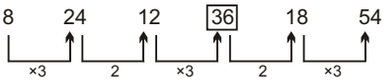


84. (d) 6 5 30,30 3 90
8 6 48, 48 4 192

85. (c) शब्दों का तर्कसंगत क्रम:
3. दिन 5. कार्य 1. थका-मांदा 2. रात्रि 4. नींद

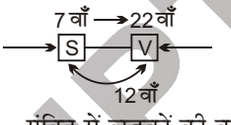
86. (a) $A \overset{2}{} C \overset{2}{} E \overset{2}{} G \overset{2}{} I \overset{2}{} K$
$G \overset{2}{} I \overset{2}{} K \overset{2}{} M \overset{2}{} O \overset{2}{} Q$
$M \overset{2}{} O \overset{2}{} Q \overset{2}{} S \overset{2}{} U \overset{2}{} W$
$S \overset{2}{} U \overset{2}{} W \overset{2}{} Y \overset{2}{} A \overset{2}{} C$
$y \overset{2}{} A \overset{2}{} C \overset{2}{} E \overset{2}{} G \overset{2}{} I$

87. (b)



88. (b) माना अशोक की वर्तमान उम्र x वर्ष है तथा उसकी माता की वर्तमान उमग्र y वर्ष है।
5 वर्ष पहले
$3(x \quad 5) \quad (y \quad 5)$
$3x \quad 15 \quad y \quad 5$
$3x \quad y \quad 10$ ...(i)
5 वर्ष बाद $2(x \quad 5) \quad (y \quad 5)$
$2x \quad 10 \quad y \quad 5$
$2x \quad y \quad 5$ ...(ii)
समीकरण (i) व (ii) से
x 15 वर्ष

89. (c)



पंक्ति में लड़कों की कुल संख्या 22 12 1 33

90. (d) अर्थपूर्ण शब्द HIPPOPOTAMUS

91. (c) 1 9 25 49 81
$(1)^2$ $(3)^2$ $(5)^2$ $(7)^2$ $(9)^2$
अत: शृंख्ला में संख्या 50 गलत है।

92. (c) दोनों कथन सर्वव्यापी सकरात्मक (A-प्रकार) हैं।
सभी पुरुष स्त्रियाँ हैं।
सभी स्त्रियाँ सनकी हैं।
$A \quad A \quad A$ प्रकार का निष्कर्ष।
"सभी पुरुष सनकी है।"
यह निष्कर्ष I है।
निष्कर्ष III इसका व्युत्क्रम है।
निष्कर्ष IV कथन Q का व्यूत्क्रम हैं।

93. (b) H O S P I T A L
3 2 5 7 4 6 1 8
अत:
P O S T A L
7 2 5 6 1 8

94. (d) (12 6) 18 36
(18 6) 12 36
3 12 36

95. (a) 6 5 30
30 3 1 91
8 7 56
56 3 1 169
10 7 70
70 3 1 211

अत: 11 10 110
110 3 1 331

96. (b) विकल्प (b)

24 4 5 4
24 20 4

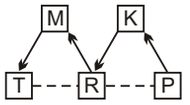
विकल्प (4)

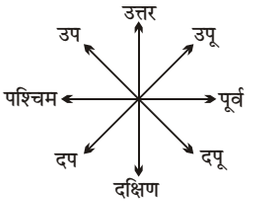
24 4 5 4
24 4 20

दोनों विकल्प (b) और (d) सही हैं।

97. (a) पहली पंक्ति *D*
दूसरी पंक्ति *E*
तीसरी पंक्ति *C*
चौथी पंक्ति *A*
पाँचवीं पक्ति *B*

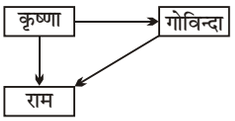
98. (c)





आरेख से स्पष्ट है कि T, P के पश्चिम में है।

99.



(d)

राम का घर गोविन्दा के घर के दक्षिण-पश्चिम में है।

23. (b) दोनों कथन सर्वव्यापी सकरात्मक हैं (A-प्रकार)।

सभी बच्चे विद्यार्थी हैं।

सभी विद्यार्थी खिलाड़ी हैं

A A A-प्रकार का निष्कर्ष
"सभी बच्चे खिलाड़ी हैं।"

यह निष्कर्ष II है।