

Answer-key & Solution

*SSC JE (Electrical)
Practice Set-1*

1. A	26. A	51. D	76. B	101. B	126. C	151. B	176. B
2. B	27. C	52. C	77. C	102. C	127. D	152. A	177. A
3. A	28. A	53. A	78. D	103. A	128. C	153. B	178. C
4. A	29. A	54. C	79. D	104. B	129. C	154. D	179. B
5. A	30. A	55. D	80. A	105. A	130. C	155. C	180. D
6. B	31. C	56. A	81. A	106. D	131. D	156. D	181. A
7. B	32. D	57. B	82. A	107. A	132. B	157. B	182. B
8. D	33. D	58. B	83. A	108. C	133. C	158. B	183. A
9. D	34. D	59. D	84. B	109. D	134. C	159. C	184. C
10. D	35. D	60. A	85. C	110. D	135. A	160. D	185. A
11. C	36. C	61. A	86. A	111. D	136. A	161. A	186. C
12. A	37. A	62. A	87. C	112. C	137. B	162. D	187. B
13. A	38. C	63. C	88. D	113. A	138. D	163. C	188. C
14. D	39. D	64. C	89. C	114. C	139. C	164. A	189. C
15. B	40. C	65. C	90. D	115. D	140. B	165. B	190. D
16. D	41. D	66. A	91. B	116. C	141. B	166. D	191. B
17. D	42. D	67. D	92. D	117. C	142. A	167. C	192. C
18. B	43. B	68. B	93. B	118. B	143. A	168. D	193. A
19. B	44. C	69. B	94. A	119. C	144. A	169. B	194. B
20. B	45. B	70. A	95. C	120. C	145. D	170. A	195. D
21. B	46. C	71. B	96. D	121. D	146. C	171. B	196. B
22. A	47. A	72. B	97. D	122. A	147. B	172. D	197. C
23. D	48. C	73. D	98. B	123. D	148. B	173. C	198. B
24. D	49. D	74. B	99. A	124. C	149. A	174. A	199. B
25. D	50. C	75. D	100. B	125. C	150. A	175. D	200. D

Note : *If your opinion differ regarding any answer, please message the mock test and Question number to 9560620353*

Note : *If you face any problem regarding result or marks scored, please contact : 9313111777*

SOLUTION SSC JE (Electrical) Practice Set-1

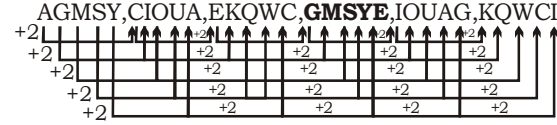
1. (A) Bullet is related to Gun. Similarly Smoke is related to Fire.
2. (B) Monday is related to Moon. Similarly Tuesday is related to Mars.
3. (A) $13 : 5 :: 32 : 24$
 $\xrightarrow{-8} \quad \xrightarrow{-8}$
4. (A) $63 : 9 :: 86 : 14$
 $\xrightarrow{+6+3=9} \quad \xrightarrow{+8+6=14}$
5. (A) $B C D A : S T U R :: K L M J : V W X U$
 $\xrightarrow{+1} \quad \xrightarrow{+1} \quad \xrightarrow{+1} \quad \xrightarrow{+1}$
6. (B) $8 : 24 :: 6 : 32$
 $\xrightarrow{+2 \times 4 = 8} \quad \xrightarrow{+3 \times 2 = 6}$
7. (B) $N J M P : P L O R :: R T V X : T V X Z$
 $\xrightarrow{+2} \quad \xrightarrow{+2} \quad \xrightarrow{+2} \quad \xrightarrow{+2}$
8. (D) Whale is a mammal.
9. (D) Fish can live in water only.
10. (D) (A) $9 \frac{1}{11} = \frac{100}{11}$ (B) $7 \frac{9}{13} = \frac{100}{13}$
 (C) $5 \frac{15}{17} = \frac{100}{17}$ (D) $5 \frac{6}{19} = \frac{101}{19}$
11. (C) Option is different from all others. Others are following pattern -
 1st 2nd 3rd
 2nd 3rd 1st
 3rd 1st 2nd
12. (A) (A) $R P N$ (B) $W S U$
 $\xrightarrow{+2} \quad \xrightarrow{+2}$
 (C) $H D F$ (D) $L H J$
 $\xrightarrow{+2} \quad \xrightarrow{+2}$
13. (A) Option A is an order of square & cube number of 8.
 8, 64, 512
 $8^1, 8^2, 8^3$
14. (D) GREGARIOUS can not be formed using the letters.
15. (B)
16. (D)
17. (D)

