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2007, OUTRAM LINES, 1ST FLOOR, NEAR GTB NAGAR METRO STATION, GATE NO. - 2, DELHI-110009

Answer-key & Solution

SSC JE (Electrical)
MOCK -(59)
Date 06 / 08 / 2016

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

Correction
MOCK TEST 58

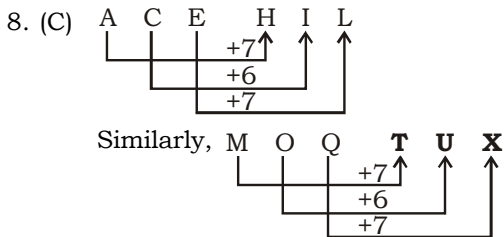
Q. 28 (D, A) both are correct (both are same answer)

Note : *If your opinion differ regarding any answer, please message the mock test and Question number to 8375805483*

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

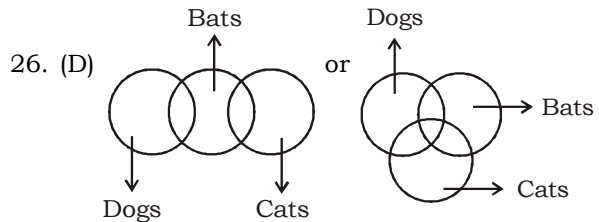
SOLUTION SSC JE (Electrical) MOCK TEST no. 59

1. (B) Towel is to bathtub as chest of drawers is to bed. The towel and bathtub are found in a bathroom. The chest and the bed are found in a bedroom.
2. (B) A cobbler makes and repairs shoes. A contractor builds and repairs buildings.
3. (B) Hunger can be satiated with food. Similarly, Disease can be warded off by medicine.
4. (B) The first word is Antonyms of second word.
5. (C) A skein is a quantity of yarn. A ream is a quantity of paper.
6. (C) The number has been written in reverse order.
7. (D) A pen is used by a poet. A needle is used by a tailor.



9. (A) The saw and the nails are tools used by a carpenter. The stethoscope and thermometer are used by a pediatrician.
10. (A) $4 : 32 :: 7 : 98$
 $4^2 \times 2 = 32$ $7^2 \times 2 = 98$
11. (B) In all other groups, the third, first and second letters are in alphabetical order.
12. (D) All except Paragon are evil-doers
13. (C) All except Character are external qualities.
14. (B) In all other numbers, the sum of second and last digits is twice the sum of first and third digits.
15. (B) Except Mole hills rest are the mountains whereas Mole hills is a small mound ridge on earth raised by Mole.
16. (A) 83 is the only prime number in the group.
17. (D) In all other pairs, the second number is one less than the square of the first number.
18. (B) All except Chandelas were associated with ancient kingdoms in southern India, While Chandelas formed a kingdom in north India.
19. (A) Seven pieces consist of 6 smaller equal pieces and one half cake piece.
Weight of each small piece = 20 gm
So, total weight of the cake = 2 (20 × 6)

20. (D) It is clear that the sex of A cannot be determined.
21. (B) The letter is the first half and the other half are separately reversed to obtain the code.
22. (C) Number of persons between Amrita and Mukul = 50 - (10 + 25) = 15.
Since Mamta lies in middle of these 15 persons.
So, Mamta's position is 8th from Amrita i.e. 18th from the front.
23. (A) $(15 \times 2 - 3) = 27$, $(31 \times 2 - 6) = 56$
and $(45 \times 2 - 9) = 81$
24. (B) $(2)^2 + (4)^2 = 20$
 $(3)^2 + (9)^2 = 90$
Therefore, $(1)^2 + (5)^2 = 26$.
25. (C) All numbers are cubed,
 $(7)^3 = 343$
 $(1)^3 = 1$
 $(3)^3 = 27$
Similarly, $(5)^3 = 125$.



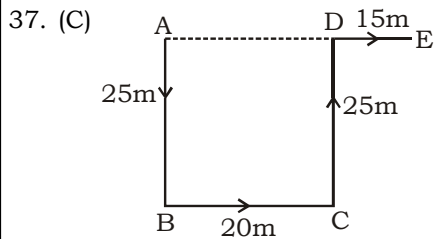
1. 5 2. 5
27. (A) The required number of sweets will be such that it leaves a remainder of 1 when divided by 2, 3 or 4 and no remainder when divided by 5. Such a number is 25 among the options.
28. (A) The colour of milk is 'white' and as given 'white' is called 'sky'.
So, the colour of milk is 'sky'.
29. (A) P × R - Q means P is the brother of R who is the wife of Q i.e. P is the brother-in-law of Q.
30. (B) I → G R M
II → M A S
Combining I & II
G R M A S
Gaurav won the race.
31. (C) 6 7 9 5 6 9 7 6 8 7 6 7 8 6 9
4 6 7 7 6 9 5 7 6 3
32. (B) Using the correct symbols, we have the

$$40 + 12 \div 3 \times 6 - 60 = 40 + 4 \times 6 - 60$$

$$= 40 + 24 - 60 = 4.$$

33. (D) The correct order is :
 Tree Branch Leaves Flower Fruit
 4 2 1 3 5
34. (C) Number of dots on the top faces of the dice (II), (IV) and (VI) are 1, 1 and 1 respectively.
 Number of dots on the top faces of the dice (I), (III) and (V) are 5, 5 and 3 respectively.
 Number of dots on top faces = $5 + 5 + 3 + 1 + 1 + 1 = 16$
35. (B) On interchanging $-$ and \div , we have the equation as
 $5 + 3 \times 8 \div 12 - 4 = 3$
 or $5 + 3 \times 2/3 - 4 = 3$
 or $3 = 3$, which is true.

