



# KD Campus Pvt. Ltd

2007, OUTRAM LINES, 1ST FLOOR, OPPOSITE MUKHERJEE NAGAR POLICE STATION, DELHI-110009

## Answer-key & Solution

SSC JE (Mechanical)  
MOCK -(114)  
Date 10.9.2017

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

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

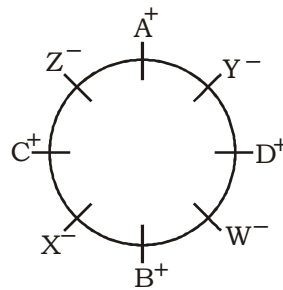
**Note :** If you face any problem regarding result or marks scored, please contact : 9313111777

**SOLUTION SSC JE (Mechanical) MOCK TEST no. 114**

1. D Caffeine is found in coffee. Similarly Nicotin is found in Tobacco.
2. D  $3265 = 3265 + 1111 = 4376$   
 $4673 = 4673 + 1111 = \mathbf{5784}$
3. B  $583 = 5 + 8 + 3 = 16 \rightarrow -2$   
 $293 = 2 + 9 + 3 = 14 \rightarrow -2$   
 $488 = 4 + 8 + 8 = 20 \rightarrow -2$   
 $\mathbf{3 + 7 + 8 = 18 \rightarrow -2}$
4. A Here the first word is the synonym of the second word.
5. A Jewellery is made of Gold. Similarly Furniture is made of Wood.
6. C Carbohydrate gives energy to human. Similarly, Petrol gives energy to Engine.
7. A
- |   |   |   |   |    |   |   |   |
|---|---|---|---|----|---|---|---|
| Q | Y | G | O | S  | A | I | Q |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
- 
- |   |   |   |   |    |   |   |   |
|---|---|---|---|----|---|---|---|
| U | C | K | S | W  | E | M | U |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
8. C Here the 1<sup>st</sup> one is related to the other.
9. A The earth moves on its Axis. Similarly, the wheel moves on its Hub.
10. B
- |   |   |   |   |    |   |   |   |
|---|---|---|---|----|---|---|---|
| A | Z | B | Y | C  | X | D | W |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | -2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | -2 |   |   |   |
- 
- |   |   |   |   |    |   |   |   |
|---|---|---|---|----|---|---|---|
| E | V | F | U | G  | T | H | S |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | -2 |   |   |   |
|   |   |   |   | +2 |   |   |   |
|   |   |   |   | -2 |   |   |   |
11. C Except C, all are divisible by 4.
12. A Except A, all are programming language of computer.
13. B Except B, all are dependent on each other to run properly.
14. D Except D all are related to organs of sensation.
15. D Except D, all are males
16. B Except B, all are part of medical science
17. D Except D, all are famous for temples whereas Ellora is famous for Caves.
18. A In Radiation things get reflected, whereas in rest of the three, things get concerted.
19. C 'Freedom at midnight' is written by 'Lorry Collins'.
20. D
- |    |     |     |     |     |
|----|-----|-----|-----|-----|
| 78 | 92  | 113 | 141 | 176 |
|    | +14 |     |     |     |
|    |     | +21 |     |     |
|    |     |     | +28 |     |
|    |     |     |     | +35 |
|    |     | +7  | +7  | +7  |
21. C mno/nopq/opqrs/pqrst

22. A
- |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|--|
|     |     | 420 |     |     |  |
| 462 | 422 | 380 | 342 | 306 |  |
|     | -42 |     | -40 |     |  |
|     |     |     | -38 |     |  |
|     |     |     |     | -36 |  |
23. B ANIMAL
24. A  $9(-1) \Rightarrow 8(-1) = 7$   
 $18(-2) \Rightarrow 16(-2) = 14$   
 $36(-3) \Rightarrow 33(-3) = \mathbf{30}$
25. B  $(14 \times 4) - (12 \times 3) = 56 - 36 = 20$   
 $(9 \times 9) - (13 \times 3) = 81 - 39 = 42$   
 $(12 \times 8) - (7 \times 11) = 96 - 77 = 19$   
 $(20 \times 10) - (20 \times \mathbf{8}) = 200 - 160 = 40$
26. B
- |   |      |    |     |      |    |
|---|------|----|-----|------|----|
| V | VIII | XI | XIV | XVII | XX |
|   | +3   |    | +3  |      | +3 |
|   |      | +3 |     | +3   |    |
|   |      |    | +3  |      | +3 |
27. A  $3463 - 1245 = 2218$ ,  $5324 - 3626 = 1698$
28. A
- |    |      |      |      |      |
|----|------|------|------|------|
| 10 | 43   | 175  | 703  | 2815 |
|    | x4+3 |      | x4+3 |      |
|    |      | x4+3 |      | x4+3 |
29. B
30. B  $18 \times 14 + 6 - 16 \div 4$   
 $= 18 \times 14 + 6 - 4$   
 $= 252 + 6 - 4$   
 $= 258 - 4$   
 $= 254$
31. D  $8 - 7 = 8 \times 7 = 56$   
 $4 - 7 = 4 \times 7 = 28$   
 $13 - 6 = 13 \times 6 = 78$   
 $18 - 9 = 18 \times 9 = 162$

