

KD
Campus
KD Campus Pvt. Ltd

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

Answer-key & Solution

SSC JE (Mechanical)
MOCK -(86)
Date 18.02.2017

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

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*

26. (D) As, B A B Y
 $\downarrow +1^2 \downarrow +2^2 \downarrow +3^2 \downarrow +4^2$
 C E K O

Similarly, B A B A
 $\downarrow +1^2 \downarrow +2^2 \downarrow +3^2 \downarrow +4^2$
C E K Q

27. (B) $6 \times 4 = 24 \Rightarrow 2 \times 4 = 8$
 $2 \times 8 = 16 \Rightarrow 1 \times 6 = 6$

28. (B) As, 2 3 1
 $\downarrow 2^2 \downarrow 3^2 \downarrow 1^2$
 4 9 1

Similarly, 3 0 2
 $\downarrow 2^2 \downarrow 3^2 \downarrow 1^2$
9 0 4

29. (D) A group of letters form a word and a group of words form a sentence.

30. (D) Except (D), others are in form of $(x^3 - x)$ where $x = 3, 5, 7$.

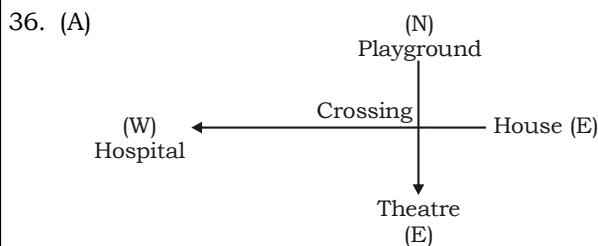
31. (D) In 'YELLOW' we can find two vowels i.e. 'E and O', whereas in others only one vowel is present.

32. (C) Except (C), other are continents.

33. (D) Except (D), other are prime numbers.

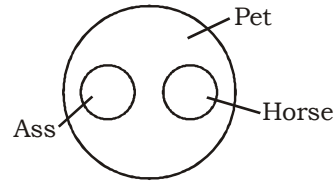
34. (B) Since each pole at the corner of the plot is common to its two sides, so we have :
 Total number of poles needed
 $= 37 \times 4 - 4 = 148 - 4 = 144$

35. (B) The girl is the daughter of the sister of Sandeep's father. Hence, the girl is the cousin or Sandeep is the cousin of the girl.

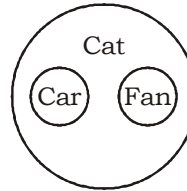


37. (B) $6 \times 0.5 + 1 = 4$
 $4 \times 1 + 2 = 6$
 $6 \times 2 + 3 = 15$
 $15 \times 4 + 4 = 64$
 $64 \times 8 + 5 = 517$
 $517 \times 16 + 6 = 8278$

38. (D) Ass and Horse are different from each other but both are pet.



39. (D)



Neither I nor II follows.

40. (B) $2 \rightarrow 4 \rightarrow 1 \rightarrow 5 \rightarrow 3$

41. (A) $6^2 + \frac{6}{2} = 36 + 3 = 39$

$8^2 + \frac{8}{2} = 64 + 4 = 68$

$12^2 + \frac{12}{2} = 144 + 6 = 150$

$4^2 + \frac{4}{2} = 16 + 2 = 18$

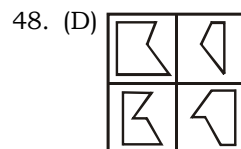
42. (B) $(4 \times 3 - 2)^2 + (4 + 2 + 3) = 100 + 9 = 109$
 $(5 \times 2 - 3)^2 + (5 + 3 + 2) = 49 + 10 = 59$
 $(8 \times 2 - 4)^2 + (8 + 4 + 2) = 144 + 14 = 158$
 $(6 \times 3 - 5)^2 + (6 + 5 + 3) = 169 + 14 = 183$

43. (C) LCM (24, 36, 48) = 144
 LCM (16, 24, 36) = 144
 LCM (18, 16, 32) = **288**

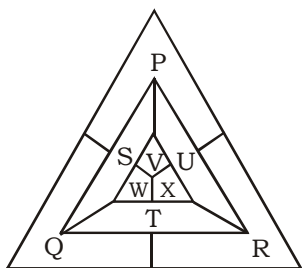
45. (D) The two half-shaded faces lie opposite to each other and one of the three blank faces appears opposite to the face bearing a dot. Clearly, each one of the four cubes shown in figures (A), (B), (C) and (D) can be formed by folding the sheet shown in figure.

