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Answer-key & Solution

SSC JE (Electrical)
MOCK -(66)
Date 24/ 09/ 2016

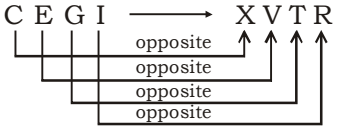
1. C	26. C	51. A	76. B	101. A	126. A	151. A	176. B
2. C	27. D	52. B	77. B	102. B	127. A	152. A	177. C
3. A	28. D	53. D	78. A	103. C	128. A	153. C	178. D
4. A	29. A	54. A	79. B	104. D	129. A	154. C	179. A
5. B	30. A	55. A	80. A	105. B	130. A	155. C	180. C
6. A	31. D	56. D	81. C	106. C	131. B	156. A	181.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

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

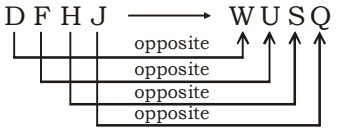
Note : *If you face any problem regarding result or marks scored, please contact : 9313111777*

SOLUTION SSC JE (Electrical) MOCK TEST no. 66

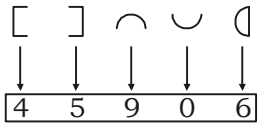
1. (C) $A \xrightarrow{+2} \mathbf{C} \xrightarrow{+2} E$
$R \xrightarrow{+2} \mathbf{T} \xrightarrow{+2} V$
$B \xrightarrow{+2} \mathbf{D} \xrightarrow{+2} F$
$F \xrightarrow{+2} \mathbf{H} \xrightarrow{+2} J$
2. (C) $(6 \times 6) - 1 = 35$
$(9 \times 6) - 1 = \mathbf{53}$
3. (A) $8 + 1 = 9 \Rightarrow 9^2 = 81 \xrightarrow{\text{opposite}} 18$
$24 + 1 = 25 \Rightarrow 25^2 = 625 \xrightarrow{\text{opposite}} 526$
4. (A) Father is responsible for the existence of a child similarly, **writer** is responsible for the existence of a book.
5. (B) TAP $\xrightarrow[\text{opposite}]{}$ PAT
DAM $\xrightarrow[\text{opposite}]{}$ MAD
6. (A) $(2)^3 = 8 : (3)^2 = 9$
$(4)^3 = 64 : (5)^2 = 25$
7. (C) In Library, we find books similarly, in banks we find money.
8. (D) As,



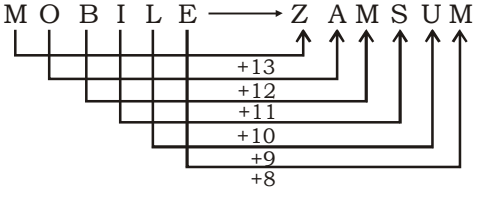
Similarly,



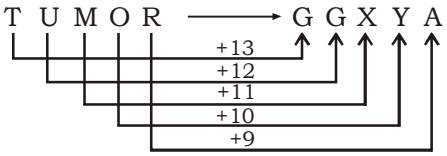
9. (B) ABC → HIJ (+7)
OPQ → VWX (+7)
10. (A)
11. (A) We know that Red, Green and Blue are primary colours where as Yellow is not a primary colour.
12. (B) Option (B) comprises only vowels whereas only consonants are present in rest of the options.
13. (A) 216 is a cube of even number whereas rest are cubes of odd number.
Example- $27 = (3)^3$, $125 = (5)^3$, **$216 = (6)^3$**, $343 = (7)^3$
14. (D) (a) $E \xrightarrow{-3} B \xrightarrow{+2} D$
(b) $I \xrightarrow{-3} F \xrightarrow{+2} H$
(c) $U \xrightarrow{-3} R \xrightarrow{+2} T$
(d) $Y \xrightarrow{-2} W \xrightarrow{+1} X$
15. (C) Except option (C), In other options each letters are increased by 1.
16. (C) Except 481, rest are perfect squares of a number.
17. (C) After observing each options we have,
(a) $(24 \times 2) - 2 = 46$
(b) $(32 \times 2) - 2 = 62$
(c) $(30 \times 2) - 4 = 56$
(d) $(38 \times 2) - 2 = 74$
so, option (C) is different.
18. (D) Sum of 1st three numbers results in the fourth whereas option (d) is not satisfying the same.
19. (D)
20. (B)