32. C



⊕ represents 'Men'.  
⊖ represents 'Women'.  
Here, W and Y are adjacent to D.

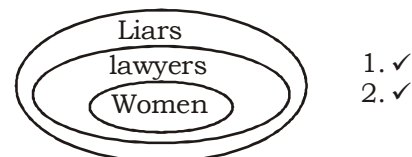
33. C

34. C From box (i) & (iii) we have,



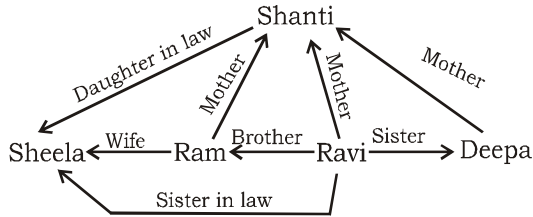
35. D

36. B



37. D Crime → Police → Judge → Judgement  
 (3) (1) (4) (5)  
 → Punishment  
 (2)

38. A



39. B



$A_L$  → Left side

$B_R$  → Right side

$$\begin{aligned} \text{Total number of children} &= A_L + B_R - 1 \\ &= 18 + 5 - 1 = 22 \end{aligned}$$

After interchanging their positions,

$$T = A_L + B_R - 1$$

$$22 = 9 + B_R - 1$$

$$\Rightarrow B_R = 14$$

41. B Here we have six layers and number of cubes in each layer is 24.

$$\begin{aligned} \text{So, total number of cubes in layers (I-VI)} \\ &= 24 \times 6 = 144 \end{aligned}$$

42. C M a d a g a s c a r  
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓  
 ④ ⑦ ② 7 8 7 ⑨ 6 7 ⑩

Similarly,

M a d r a s  
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓  
 4 7 2 0 7 9

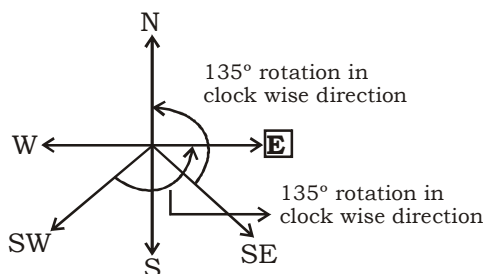
43. A

44. D

45. C SUBWAY

46. D Given →  $45 + 9 - 3 \times 15 \div 2$   
 After changing the sign we have,  
 $45 \div 9 \times 3 + 15 - 2$   
 $= 5 \times 3 + 15 - 2$   
 $= 15 + 15 - 2$   
 $= 28$

47. C



52. C The Pancreas maintains the body's blood glucose (sugar) balance. Primary hormones of the pancreas include insulin and glucagon and both regulate blood glucose. Diabetes is the most common disorder associated with it. Pancreas is both an endocrine and exocrine gland i.e. it has a dual function of secreting hormones into blood (endocrine) and secreting enzymes through ducts (exocrine).

53. C The Jet plane engine works on the principal of conservation of linear momentum. This law states that when no net external force acts on a system consisting of several particles, the total linear momentum of the system is conserved and is the vector sum of each particle in the system. It can be deduced from Newton's third law of motion i.e every action has equal and opposite reaction. When the fuel of rocket and Jet plane is exploded, gases escape with a large velocity and hence a large momentum. The escaping gases in turn, impart an equal and opposite momentum to the rocket and Jet planes.

54. B Cooperative Societies is a State subject under entry 32 State List of the Seventh schedule of the Indian Constitution. The state list is a list of 61 items (initially there were 66 items) into the Constitution of India.