3	15	4
7	38	5
3	?	5

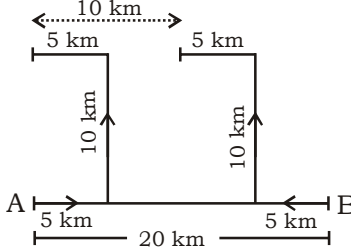
 $3 \times 4 + 3 = 15$
 $7 \times 5 + 3 = 38$
 $3 \times 5 + 3 = 18$
18. (B) $144 (132) 121 \rightarrow 12 \times 11 = 132$

- (Multiply the square root of the numbers)
- $64 (80) 100 \rightarrow 8 \times 10 = 80$
19. (B) $14 \times 4 - 12 \times 3 = 20$
 $9 \times 9 - 13 \times 3 = 42$
 $12 \times 8 - 7 \times 11 = 19$
 $20 \times 10 - 20 \times 8 = 40$
 20. (B) $25/3/96$, dates are given in 28 days gaps.
 21. (B) $480 \xrightarrow{+5} 96 \xrightarrow{+4} 24 \xrightarrow{+3} 8 \xrightarrow{+2} 4$
 22. (A)

AGMSY, CIOUA, EKQWC, **GMSYE**, IOUAG, KQWCI


 23. (D) $A O B N, D R E Q, G U H T, J X K W$
 $\xrightarrow{+3} \quad \xrightarrow{+3} \quad \xrightarrow{+3} \quad \xrightarrow{+3}$
 24. (D) rose/rose/rose/rose
 25. (D) q t s u / q t s u / q t s u
 26. (A)

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M ← Sister — K ← Brother — J
                               |
                               ↓ Daughter
                               N → Brother — P
    
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 27. (C) $175 \div 25 + 5 \times 20 - 3 \times 10$
 $7 + 100 - 30$
 $107 - 30 = 77$
 28. (A) $2 \times 5 - 6 + 2 = 6$
 $10 - 6 + 2 = 6$
 $12 - 6 = 6$ (which is true)
 29. (A)

 30. (A) Time of coincide = $\frac{60}{11} \times H$
 $= \frac{60}{11} \times 6 = \frac{360}{11} = 32 \frac{8}{11}$ minute.

31. (C) M A T C H and B O X
 $\begin{matrix} +1\downarrow & +2\downarrow & +3\downarrow & +4\downarrow & +5\downarrow & & +1\downarrow & +2\downarrow & +3\downarrow \\ N & C & W & G & M & & C & Q & A \end{matrix}$

Similarly, N O T E B O O K
 $\begin{matrix} +1\downarrow & +2\downarrow & +3\downarrow & +4\downarrow & +5\downarrow & +6\downarrow & +7\downarrow & +8\downarrow \\ O & Q & W & I & G & U & V & S \end{matrix}$

32. (D)

33. (D) $\begin{matrix} & J & Q & P & N & L \\ & \downarrow & \downarrow & \curvearrowright & \curvearrowleft & \\ & 3rd & 5th & & & \end{matrix}$

34. (D) $\begin{matrix} 145 & 100 & 64 & 37 & 19 \\ \downarrow & \uparrow & \downarrow & \uparrow & \downarrow \\ -45 & -36 & -27 & -18 & \end{matrix}$

35. (D) Assume fruits in second Basket = x
 So, fruits in first Basket = $2x$

fruits in third Basket = $2x \times \frac{3}{4} = \frac{3}{2}x$

$$\frac{x + 2x + \frac{3}{2}x}{3} = 30$$

$$\Rightarrow x + 2x + \frac{3}{2}x = 90$$

$$2x + 4x + 3x = 180$$


$$\Rightarrow 9x = 180$$

$$x = 20$$

Fruits in first Basket = $20 \times 2 = 40$

36. (C)