21. (B) The letter 'R' of Doctor is missing in word DECOMPOSITION.
22. (C) The letter 'R' of Pointer is missing in word DISAPPOINTMENT.
23. (A) Unit → Tens → Hundereds → Thousands → Lakhs
2 4 1 3 5
24. (A) Lucknow → Uttar Pradesh → India → Asia → World
1 2 3 5 4
25. (B) a b b b / a b b b / a b b b
26. (C) 225 336 447 **558** 669
+111 +111 +111 +111
27. (D) Hari > Chaman > Satish
Vijay > Mukesh > Chaman > Satish.
Hence, we can say that Satish is smallest among all.
28. (D) $2486 - 85 = 2401$ is a perfect square of 49.
29. (A) Out of 12 questions, 6 questions have one option
so, Total no. of questions = $6 + (6 \times 2) = 18$
As, Each questions has 4 sections
so, Total number of question (including different sections)
$= 18 \times 4 = 72$
30. (A) As,



Similarly,



31. (D) 55 + 66

$\Rightarrow 5 + 5 + 6 + 6 = 22 \Rightarrow 22 \times \frac{3}{2} = 33$

22 + 99

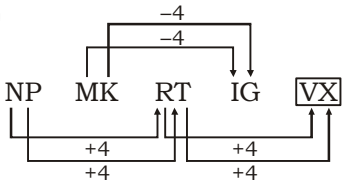
$\Rightarrow 2 + 2 + 9 + 9 = 22 \Rightarrow 22 \times \frac{3}{2} = 33$

44 + 88

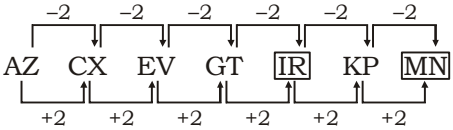
$\Rightarrow 4 + 4 + 8 + 8 = 24 \Rightarrow 24 \times \frac{3}{2} =$ **36**

32. (D) From option (D) we have,
$5 > 8 + 4 = 10 < 4 \times 8$
$\Rightarrow 5 \times 8 \div 4 < 10 - 4 + 8$
$= 5 \times 2 < 18 - 4 = 10 < 14$

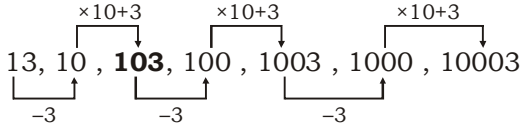
33. (C)



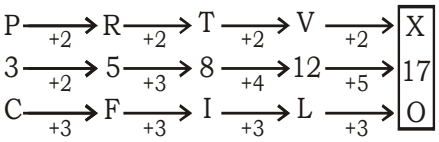
34. (C)



35. (B)



36. (A)



37. (B) 'Sun is a source of light'- The statement doesn't mean that moon is not a source of light and also doesn't mean that light has only one source. So, neither conclusion I nor II follows.

38. (D) $(3)^2 + (5)^2 + (1)^2 = 35$
$(4)^2 + (7)^2 + (2)^2 = 69$
$(6)^2 + (3)^2 + (7)^2 =$ **94**

39. (D) $(4 + 2)^2 = 36$
$(3 + 7)^2 = 100$
$(2 + 5)^2 =$ **49**

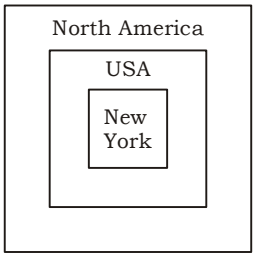
40. (A) $\sqrt{16} + \sqrt{25} = 9$
$\sqrt{49} + \sqrt{36} = 13$
$\sqrt{64} + \sqrt{81} =$ **17**

41. (A)

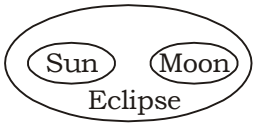
42. (D)

43. (A)

44. (D)



45. (B)



46. (C) 24 * 2 * 4 * 3
$\Rightarrow 24 \div 2 = 4 \times 3$
$\Rightarrow 12 = 12$

47. (C)

48. (C) $3 \times 5 \times 7 \Rightarrow 3 + 5 + 7 = 15$
$2 \times 4 \times 6 \Rightarrow 2 + 4 + 6 = 12$
$4 \times 7 \times 9 \Rightarrow 4 + 7 + 9 = 20$

49. (C) As Ramesh and Amit are brothers. Also, Amit is the son of Sushma. So, Ramesh is also the son of Sushma.