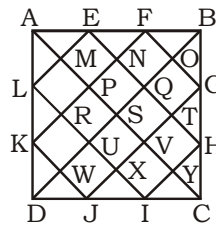
36. (D) Total runs scored = $(36 \times 5) = 180$.
 Let the runs scored by E be x .
 Then, runs scored by D = $x + 5$
 Runs scored by A = $x + 8$
 Runs scored by B = $x + x + 5 = 2x + 5$
 Runs scored by C = $(107 - B)$
 $= 107 - (2x + 5) = 102 - 2x$
 \therefore Total runs = $(x + 8) + (2x + 5) + (102 - 2x) + (x + 5) + x = 3x + 120$.
 $\therefore 3x + 120 = 180 \Rightarrow 3x = 60 \Rightarrow x = 20$.



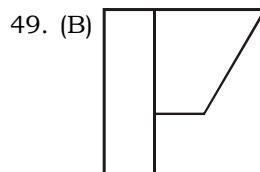
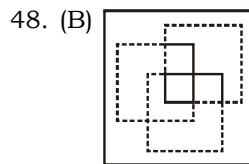
The movements of Rohit are shown in figure.
 Rohit's distance from the starting point A = AE = AD + DE = $20 + 15 = 35$ metres
 The direction with reference to the starting point is east

38. (D) Blood Relation Analysis :
 Father of my daughter's Father = Deepak's Father
 Brother of Deepak's father = Deepak's Uncle
39. (D)
- | | | | | | | | | |
|---|---|---|---|---|-----|---|---|---|
| 3 | 6 | 4 | 9 | 2 | and | 0 | 5 | 8 |
| ↓ | ↓ | ↓ | ↓ | ↓ | | ↓ | ↓ | ↓ |
| S | M | I | L | E | | R | U | N |
- Similarly,
- | | | | | | |
|---|---|---|---|---|---|
| 2 | 9 | 4 | 5 | 6 | 3 |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| E | L | I | U | M | S |

40. (D) Series 1: 5, 7, 10, 14
 Series 2: 6, 8, 11, ...
 In series 2 pattern is +2, +3, Next will be +4
 So required number in the series will be $11 + 4 = 15$
41. (C) The series is bbccaa / ccaabb / aabbcc.
42. (C) Series 1 : 8, 7, 6, (...)
 Series 2 : 9, 10, 11, 12
 Series 3 : 8, 9, 10
 In series 1 pattern the every number is decreasing by 1.
 So, missing term = $6 - 1 = 5$
43. (D) All the letters of each term are moved five steps forward to obtain the corresponding letters of the next term.
47. (C) The figure may be labeled as shown.



The simplest triangles are AML, LRK, KWD, DWJ, JXI, IYC, CYH, HTG, GOB, BOF, FNE and EMA i.e. 12 in number.
 Triangles composed of two components each are AEL, KDJ, HIC and FBG i.e. 4 in number.
 Triangles composed of three components each are APF, EQB, BQH, GVC, CVJ, IUD, DUL and KPA i.e. 8 in number.
 Triangles composed of six components each are ASB, BSG, CSD, DSA, AKF, EBH, GGJ and IDL i.e. 8 in number.
 Triangles composed of twelve components each are ADB, ABC, BCD and CDA i.e. 4 in number.
 Total number of triangles in the figure = $12 + 4 + 8 + 8 + 4 = 36$.



50. (B)

102. (C) Heat produced by heater, $W = \frac{V^2}{R}$

It supply is made half to rated value the

$$\text{developed heat} = \frac{\left(\frac{V}{2}\right)^2}{R} = \frac{V^2}{4R} = \frac{W}{4}$$

103. (A) Phase difference = $\frac{\pi}{3} - \left(\frac{-\pi}{4}\right)$
 $= 60^\circ + 45^\circ = 105^\circ$

104. (B) Capacitive reactance at 50Hz frequency

$$= 10\Omega \Rightarrow \frac{1}{j2\pi fC}$$

Capacitive reactance at 100Hz frequency

$$= \frac{10}{2} = 5\Omega$$

106. (B) Voltage across the capacitor

$$C_1 = 300 \times \frac{2}{1+2} = 200 \text{ Volt}$$

107. (C) rms value of alternating current

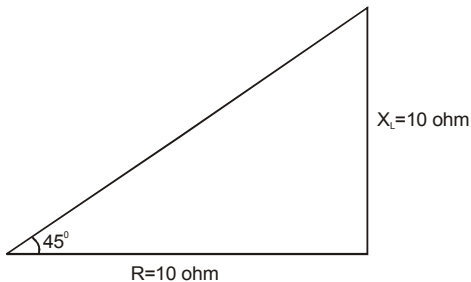
$$= \frac{I_m}{\sqrt{2}} = \frac{14.14}{1.414} = 10 \text{ amp}$$

