Answer-key & Solution

SSC JE (Electrical)
Practice Set-4

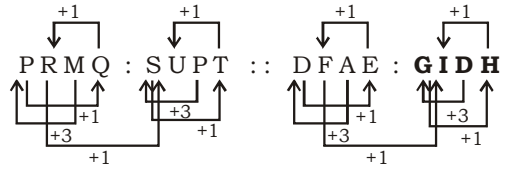
1. B	26. A	51. A	76. A	101. B	126. A	151. A	176. D
2. C	27. C	52. B	77. A	102. B	127. C	152. C	177. A
3. D	28. B	53. D	78. A	103. C	128. B	153. C	178. B
4. A	29. C	54. A	79. B	104. B	129. D	154. A	179. D
5. B	30. D	55. A	80. D	105. C	130. B	155. D	180. A
6. B	31. D	56. A	81. B	106. A	131. D	156. A	181.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

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

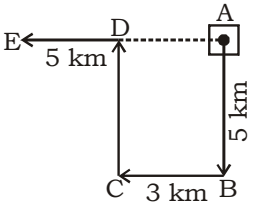
Note : *If you face any problem regarding result or marks scored, please contact : 9313111777*

SOLUTION SSC JE (Electrical) Practice Set-4

1. (B) By adding the suffix '-ly', the word form may be changed to an adverb and by adding the suffix **'-ful'**, the word form may be changed to an Adjective.
2. (C) 'Fe' is the chemical symbol for Iron and 'Ag' is the chemical symbol for silver.
3. (D) Warm is less intense than hot and Amusing is less intense than hilarious.
4. (A) Careful is a synonym for Alert and Meek is synonym for Subservient.
5. (B) To mount means to get on a horse and to board means to get on a train.
6. (B) A tureen is used to hold soup and a goblet is used to hold wine.
7. (D) Denim is a fabric made from cotton and linen is a fabric made from flax.
8. (A) 'Son' is a homephone for 'sun' and 'so' is a homephone for 'sew'.
9. (A) Number of vowels in Merry Christmas = 3 and $3^2 = 09$
   Number of vowels in Happy New Year = 4 and $4^2 = 16$
10. (B)



11. (B) Figure A, C and D are all rotations of the same shape but figure B is a reflection.
12. (B) Except Nagpur, rest are the capital cities.
13. (C) In (C) we can find five pointed star where as the other stars are all six pointed.
14. (C) X, V and H are all symmetrical about a vertical line.
15. (C) Except girlfriend, rest are males.
16. (A) Except (A), In rest of the options, vowel is followed by consonant repeated twice.
17. (B) Except Q, all other letters occupy the even number position in English alphabet i.e..
    H = 8, Q = 17, T = 20, Z = 26.
18. (B) Except 46, rest of the options are the difference between the cube and square of a number.
    $8^3 - 8^2 = 512 - 64 = 448$
    $12^3 - 12^2 = 1782 - 144 = 1584$
    $2^3 - 2^2 = 8 - 4 = 4$
    $4^3 - 4^2 = 64 - 16 = 48 \neq 46$
19. (C)



AE = AD + DE
= (3 + 5) kms = 8 kms

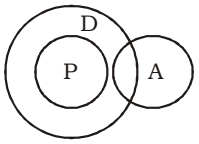
20. (C) $27 = 3 \times 3 \times 3$
    Two years ago
    $27 - 2 = 25 = 5 \times 5$
    Next perfect cube number
    $64 = 4 \times 4 \times 4$
    $\therefore$ 64 – 27 = 37 years
    So, he should wait for another 37 years.
21. (A)

G	E	R	M	A	N	Y
↓	↓	↓	↓	↓	↓	↓
7	5	18	13	1	14	25

    Therefore,

F	R	A	N	C	E
↓	↓	↓	↓	↓	↓
6	18	1	14	3	5

22. (A) **y**zy/**x**zx/y**z**y/xzx/**y**zy/x**z**x/y
23. (A) (40 × 30)/100 = 1200/100 = 12
    (60 × 50)/100 = 3000/ 100 = 30
    (80 × 60)/ 100 = 4800/100 = 48
24. (B) $\frac{7\times4}{2}=14$ $\frac{9\times8}{3}=$ **24** $\frac{10\times6}{4}=15$
25. (D) 93 – (27 + 3) = 63
    79 – (38 + 4) = 37
    $\therefore$ 67 – (16 + x) = 42 $\Rightarrow$ x = **9**
26. (A)



1. 3 2. 5

27. (C) Let varun's current age be x
    Then, Varun's age after 1 year
    = (x + 1) years.
    ATQ,
    $x + 1 = 2(x - 12) \Rightarrow x + 1 = 2x - 24$
    $\Rightarrow 2x - x = 25$
    $\Rightarrow x = 25$.
28. (B) Meaningful order of words in ascending order :
    2. Daily
    ↓
    1. Weekly
    ↓
    4. Fortnightly
    ↓
    3. Monthly
    ↓
    5. Bimonthly

29. (C) P = Q
S > R > T > P = Q
S is the eldest.