50. (C) C ⇒ **44**, 53
A ⇒ 42, 62, **62**
L ⇒ 36, **65**
M ⇒ **51**
CALM ⇒ 44, 62, 65, 51

54. (A) Dyarchy was introduced as a constitutional reform by Edwin Samuel Montagu (secretary of state for India, 1917-22) and Lord Chelmsford (Viceroy of India, 1916-21). It marked the first introduction of the democratic principle into the executive branch of the British administration of India. Though much criticized, it signified a breakthrough in British Indian government and was the forerunner of India's full provincial autonomy (1935) and independence (1947).

56. (D) The freezing point of water is the temperature at which water changes phase from a liquid to a sold. Under normal conditions, ordinary water freezes at 0^0 C or 32^0 F. The temperature may be lower if super cooling occurs or if there are impurities present in the water which could cause freezing point depression to occur.

57. (B) Gene is a segment of DNA in all living organisms.

58. (C) Vijay Stambh is an imposing structure located in Chittorgarh fort in Rajasthan which was constructed by Mewar king

Rana Kumbha in 1442 AD to commemorate his victory over the combine armies of Malwa and Gujarat led by Mahmud Khilji.

59. (D) An artificial ecosystem is one that is created by people. You can create an artificial ecosystem in an aquarium or terrarium. Nathaniel Bagshaw Ward is credited as the inventor of the terrarium, which he accidently created in 1829.

60. (B) Marginal product of an input (factor of production) is the extra output that can be produced by using one more unit of the input (for instance, the difference in output when a firm's labour usage is increased from five to six units), assuming that the quantities of no other inputs to production change. Marginal product, which occasionally goes by the alias marginal physical product (MPP) is the one of the two measures derived from the total product. The other is average product. Marginal product is directly proportional to total product.

64. (D) Work done by the string of the simple pendulum during one complete oscillation is zero. Tension in the string exactly cancels the component parallel to the string. This leaves a net restoring force back toward the equilibrium position as it is equal to zero.

66. (C) Capital markets provide for the buying and selling of long term debt or equity backed securities. When they work well, the capital markets channel the wealth of savers to those who can put it to long term productive use, such as companies or governments making long term investments. Capital Markets allow businesses to raise long-term funds by providing a market for securities, both through debt and equity. Capital markets offer a whole range of complicated products which allow businesses and banks not just to raise capital but also to 'hedge' (protect) against risks.

68. (B) A strait is a narrow, typically navigable channel of water that connects two larger, navigable bodies of water. It commonly refers to a channel of water that lies between two land masses, but it may also refer to a navigable channel through a body of water that is otherwise not navigable, for example because it is too shallow, or because it contains an un-navigable reef or archipelago.

70. (A) According to the Special Theory of Relativity, the mass of a moving object measures more as its velocity increases until, at the speed of light, it becomes infinite. This is because as an object gains speed, it gains more (kinetic) energy.

72. (C) The Public Accounts Committee (PAC) is a committee of selected members of Parliament, constituted by the Parliament of India for the auditing of the expenditure of the government of India. Its chief function is to examine the audit report of Comptroller and Auditor General (CAG) after which it is laid in the Parliament CAG to assist the committee during the course in investigation. None of the 22 members shall be a minister in the government.

73. (B) The Indian Tri-colour was first unfurled on 26 January, 1930 at Lahore, by Pandit Jawaharlal Nehru. It was on the same day that the Indian National Congress declared 26th January as Independence Day or as the day for Poorna Swaraj (Complete Independence) which occurred 20 years later.

76. (B) United States is the third largest country in terms of population after China and India.

78. (A) The sewage obtained from water closets and urinals in known Sanitary waste.

80. (A) Higher concentration of Nitrogen and Phosphorus causes Eutrophication.