46. (D)

| | | | | | | | | | | |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| M | S | D | O | M | G | B | A | N | J | O |
| \downarrow | \downarrow | \downarrow | \downarrow | \downarrow | \downarrow | \downarrow | \downarrow | \downarrow | \downarrow | \downarrow |
| 13 | 19 | 4 | 15 | 13 | 7 | 2 | 1 | 14 | 10 | 15 |
| $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ | $\times \frac{2}{2}$ |
| 26 | 38 | 08 | 30 | 26 | 14 | 04 | 02 | 28 | 20 | 30 |



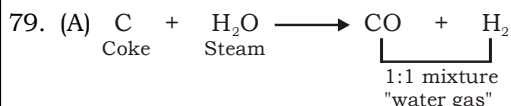
50. (D) The figure may be labelled as shown.



Now, in order that no two adjacent spaces be shaded by the same colour, the spaces T, U and S must be shaded with the colours of the spaces P, Q and R respectively.

Also the spaces X, V and W must be shaded with the colours of the spaces S, T and U respectively i.e. with the colours of the spaces R, P and Q respectively. Thus, minimum three colours are required.

77. (B) The Odisha government in association with International Labour Organisation (ILO) will host the 2016 National conference on labour in Bhubaneswar from September 20th. The focus of a 2-day conference is to discuss several issues related to organized and unorganized labourers in India.



81. (C) A^- = anion

A^+ = cation

A = Parent atom

Size : anion > parent atom > cation

$A^- > A > A^+$

82. (B) Twisting the yoke will tilt the picture. A projection colour television uses three picture tubes and yokes for red, green and blue light.

83. (B) The word 'laser' is actually an acronym for light amplification by stimulated emission of radiation. Atoms or molecules of the active medium that have been excited to a higher energy level are stimulated by a passing photon to relax to a lower energy level and emit a photon that is indistinguishable from the passing photon, thereby increasing the number of photons like the incident one.

84. (C) Ordinary Hydrogen/Protium/ ^1_1H

electron/ e^- = 1

Proton/ p^+ = 1

Neutron/ n^0 = 0

85. (A) Plants excrete oxygen, carbon dioxide and water vapour. These gaseous waste products are got rid of by diffusion through the stomata and lenticels. The oxygen is a waste product of photosynthesis while carbon dioxide is produced in the process of respiration.

87. (C) The terabyte is a multiple of unit byte for digital information.

1 TB = 10^{12} Bytes

= 1073741824 Kilobyte

= 1048576 MB = 10^{12} Gigabytes

89. (D) Alka Sirohi, a retired IAS officer of the Madhya Pradesh cadre, has been appointed as the new chairman of Union Public Service Commission (UPSC) with effect from September 21, 2016. She succeeded Deepak Gupta. She will be in office till completion of her term as member on January 3, 2017. Currently, Sirohi is member in the Commission.

92. (C) India has been ranked 112 out of 159 countries in the 2016 World Economic Freedom Index. As per the 2016 annual report of the Economic Freedom of the World, Hong Kong has the highest level of economic freedom worldwide, followed by Singapore, New Zealand, Switzerland, Canada, Georgia, Ireland, Mauritius, the UAE, Australia and the UK. The report is based on data from 2014 and measures the economic freedom by analyzing the policies and institutions of all 159 countries and territories.

94. (B) The book "Democrats and Dissenters" has been authored by Ramchandra Guha. The book comprises 16 essays on a wide range of issues like India's relation with its neighbours, freedom of expression, discrimination against the tribals among others.

97. (A) The Indian Constitution borrowed such features as parliamentary form of government, introduction of Speaker and his role, the concept of single citizenship, the Rule of law, procedure of law making etc from England. The Indian citizenship and nationality law and the Constitution of India provide single citizenship for all of India.

98. (C) Perfectly competitive firms are free to enter and exit an industry. They are not restricted by government rules and regulations, start-up cost, or other barriers to entry. Like perfect competition, free entry and exit of firms is possible under monopolistic competition.