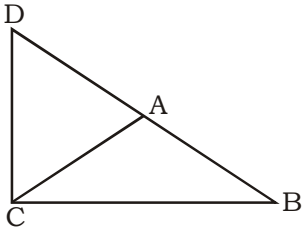
30. (D) There is only one 'E' in the given word. Therefore, the word RELATE cannot be formed.

31. (D) $(3)^2 = 9$ $(4)^2 = 16$
$(5)^2 = 25$ $(6)^2 = 36$
$(7)^2 = 49$ $(8)^2 = 64 \neq 61$

32. (B) Only son of Neha grand father means father of Neha. Therefore, Neha is sister of Vivek.

33. (B) DAUGH TER
TER DAUGH
Therefore,
APTIT UDE
UDE APTIT

34. (B)



So, with reference to A, B is located in South-East direction.

35. (B) $15 \times 5 \div 3 = 25$

$$\text{LHS} = \frac{15 \times 5}{3} = 25 = \text{RHS}$$

36. (C)

Number of dots on top face	⚀	⚁	⚂
Number of dots on bottom face	⚀	⚅	⚄

So, we can find 3 points opposite to the face with 4 points.

37. (D) Let salary = ₹ x, then tips = ₹ $\left(\frac{5}{4}x\right)$.

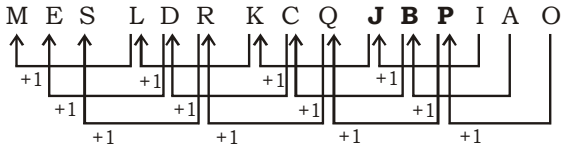
Total income = ₹ $\left(x + \frac{5}{4}x\right)$ = ₹ $\left(\frac{9x}{4}\right)$.

$\therefore$ Required fraction = $\left(\frac{5x}{4} \times \frac{4}{9x}\right) = \frac{5}{9}$.

38. (A) F3M $\rightarrow$ F is the wife of M
M5K $\rightarrow$ M is the father of K
$\therefore$ F is the mother of K = **F3M5K**

39. (D) The digits are removed one by one from the beginning and the end in order alternately so as to obtain the subsequent terms of the series.
So, ? = 96542

40. (D)



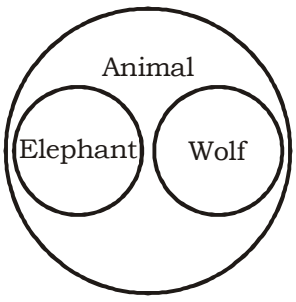
41. (D) I $\xrightarrow{+4}$ M $\xrightarrow{+4}$ **Q** $\xrightarrow{+4}$ U
P $\xrightarrow{+3}$ S $\xrightarrow{+3}$ **V** $\xrightarrow{+3}$ Y
M $\xrightarrow{+2}$ O $\xrightarrow{+2}$ **Q** $\xrightarrow{+2}$ S
D $\xrightarrow{+1}$ E $\xrightarrow{+1}$ **F** $\xrightarrow{+1}$ G

42. (B) $(2)^2 = 4$.
$(2 + 4)^2 = (6)^2 =$ **36**
$(6 + 6)^2 = (12)^2 = 144$
$(12 + 8)^2 = (20)^2 = 400$
$(20 + 10)^2 = (30)^3 = 900$
$(30 + 12)^2 = (42)^2 = 1764$

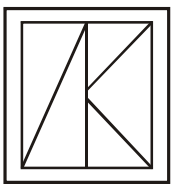
43. (B) 2 10 30 68 **130**
+8 +20 +38 +62
+12 +18 +24
+6 +6

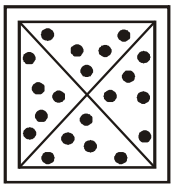
44. (A) A has advised B about the route to Jammu. This means that B wishes to go to Jammu. So, I is implicit. The statement mentions only A's advice to B. So, II is not implicit.

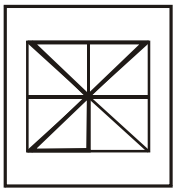
45. (A) Elephant is different from Wolf. But both are animals.

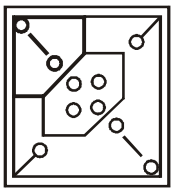


46. (C)



47. (C) 

48. (B) 

49. (D) 

50. (A)

161. (B) By KCL,

$I_P + I_Q + I_C + I_L = 0$

$2 + 1 + I_C + I_L = 0$

But, $I_C = C \times dv/dt$

$= 1 \times d/dt\ (4 \sin 2t)$

$= (8 \cos 2t)$

$\therefore \quad I_L = -(2 + 1 + 8 \cos 2t)$

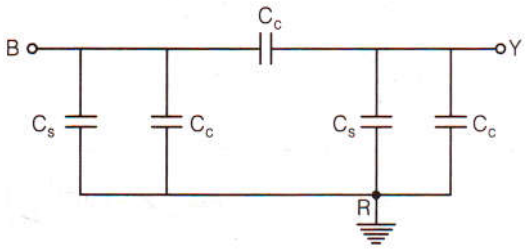
$= -3 - 8 \cos 2t$

$\therefore \quad V_L = L\,(di/dt) = 2 \times 2 \times 8 \sin 2t$

$= 32 \sin 2t$

Note : KCL is based on the law of conservation of charges.