55. B Trygve Halvdan Lie (16 July, 1896- 30 Dec, 1968) was a Norwegian politician, labour leader, government official and author. From 1946 to 1952, he was the First Secretary-General of the United Nations.

57. A Anthracite coal is almost made entirely of Carbon. It is harder than other forms of coal such as bituminous and is found in areas surrounding mountains or deep valleys. It burns much cleaner than other forms of coal due to its low pollutant content. It contains 91% to 98% pure carbon which burns with a blue, smokeless flame.

58. B The Battle of Buxar was fought on 23 October, 1764 between the forces of the British East India Company led by Hector Munro and combined army of Mughal rulers. The Mughal forces were drawn from three princely states, whose rulers were Mir Qasim, the Nawab of Bengal, Shuja-ud-Daulah, the Nawab of Awadh

- and the Mughal king Shah Alam II. The Battle was fought at Buxar and Mughal forces lost the battle.
60. C Temperature, pressure and volume are regulated in a complex system. Refrigerators contain gas, which is drawn through a long line at low pressure and low temperature. Then, gas is condensed or compressed using electricity. Next, it is converted to a higher pressure, which in turn causes internal temperatures to rise. Heat and electricity are then transferred to a unit called a condenser, which removes excess heat. As a result, gas begins to cool, and ultimately condenses into a liquid form.
61. C The Balwant Rai Mehta Committee was appointed by the GOI in January 1957 to examine the working of the Community Development Programme (1952) and the National Extension Service (1953), to suggest measures for their better working. The chairman of this Committee was Balwant Rai G Mehta who submitted the report in November 1957 and recommended the establishment of the scheme of 'Democratic Decentralisation' which finally came to be known as Panchayati Raj. The main aim is to settle the local problems locally and to make the people politically conscious.
63. D The Upanishads form the core of Indian Philosophy, They are an amazing collection of writings from original oral transmission. All the fundamental teachings are found here which are central to Hinduism-the concepts of Karma (action), Sansara (reincarnation), Moksha (nirvana), the atman (soul) and the Brahman (Absolute Almighty).
65. C The brain is one of the most metabolically active organ in the body. Together with the heart, liver and kidneys, it consumes about 60% of the body's energy requirements. The heart and kidney are more metabolically active than the brain, but as the brain is large, it takes a higher proportion of the body's energy needs. At rest, it uses approx 20% to 23% of the body's total energy requirements despite accounting for only 2% of the body's mass. Almost all of the oxygen is used to oxidize glucose to carbon dioxide and water.
66. A Thyroid gland regulates metabolism, helps in breaking down the food and convert it to energy. Main thyroid hormones are T3 and T4. Thyroid disorders are common, and they include goiters, hyperthyroidism and hypothyroidism.
67. D Part III of the Constitution consists of Fundamental Rights from Article 13 to 35. Following are the Fundamental Rights in India – Right to equality, Right to Freedom, Right against exploitation, Right to Freedom of religion, Cultural and Educational rights, Right to Constitutional Remedies.
68. C Gandhi's economic ideas were part of his general crusade against poverty, exploitation against socio-economic injustice, and deteriorating moral standards. His approach was rooted in human dignity. Gandhi's efforts towards 'spiritualizing economics' are truly reflected in his concept of trusteeship according to which one is asked to dedicate everything to God and then use it only to the required extent.
69. C The beaufort scale is a scale for measuring wind speeds. It is based on observation rather than accurate measurement. The scale was developed in 1805 by Sir Francis Beaufort.
70. D Buran is a wind which blows across Eastern Asia, specifically Injiang, Siberia and Kazakhstan. It takes two forms; in summer, it is a hot, dry wind and in winter, it is bitterly cold and often accompanied by blizzards.  
Chinook wind are Foehn winds in the interior west of North America where the Canadian Prairies and Great Plains meet various mountain ranges and is wet, warm coastal winds in the Pacific Northwest.  
Foehn wind is a type of dry, warm, downslope wind that occurs in the lee (down wind side) of a mountain range. Central Europe enjoys a warmer climate due to Foehn.  
Sirocco wind is a mediterranean wind that comes from the Sahara and reaches hurricane speeds in North Africa and