111. (C) $C_{AB} = \frac{C \times C}{C+C} + \frac{C}{2} = C$

112. (A) Internal resistance = $\frac{\text{Voltage difference}}{\text{Current}}$

$$= \frac{100 - 80}{2} = 10\Omega$$

113. (B)



Hence the phase angle between voltage and current = 45°

114. (B) $R_1 = \frac{(220)^2}{200} = 242\Omega$, $R_2 = \frac{(220)^2}{100} = 484\Omega$

$$\text{Power consumed} = \frac{(220)^2}{242 + 484} = 66.6 \text{ W}$$

115. (C) $R_{AB} = 100 + (50 || 75 || 50)$
 $= 100 + 18.75$
 $= 118.75 \text{ ohm}$

116. (C) $e = L \frac{di}{dt}$

$$L = \frac{e}{di/dt} = \frac{8}{(4-2)/0.05} = \frac{8 \times 0.05}{2} = 0.2 \text{ H}$$

117. (A) Total power drawn by the load

$$= \frac{3 \times V_{ph}^2}{z} \times \cos \phi$$

$$= \frac{3 \times (400)^2}{\sqrt{6^2 + 8^2}} \times \cos\left(\tan^{-1} \frac{8}{6}\right)$$

$$= 28.8 \text{ kW}$$

125. (C) $I_E = I_B + I_C$

$$= 0.025 + 4.975$$

$$= 5.0 \text{ A}$$

127. (D) $\beta = 50$

$$\Delta I_E = (\beta + 1) \cdot \Delta I_B$$

$$= 51 \times 5 \text{ mA}$$

$$= 255 \text{ mA}$$

134. (C) surge impedance = $\sqrt{\frac{L}{C}}$

$$= \sqrt{\frac{0.22 \times 10^{-3} \text{ H}}{0.202 \times 10^{-6} \text{ F}}}$$

$$= 33 \text{ ohm}$$

138. (C) Limiting error =

$$\frac{\text{accuracy} \times \text{ammeter full scale value}}{\text{ammeter reading}}$$

$$= \frac{1 \times 10}{2.5} = 4\%$$

139. (A) % error = $\frac{MV - TV}{TV} \times 100$

$$P_T = 4.4 \text{ KW}$$

$$k = \frac{\text{No. of rev.}}{\text{energy}}$$

$$E_m = \frac{\text{No. of rev.}}{k} = \frac{50}{500} = 0.1 \text{ kWhr}$$

$$P_m = \frac{0.1}{86/3600} = \frac{3600}{86} = 4.186$$

$$P_M = 4.186 \text{ kW}$$

$$\% \text{ error} = \frac{P_M - P_T}{P_T} \times 100$$

$$= \frac{4.186 - 4.4}{4.4} \times 100 = -4.86\%$$

142. (B) $R_m = 2 \text{ ohm}$

$$I_{fs} = \frac{V}{R_s + R_m}$$

$$50 \times 10^{-3} = \frac{250}{R_s + 2}$$

$$R_s + 2 = \frac{250}{50 \times 10^{-3}}$$

$$R_s = 5000 - 2 = 4998 \text{ ohm}$$

143. (B) $R_m = 500 \text{ ohm}$

$$m = \frac{I}{I_m} = \frac{10}{100 \times 10^{-6}} \quad m = 1 \times 10^5$$

$$R_{sh} = \frac{R_m}{m-1} = \frac{500}{100000-1} = 0.005 \Omega$$

150. (A) $[(R \parallel R) + R] \parallel R = \frac{3}{5} R$

151. (B) Applying KVL in closed loop

$$= 10 - 2I = 0$$

$$I = 5 \text{ amp}$$

$$\text{Thevenin voltage} = 1 \times 5 + 10 = 15 \text{V}$$

152. (C) $R_L = R_{AB}$
 $= (40 \parallel 20) + 60 = 73.33 \text{ ohm}$

156. (B) $0.5 + (L_1 \parallel L_2) = 0.7$

$$0.5 + \left(\frac{L_1 \times 2L_2}{L_2 + 2L_2} \right) = 0.7$$

$$L_2 = 0.3 \text{H}$$

$$L_1 = 2 \times 0.3 = 0.6 \text{ H}$$

158. (D) $\theta_{elet} = \frac{P}{2} \times \theta_{mech} = \frac{6}{2} \times 4 = 12$

175. (B) Applying KVL

$$120 - 30I - 30 - 15I = 0$$

$$I = 2 \text{ amp}$$

$$\text{Power absorbed / delivered by } 120 \text{V}$$

$$\text{source} = VI$$

$$= 120 \times 2$$

$$= 240 \text{ W}$$

176. (B) Maximum power transferred

$$= \frac{I_N^2}{4} \text{Re}[Z_n]$$

$$= \frac{(10\sqrt{2})^2}{4} \times 10 = 500 \text{ W}$$