162. (C) given circuit can be redrawn as



$$C_{BY} = \frac{C_S + C_C}{2} + C_C = \frac{C_S + 3C_C}{2}$$

163. (D) $Q = \dfrac{\text{Resonance freq.}}{\text{Bandwidth}} = \dfrac{f_o}{\Delta f} = \dfrac{100}{5} = 20$

$\because$ At resonance,

$|V_L| = |V_C| = Q.\ |V_{source}|$

$\therefore |V_L|\ 20 \times 10 = 200$ V

164. (C) $\because$ Ideal voltage has zero internal resistance,

$\therefore$ Time constant $\tau = RC = 0$

Hence capacitor will charge instantaneously.

165. (C) Thermocouple type, instruments read rms value,

$$\text{Irms} = \sqrt{2^2 + \left(\frac{\sqrt{2}}{\sqrt{2}}\right)^2 + \left(\frac{2\sqrt{2}}{\sqrt{2}}\right)^2}\ \text{A}$$

For class 1 meter, accurancey is 1% for 5 A range.

For 3 A, accuracy will be $\dfrac{5}{3}\% = 1.67\%$

170. (B) Maximum value of input voltage

$V_m = 400\sqrt{2}$V

Since load is purely resistive, therefore peak instantaneous output voltage

$V_m = 400\sqrt{2}$V

172. (C) When V will be+ve both transistor and diode will be on making V across them zero and current I will be flow and when V is – ve both will be off offering infinite resistance so current I will be zero.

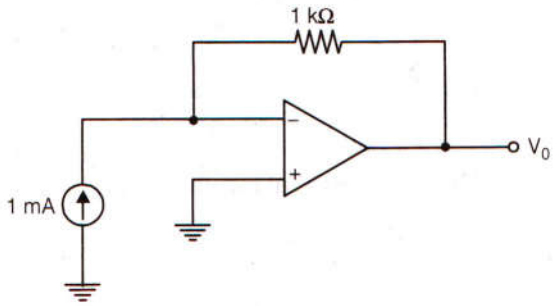
173. (B) $Y = \overline{(\overline{P}.\overline{Q}).(\overline{R}.\overline{S})}$

$\because \overline{(\overline{A}.\overline{B})} = (A+B)$

$\therefore Y = \overline{\overline{P}.\overline{Q}} + \overline{\overline{R}.\overline{S}}$

$\Rightarrow$ Y = (P + Q + R +S)

174. (C)



$0 - V_o = 1\ \text{mA} \times 1\text{k}\Omega$

$V_o = -1$V

177. (A) At no load $I_a = 5 - \dfrac{400}{200} = 3$ A

$\therefore$ Speed at no-load $N_{nl} = \dfrac{400 - 3 \times 0.5}{k}$

At full load $I_a = 50 - 2 = 48$ A

$\therefore$ Speed at full-load $N_{fl} = \dfrac{400 - 48 \times 0.5}{k}$

$\therefore \dfrac{N_{fl}}{N_{nl}} = 0.94$

180. (A) $N_S = \dfrac{120 \times 50}{8} = 750\,\text{rpm}$

$\therefore\ s = \dfrac{750 - 727.5}{750} = 0.03$

$\therefore$ Slip frequency of rotor emf = sf
= 0.03 × 50 = 1.5 Hz

182. (B) $E = \dfrac{1}{2}Li^2 = \dfrac{1}{2}\left(\dfrac{N\phi}{i}\right)i^2$

$= \dfrac{1}{2} \times 1000 \times 10^{-3} \times 1 = \dfrac{1}{2}\,\text{J}$

191. (C) q = C.V

$\therefore \dfrac{dq}{dt} = i = C.\dfrac{dv}{dt}$

(dvl at would be negative as current would decrease)

also, $v = iR = C.\dfrac{dv}{dt}.R$

$\therefore -50 = 20 \times 10^{-6} \times (-500) \times R$

$\Rightarrow$ R = 5 kΩ

192. (D) For maximum power
$|X_C| = R$

$\phi = 45^0$

$\cos\phi = \cos 45^0 = 0.707$ led

194. (B) (b – n + 1) links associated with fundamental loops. So b – n + 1 = 10 – 7 + 1 = 4

195. (C) $v = L\dfrac{di}{di}$

$\Rightarrow \int_{-\infty}^{\infty} v\,dt = \int_0^i L\,di$

$\int_{-\infty}^{\infty} \delta(t)\,dt = \int_0^i L\,di$

1 = Li

$\Rightarrow\ i = \dfrac{1}{L} = 1\,\text{A}$

Energy supplied by source = energy and forced in the inductor

$= \dfrac{1}{2}Li^2 = \dfrac{1}{2} \times 1 \times (1)^2 = \dfrac{1}{2}\,\text{J}$

199. (B) $H = \dfrac{\text{Stored kinetic energy}}{\text{Machine rating}}$

$= \dfrac{400 \times 10^6}{50 \times 10^6} = 8\,\text{MJ/MVA}$