82. (A) The Indian Councils Act 1909, commonly known as parliament of the United Kingdom that brought about a limited increase in the involvement of Indians in the governance of British India.

84. (B) If the President is satisfied on the basis of the report of the Governor of the concerned state or from other sources that the governance in a state cannot be carried out according to the provisions in the Constitution, he/she can declare a state of emergency in the state. Such a emergency must be approved by the Parliament within a period of 2 months. Under Article 356 of the Indian Constitution, it can be imposed from six months to a maximum period of three years with repeated parliamentary approval after every six months.

87. (C) Composite volcanoes are most commonly found in island arcs. Most of them are found scattered on the islands adjoining the Pacific Ring of Fire where about 75% of Earth's volcanoes are found. It is a region of high volcanic and seismic activity that surrounds the majority of the Pacific Ocean Basin.

89. (B) The Constitution of India mentions certain conditions for a person to be eligible for being a judge of the Supreme court of India. In order to be appointed as a Judge of the Supreme Court, a person must be a citizen of India and must have been for at least five years, a Judge of a High Court or of two or more such Courts in succession, or an advocate of a high Court or of two or more such Courts in succession for at least 10 years or he must be a distinguished jurist in the opinion of the President.

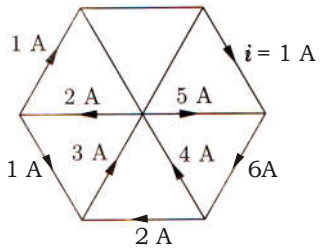
92. (C) The main source of carbon monoxide is transportation.

94. (B) India is called a mixed economy because there is both private owned enterprises and state owned enterprises and the government does not intervene on the decisions of enterprises owned by individuals except to govern law and to correct market failures. The product market in this case is determined by the market demand and market supply rather than the decisions of the policy makers.

95. (B) Mushroom cultivation has been found to coincide with decrease of incidents of breast cancer. Spent residues after cultivation could be a better source of biologically pre-treated substrates for biogas production and agricultural waste recycling can be can be achieved through controlled cultivation of mushrooms.

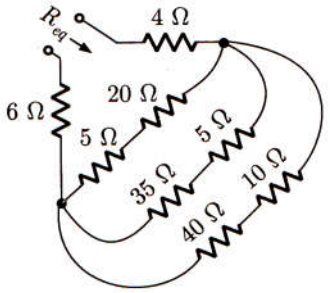
96. (A) Ozone layer serves as a protective shield against harmful solar ultraviolet radiation.

156. (A) The circuit is as shown is figure below



157. (D) It is not possible to determine the voltage across 1 A source.

158. (B) Using same potential technique, we get only node.



$R_{eq} = 4 + 25 \parallel 50 \parallel 50 + 6 = 22.5\ \Omega$

159. (A) $v_L = L\dfrac{di}{dt}$

$\Rightarrow \quad 100\text{m} = L\dfrac{200m}{4m}$

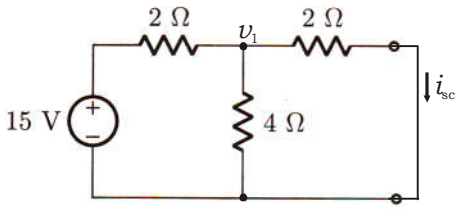
$\Rightarrow \quad L = 2\ \text{mH}$

160. (D) $\dfrac{v_2}{20} + \dfrac{v_2 + 10}{30} = 0.5$

$\Rightarrow \quad v_2 = 2\text{V}$

161. (B) $45 = 2ki_1 + 500\,(i_1 + 15\text{m}) \Rightarrow i_1 = 15\ \text{mA}$

162. (A) The circuit is as shown below



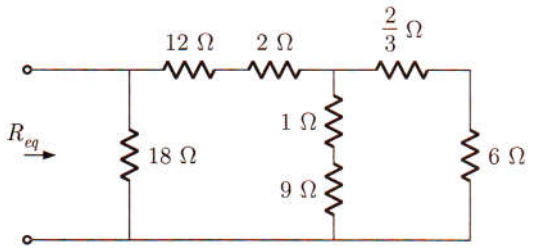
$R_N = 2 \parallel 4 + 2 = \dfrac{10}{3}\Omega,$