- Southern Europe. Therefore, it is warm, dry wind.  
So, Answer will be Buran wind D
71. B Mahatma Jyotirao Govindrao Phule was an Indian activist, social reformer, writer and theologian from Maharashtra. In September 1873, he along with his followers, formed Satyashodhak Samaj (Society of Seekers of Truth) to attain equal rights for peasants, lower caste and his contributions to the field of education.
72. D Kakori Conspiracy was a armed robbery on August 9, 1925 of a train in Central Uttar Pradesh State. A movement against British Indian Government. The robbery was organized by the Hindustan Republican Association (HRA). It was concerned by Ram Prasad Bismil and Ashfaqullah Khan who belonged to HRA which later became Hindustan Socialist Republican Association (HSRA).
74. B Thigmonastic or seismonastic movements in Touch-me-not (*Mimosa Pudica*) plant is done by pulvinus which shows elastic properties and induced movements of the petiole.
76. B On 9 December, 1946, the Assembly began its first session with 208 members attending it. By early 1947, Muslim league and princely States joined and Assembly approved the draft Constitution on 26<sup>th</sup> November 1949. On 26<sup>th</sup> January, 1950, the Constitution took effect and Rajendra Prasad was first elected as a chairman of Constituent Assembly.
77. D The Government of India Act 1935 introduced the provincial autonomy and provided for all India Federation. This Act introduced diarchy at the central level. This Act had 321 sections and 10 schedules. It made a provision for establishment of a Federal court. It divided the subjects in 3 lists. The Indian Council was abolished and advisory body was introduced. Also, this Act introduced direct elections for the first time and increased the franchise and have bicameral legislature at the Centre.
78. D The Maikal Hills are range of hills located in the state of Chhattisgarh in India. The Maikal Hills are an eastern part of the Satpuras in Kawardha District of Chhattisgarh forested and thinly populated range and it gives rise to several streams and rivers including the tributaries of Narmada and Wainganga rivers. Two tribal peoples, the Baigas and the Gonds are inhabited in these hills.
79. D Factors which influence the climate of India are Location and Latitudinal Extent, Distance from the sea, The Northern Mountain Ranges, Physiography, Monsoon winds, Upper Air circulation, Tropical Cyclones and Western Disturbances, El-Nino Effect, La Nina and Southern Oscillation.
82. C The right Auricle or Atrium is one of the four hollow chambers in the interior of the heart. It is located in the upper right corner of the heart superior to the right ventricle. Deoxygenated or impure blood entering the heart through veins from the tissues of the body first enters the heart through the right Auricle before being pumped into the right Ventricle.
83. D When cells between the columns of vascular tissue connect the cambia inside the columns of vascular tissue to form a complete cylinder around the stem. The cells formed toward the inside are called secondary xylem or wood and those formed toward the outside of the cambium are called secondary phloem.
86. C The rice fruit is a caryopsis with a single seed fused to the ripened ovary wall, pericarp. Lemma and palea enclose the caryopsis and constitute the husk. The rice grain is also known as rough rice.
87. B The State Finance Commission have been set up in various states of the country and laid down in the constitution of India, under Article 243 (1). It helps in improving the financial condition of the various local bodies such as Panchayati Raj institutions and Municipal bodies that are there in the states.
88. D Balchandra Nemade became the fourth Marathi writer to win the Jnapi award, the highest literary award. He is famous for his books named 'Hindu' and 'Kosala'. He is also known for his novel 'Hindu Jagnyachi Samrudha Adgal'.
96. B The Earth Summit in Rio in June 2012 will take stock of sustainable development priorities globally, The Durban meeting in December 2011 has set some directions for appropriate



response to climate change. And the Twelfth five year plan, commenced in April 2012, setting out India's priorities for a sustainable and inclusive, lower carbon development path. So, answer will be B.

97. B Virtual clusters an initiative of the Ministry of Micro, Small and Medium Enterprises. It is a dedicated Web Portal which will enable Businesses located anywhere in the country and the other stakeholders like banks, other financial institutions, various government bodies NGOs etc.

98. D On 30<sup>th</sup> March 2015, the magnetic observatory was inaugurated at Port Blair by the Union Minister of Science and Technology and Earth Sciences, Dr. Harsh Vardhan. The observatory has been set up by the Indian Institute of Geomagnetism (IIG) under MPGO (Multi-Parametric Geophysical Observatories). The first MPGO was set up at Guttu in Uttarakhand.

100. A The ministry of Micro, Small and Medium Enterprises (MSME) has modeled the 'Udyami Helpline' call center in such a way that a single toll free number across the country will give details about business possibilities and loan facilities to the entrepreneurs.