37. (A)

38. (C) Female  Doctor
 Mother

39. (D)

40. (C)

41. (D) The day will be Saturday

42. (D)

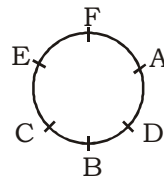
43. (B) M A N = 28 R A N
 $13 + 1 + 14 = 28$ $18 + 1 + 14 = 33$

44. (C) $\begin{matrix} b & o & o & k & = & c & r & o \\ +1\downarrow & +2\downarrow & +3\downarrow & +4\downarrow & & +1\downarrow & +2\downarrow & +3\downarrow \\ & & & & & & & & \end{matrix}$

Similarly,

$\begin{matrix} a & u & t & h & o & r & = & b & w & w & l & t & x \\ +1\downarrow & +2\downarrow & +3\downarrow & +4\downarrow & +5\downarrow & +6\downarrow & & +1\downarrow & +2\downarrow & +3\downarrow & +4\downarrow & +5\downarrow & +6\downarrow \\ & & & & & & & & & & & & \end{matrix}$

45. (B)



46. (C) Pass students = $14 + 27 - 1 = 40$

Fail = 6

Total students = 46

101. (B) As the energy stored in a capacitor is given by

$$W = \frac{1}{2} CV^2, \text{ and as } Q = CV.$$

$$\therefore \text{ We can write, } W = \frac{1}{2} C \left(\frac{Q}{C} \right)^2 = \frac{Q^2}{2C}$$

Here Q , the stored charge is then

$$Q = \sqrt{2 \times 100 \times 10^{-6} \times 10 \times 10^{-3}}$$

again, $Q = It$, 'I' being the constant charging current and 't' the charging time.

$$\therefore t = \frac{Q}{I} = \frac{1.414 \times 10^{-3}}{0.1} = \mathbf{14.14 \text{ ms.}}$$

102. (C) Let C_1 and C_2 be the capacitances in μF of two capacitors connected in parallel.

Let the voltage across their terminal, at steady state, by V .

$$\therefore V = \frac{Q_1}{C_1} = \frac{Q_2}{C_2}$$

$$\text{i.e., } \frac{C_1}{C_2} = \frac{Q_1}{Q_2} \text{ or } \frac{Q_1}{Q_2} = \frac{50}{200} = \frac{1}{4}$$

[$C_1 = 50 \mu\text{F}$, $C_2 = 200 \mu\text{F}$; Q_1 and Q_2 are the charges shared by C_1 and C_2]

Also, $Q_1 + Q_2 = 100 \mu\text{C}$ ($= 100 \times 10^{-6} \text{ C}$)

$$\therefore Q_1 = 20 \mu\text{C}$$

$$\text{i.e., } Q_2 = 80 \mu\text{C}$$

Thus in steady state, C_1 will have

$20 \mu\text{C}$ charge while Q_2 will retain

$80 \mu\text{C}$ charge.

$$103. (A) C_{a-b} = \left[\frac{(C_1 + C_2)C_3}{C_1 + C_2 + C_3} \parallel C_4 \right] \parallel C_5 = 16 \mu\text{F}$$

$$\therefore Q_{\text{net}} = Ca-b \times V$$

$$= 16 \times 10^{-6} \times 100 = 1600 \mu\text{C}$$

Hence charging time,

$$t = \frac{Q_{\text{net}}}{I} = \frac{1600 \times 10^{-6}}{10} = \mathbf{160 \mu \text{ sec}}$$

104. (B) Here, $L = \frac{X_L}{2\pi f} = \frac{10}{2\pi \times 50} = \mathbf{31.8 \text{ mH}}$.

105. (A) Equivalent capacitance between a-b is 6 F. This capacitance is in series with 12F. The equivalent capacitance then becomes

$$\frac{6 \times 12}{6 + 12} \text{ F i.e., } 4 \text{ F.}$$

Hence $C_{xy} = 4 + 10 = \mathbf{14 \text{ F}}$

106. (D) In the circuit of Fig E2.14.

$$i = 5 = 2v$$

$$\therefore v = 5/2 = 2.5V$$

However,

$$v = ir$$

or $2.5 = 5 R$

i.e., $\mathbf{R = 0.5 \Omega}$

108. (C) By applying KCL

$$i = \frac{25}{7} - \frac{4}{7} = \mathbf{3 \text{ A}}$$

Voltage source in series with constant current source will behave like short circuit.