99. (B) Dear Money is also known as tight money. It is the money which has to be borrowed at a high interest rate and so restricts

expenditure by companies. This situation can be a result of a restricted money supply, causing interest rates to be pushed up due to the forces of supply and demand. Business may have a tough time raising capital during a period of dear money.

100. (A) Money is referred to as a measure of value and prices. Because the market enables any commodity to be turned into money and money into any commodity, objective exchange value is expressed in terms of money. It is a price index.

101. (C) $\sqrt{2}F$

$$R = \sqrt{P^2 + Q^2 + 2PQ \cos \alpha}$$

$$R = \sqrt{F^2 + F^2}$$

$$R = F\sqrt{2}$$

103. (B) $\tan \phi = \frac{F}{R}$

$$\tan \phi = \frac{200}{600}$$

$$\phi = 18^\circ 26'$$

111. (A) Poisson's Ratio (μ) = 0.025
modulus of Elasticity = E
E = 2G (1 + μ)

$$\frac{E}{G} = 2(1 + 0.025) = 2 \times 1.25$$

$$\frac{E}{G} = 2.50$$

$$\frac{G}{E} = \frac{1}{2.5} = 0.4$$

117. (B) $I_{XX} = I_{YY} = \frac{\pi}{64} \times (D^4 - d^4) = AK^2$

$$K^2 = \frac{\frac{\pi}{64} \times (D^4 - d^4)}{\frac{\pi}{4} \times (D^2 - d^2)}$$

$$= \frac{(D^2 - d^2)(D^2 + d^2)}{16(D^2 + d^2)}$$

$$K^2 = \frac{(D^2 + d^2)}{16}$$

If tension in bass is zero then

$$e \leq \frac{2K^2}{D}$$

$$e \leq \frac{D^2 + d^2}{8D}$$

118. (B) $e \leq \frac{d}{8}, d = 2e = \frac{2d}{8} = \frac{d}{4}$

122. (A) Number of Links L = 8

Number of pairs P = ?

$$L = 2P - 4$$

$$8 = 2P - 4$$

$$2P = 12$$

$$P = \frac{12}{2} = 6$$

Number of pairs = 6

126. (D) Coefficient of speed fluctuations

$$= \frac{\text{Maximum Speed Fluctuation}}{\text{Average Speed}}$$

$$N_s = \frac{N_1 - N_2}{\left(\frac{N_1 + N_2}{2}\right)} = \frac{410 - 390}{\left(\frac{390 + 410}{2}\right)} = 0.05$$

129. (C) $2\omega v = \frac{2 \times 2\pi NV}{60} = 2 \times 2\pi \frac{60}{60} 10 = 40\pi$

133. (D) Diameter of circular shaft d = 2cm
Permissible shear stress (τ) = 10 KN/cm²

$$T = \frac{\pi}{16} d^3 \tau$$

$$T = \frac{\pi}{16} (2)^3 \times 10 = 5\pi$$

136. (C) Moment of inertia of rectangular section

$$\text{about base } I_{AB} = \frac{bh^3}{3}$$

Moment of inertia of triangular section about base

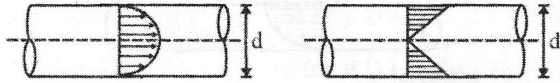
$$I_{BC} = \frac{bh^3}{12}$$

$$\frac{I_{AB}}{I_{BC}} = \frac{bh^3}{3} \times \frac{12}{bh^3} = 4:1$$

148. (B) Pressure gradient $\left(\frac{dP}{dx}\right) > 0$ is increase then layer is constant stage.

If $\frac{dv}{dx} < 0$, this is represent the flow distribution layer.

155.(B)



$$\tau = \left(\frac{-\partial p}{\partial x} \right) \cdot \frac{r}{2}$$

$$r = 0 \text{ and } \tau = 0$$

156.(D) $p_1 - p_2 = \frac{32\mu ul}{\rho g d^2}$

$$p_1 - p_2 = \frac{32 \times 0.23 \times 1.38 \times 70}{1000 \times 9.81 \times (20 \times 10^{-2})^2}$$

$$p_1 - p_2 = 1.91 \text{m}$$