$v_1 = \dfrac{\frac{15}{2}}{\frac{1}{2} + \frac{1}{2} + \frac{1}{4}} = 6\text{V}$

$i_{sc} == i_N = \dfrac{v_1}{2} = 3\text{A}$

163. (D) Changing the Δ to Y

$R_{eq} = 18 \parallel \left(14 + 10 \mid\mid \left(6 + \dfrac{2}{3}\right)\right)$



= 18 || (14 + 4)= 9Ω

164. (A) $V_C = 0 + (5 - 0)\, e^{-\frac{t}{RC}}$

$\Rightarrow \quad \frac{5}{e} = 5e^{\frac{-0.1}{40k\times c}}$

$\frac{0.1}{40kC} = 1 \Rightarrow C = 2.5\ \mu F$

165. (A) $\upsilon_R(0^-) = 8 = \upsilon_R(0^+)$

$r_{eq} = (120 \| 60 + 60 + 200) \| 1600 = 320\ \Omega$

$\upsilon_R(t) = 0 + (8-)e^{\frac{-t}{320\times5\times10^{-4}}} = 8e^{-6.25t}$ V

166. (D) $Z = 4 + \frac{(-j2)(j5-j2)}{-j2+j5-j2}$

$= 4 - j6 = 7.21\angle -56.31°,$

$pf = \cos 56.31° = 0.555$ leading

167. (A) $Z_{th} = \frac{(-j10)(10+j15)}{10+j15-j10} = 8 - j14\Omega$

$V_{th} = \frac{120(-j10)}{10+j15} = 107.3\angle -116.6°\,V$

$I_{th} = \frac{107.3\angle -116.6°}{16} = 6.7\angle -116.6°$

$P_{L\max} = \frac{1}{2}(6.7)^2 \times 8 = 180W$

168. (D) $L_{eq} = L_1 - \frac{M^2}{L_2} = 4 - \frac{4}{2} = 2H$

169. (D) $V_{L1} = 1sI + 1sI = 2sI$

$V_{L2} = 2sI + 1sI = 2sI = sI,$

$V_{L3} = 3sI - 2sI = sI$

$V_L = V_{L1} + V_{L2} + V_{L3} = \Rightarrow L_{eq} = 4$ H

170. (B) For delta connection

Line voltage V_L = Phase voltage (V_p)

$V_P = V_L = 400$ V

Phase current

$I_p = \frac{V_p}{Z_p} = \frac{400}{\sqrt{(3)^2+(4)^2}} = 80$ A

Line current $I_L = \sqrt{3}I_p = \sqrt{3} \times 80 =$ 138.56 A

171. (D) Power deliverd by the dependent current source '5x', $P_{del} = (5x)\,(V_{10\Omega})$

$\therefore V_{10\Omega} = (5x - x - 2) \times 10$

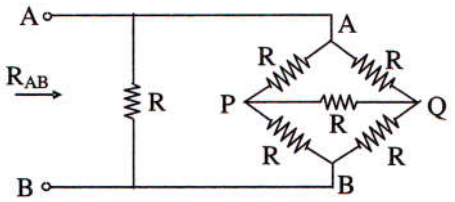
$= (4x - 2)\times 10$

& x = 3A

So, $P_{del} = (5 \times 3)\,[(4 \times 3) - 2] \times 10$

= 1500 W

172. (B)



Bridge APBQ is balanced $V_{PQ} = 0$

This is equivalent to SC between points P and Q

R_{AB} 1Ω ||1Ω = 0.5 Ω

173. (C) Applying thevenin's theorem at terminal a, b

$V_{th} = V_{OC} = V_{AB} = V$

Rth = R|| R ||R = $\frac{R}{3}$

174. (C) For the given sawtooth wave, I_{rms} is given by

$I_{rms}^2 = \frac{1}{1}\int_0^1 1000\, t^2 \frac{100}{3} t^3 \Big|_0^1 = \frac{100}{3}$

$\therefore P_{ave}$ in 10 Ω =

$I_{rms}^2\ R = \frac{100}{3} \times 10 = \frac{1000}{3}$ W

199. (C) α = 0.99

$\beta = \frac{\alpha}{1-\alpha} = \frac{0.99}{1-0.99} = 99$