109. (D) $R_{eq} = (3 || 2) + \frac{4}{5}$

$$= \frac{3 \times 2}{3 + 2} + \frac{4}{5} = \mathbf{2 \Omega}$$

111. (D) $f_0 = 1.5 \text{ MHz}$

$$C = 150 \text{ PF}$$

$$B.Q. = 10 \text{ kHz}$$

$$Q = \frac{f_0}{B.W.} = \frac{1}{wRC}$$

$$\frac{1.5 \times 10^6}{10 \times 10^3} = \frac{1}{2\pi \times 1.5 \times 10^6 \times R \times 150 \times 10^{-9}}$$

So, $\mathbf{R = 4.7 \Omega}$

112. (C) $Z_{eq} = \frac{Z}{3} = \frac{9 \angle 30^\circ}{3} = \mathbf{3 \angle 30^\circ \Omega}$

117. (C) The load resistance for maximum power transferred = $\sqrt{8^2 + 6^2} = \mathbf{10 \Omega}$

129. (C) $E_g = \frac{\phi ZN}{60} \left(\frac{P}{A} \right)$

$$= \frac{0.06 \times 32 \times 6 \times 2 \times 250}{60} \times \left(\frac{8}{2} \right) = \mathbf{384 \text{ V}}$$

161. (A) $S_{IL} = \frac{(KV_L)^2}{Z_o} = \frac{400^2}{400} = \mathbf{400 \text{ MW}}$

163. (C) Corona, is helpful in one respect, namely, it reduces the effect of surges and acts as a relief valve for them. This is so because the surges are partially dissipated as corona.

173. (C) Plant capacity factor =

$$\frac{\text{Peak load}}{\text{Plant capacity}} \times \text{load factor}$$

$$0.5 = \frac{30}{\text{Plant capacity}} \times 0.6$$

$$\therefore \text{Plant capacity} = 36 \text{ W}$$

$$\therefore \text{Reserve capacity} = \text{Plant capacity} - \text{Peak load}$$

$$= 36 \times 30 = \mathbf{6 \text{ MW}}$$

178. (C) $Z_{pu, new} = Z_{pu, old} \times \frac{MVA_{new}}{MVA_{old}} \left(\frac{kV_{old}}{kV_{old}} \right)^2$

$$Z_{pu, new} = 0.15 \left(\frac{1/2 MVA_{old}}{MVA_{old}} \right) \left(\frac{kV_{old}}{1/2 kV_{old}} \right)^2$$

$$= 0.15 \times \frac{1}{2} \times 4 = \mathbf{0.30}$$

179. (B) $Z_{base} = \frac{V_B^2}{S_B}$

$$Z_{actual} = Z_{pu}^{old} \times Z_{base}^{old}$$

$$Z_{pu}^{new} = \frac{Z_{actual}}{Z_{base}^{new}}$$

$$= Z_{pu}^{new} \times Z_{base}^{old} \times \frac{S_B^{new}}{(V_B^{new})^2}$$

$$Z_{pu}^{new} = Z_{pu}^{old} \times \frac{S_B^{new}}{S_B^{old}} \left(\frac{V_B^{old}}{V_B^{new}} \right)^2$$

191. (B) Here $V_C = 20 - 10I_C$

$$\therefore V_C = 20$$

$$\therefore I_C = 0$$

This is possible if $I_B = I_E = 0$ and this is possible if emitter is open.

194. (B) $V_{BB} = V_{BE} + V_{EE}$

In active mode

$$V_{BE} = 0.7V$$

$$V_{BE} = 0.7V$$

$$\therefore 3.2 = 0.7 + V_{EE}$$

$$\therefore V_{EE} = \mathbf{2.5V}$$

195. (D) $I_{CEO} = \frac{I_{CBO}}{1-a} = \frac{2\mu A}{1-0.99} = \mathbf{200 \mu A}$