103.(B)  $E = 3k(1 - 2x - 25)$   
 $E = 3k(1 - 0.5)$   
 $E = 3 \times 0.5k$

$$k = \frac{30 \times 10^5}{1.5}$$

$$= 200 \text{ kN/mm}^2$$

104.(B)  $P = \sigma.A$

$$3000 = 100 \cdot \frac{\pi}{4} \cdot D^2$$

$$D = \sqrt{\frac{120}{\pi}}$$

106.(C)  $\sigma_1 = \frac{P}{A_1}$

$$\sigma_2 = \frac{P}{A_2}$$

$$A_1 < A_2$$

so  $\sigma_1 > \sigma_2$

$$\sigma_{min} = \frac{P}{A_2}$$

$$107.(B) = \frac{90 - 80}{2 \times 100} = \frac{10}{200}$$

$$= \frac{1}{20} = 1 : 20$$

108.(D) number of links  $n = 5$   
 number of instantaneous centre

$$= \frac{n(n-1)}{2} = \frac{5(5-1)}{2} = 10$$

111.(D)  $P = 120 \text{ kW}$   
 $N = 180 \text{ rpm}$   
 $D = 2 \text{ m}$   
 $T = P/W$

$$= \frac{120}{\left(\frac{2\pi \times 180}{60}\right)^3}$$

$$T = \frac{20}{\pi} \text{ KNm}$$

$$\text{and } \tau = \frac{16T}{\pi D^3}$$

$$= \frac{16 \times 20 / \pi \text{ KN}}{\pi \times (2)^3 \text{ m}^2}$$

$$\tau = \frac{40 \text{ KN}}{\pi^2 \text{ m}^2}$$

117.(A) When sudden load is applied.

$$\sigma = 2 \cdot \frac{f}{A}$$

$$= 2 \times \frac{.100 \text{ kN}}{50 \text{ m}^2}$$

$$\sigma = 4 \frac{\text{kN}}{\text{m}^2}$$

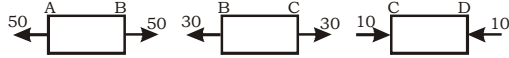
142.(C)  $M_w = 2 \text{ kg}$ .  
 $M_s = 60 \text{ kg}$

$$x = \frac{M_s}{M_w + M_s}$$

$$= \frac{60}{62}$$

$$x = 0.96$$

150.(A)

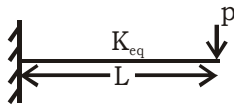


$$\sigma_{BC} = \frac{30kN}{A}$$

$$\sigma_{BC} = \frac{30 \times 10^3}{1.5 \times 10^6} \frac{N}{mm^2}$$

$$\sigma_{bc} = 0.02 \text{ N/mm}^2$$

151.(B)



$$S = \frac{P.L^3}{3EI}$$

and  $k_{eq} = \frac{P}{S} = \frac{3EI}{L^3}$

$$k_{eq} = \frac{3EI}{L^3}$$

174.(B)  $d = \frac{D}{2}$

$$d = \frac{40}{2}$$

$$d = 20 \text{ mm}$$

176.(A)  $T = \frac{\pi}{16} d^3 \cdot \tau$

$$= \frac{\pi(2)^3 \cdot 16}{16}$$

$$= 8 \pi \text{ NM}$$

181.(D) Sudden load = 100 kN  
Stress due to sudden load

$$(\sigma_s) = \frac{100}{100} = 1 \frac{kN}{M^2}$$

Stress due to gradual load

$$\sigma = 2\sigma_s$$

$$v = \frac{1}{2} \frac{\sigma^2}{E} V$$

$$= \frac{1}{2} \frac{(2 \times 1000)^2}{200 \times 10^6} \times 100 \times 5$$

$$v = 5 \text{ Nm}$$

183.(D)  $H_{stag} = 6.8 \text{ m}$

$$H_{static} = 5 \text{ m}$$

$$Cv = 0.9 \text{ \& } g = 10 \text{ m/s}_2$$

$$\begin{aligned} H_{dynamic} &= H_{stag} - H_{static} \\ &= 6.8 - 5 \\ &= 1.8 \text{ M} \end{aligned}$$

$$H_{dynamic} = \frac{V^2}{2g}$$

$$1.8 = \frac{V^2}{2g}$$

$$V = 6 \text{ m/s}$$

$$V_{act} = C_v V_0$$

$$= 0.9 \times 6$$

$$V_{act} = 5.4 \text{ m/s}$$