



# KD Campus Pvt. Ltd

PLOT NO.2, SSI INDUSTRIAL AREA, G.T. KARNAL ROAD, JAHANGIRPURI, DELHI-110033

## Answer-key & Solution

SSC JE (Mechanical)  
MOCK -(144)  
Date:- 05.08.2018

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

**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. 143**

1. (B) As, the birth place of Bose was cuttack. Similarly, the birth place of Chandra Shekhar Azad was **Bhavra**.

2. (D) As,  $\begin{matrix} \text{FHJL} & & \text{RTVX} \\ & \xrightarrow{+12} & \end{matrix}$   
Similarly  $\begin{matrix} \text{DFHJ} & & \text{PRTV} \\ & \xrightarrow{+12} & \end{matrix}$

3. (D) As,  $86 \Rightarrow 8 + 6 = 14^2 - 1 = 195$   
Similarly,  $97 \Rightarrow 9 + 7 = 16^2 - 1 = 255$

4. (D) Except **'Hamlet'** others are capitals.  
5. (C) Except **207**, all others are multiples of two prime numbers.

6. (B)  $\begin{matrix} \text{B} & \text{F} & \text{J} & \text{M} & & \text{O} & \text{S} & \text{W} & \text{A} \\ \uparrow & \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +4 & +3 & & & +4 & +4 & +4 & \end{matrix}$   
 $\begin{matrix} \text{J} & \text{N} & \text{R} & \text{U} & & \text{L} & \text{P} & \text{T} & \text{W} \\ \uparrow & \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +4 & +3 & & & +4 & +4 & +3 & \end{matrix}$

7. (C) Impolite  $\rightarrow$  Imponderable  $\rightarrow$  Important  $\rightarrow$  Importune.

8. (A)  $\begin{matrix} \text{NML} & & \text{IHG} & & \text{EDC} & & \text{BAZ} \\ \uparrow & & \uparrow & & \uparrow & & \uparrow \\ +5 & & +4 & & +3 & & \end{matrix}$

9. (C)  $7^2 - 1 = 48$   
 $8^2 + 1 = 65$   
 $9^2 - 1 = 80$   
 $10^2 + 1 = 101$   
 $11^2 - 1 = 120$   
 **$12^2 + 1 = 145$**

10. (A)  $\begin{matrix} \text{B}^- \\ \uparrow \\ \text{A}^+ \\ \uparrow \\ \text{F}^- \\ \uparrow \\ \text{C}^- \\ \uparrow \\ \text{D}^+ \\ \uparrow \\ \text{E}^- \end{matrix}$   
Cousin

11. (A)  $\begin{matrix} \xrightarrow{\quad} & \xleftarrow{\quad} \\ \text{A} & \text{B} \\ \text{11}^{\text{th}} & \text{22}^{\text{th}} \\ \xrightarrow{\quad} & \xrightarrow{\quad} \\ & \text{A} \\ & \text{31}^{\text{st}} \end{matrix}$   
So, Required number of students =  $22 + 31 - 1 = 52$

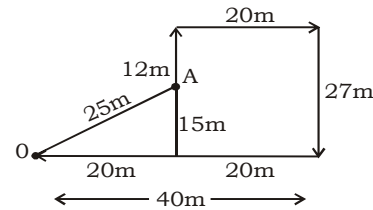
12. (C) VALUE

13. (D) As,  $\begin{matrix} \text{L} & \text{I} & \text{A} & \text{R} & & \text{R} & \text{A} & \text{N} & \text{G} & \text{E} \\ \downarrow & \downarrow & \downarrow & \downarrow & & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 5 & 7 & 8 & 2 & & 2 & 8 & 6 & 4 & 1 \end{matrix}$   
Similarly,  $\begin{matrix} \text{A} & \text{R} & \text{R} & \text{A} & \text{N} & \text{G} & \text{E} \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 8 & 2 & 2 & 8 & 6 & 4 & 1 \end{matrix}$

14. (B)  $256 \times 24 + 6 - 10$   
After changing the signs as per the given details,

$$256 \div 24 \times 6 + 10 = \frac{256}{24} \times 6 + 10 = 64 + 10 = 74$$

15. (C)

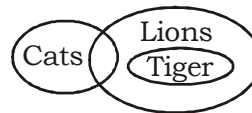


$$\begin{aligned} \text{Required distance} &= \sqrt{15^2 + 20^2} \\ &= \sqrt{225 + 400} \\ &= 25 \text{ m} \end{aligned}$$

16. (A)  $12^2 + 15^2 - 13^2 = 144 + 225 - 169 = 200$   
 $16^2 + 18^2 - 10^2 = 256 + 324 - 100 = 480$   
 $9^2 + 6^2 - 8^2 = 81 + 36 - 64 = 53$

17. (D)  $21 + 9 \times 2 = 39$   
 $18 + 6 \times 2 = 30$   
 $15 + 4 \times 2 = 23$

18. (B) **I. False II. True**



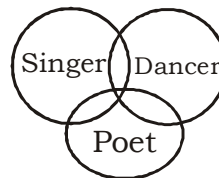
Hence, only conclusion II follows.

19. (D) 22 triangles

20. (C)  $\text{efgh}/\text{efgh}/\text{efgh}$

21. (A)

22. (B)



23. (B)

24. (C)

25. (D) I N S E R T  
**11 66 23 87 10 78**

26. (C) As, Ram Naik is the governor of Uttar Pradesh.

Similarly, Krishna kant Paul is the governor of Uttarakhand.

27. (D) As,  $\begin{matrix} \text{B} & \text{C} & \text{D} & & \text{D} & \text{F} & \text{H} \\ \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow \\ & \times 2 & & & \times 2 & & \times 2 \end{matrix}$

Similarly,  $\begin{matrix} \text{J} & \text{K} & \text{L} & & \text{T} & \text{V} & \text{X} \\ \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow \\ & \times 2 & & & \times 2 & & \times 2 \end{matrix}$

28. (B) As,  $\frac{0.05}{10} = 0.005$

Similarly,  $\frac{1}{9 \times 10} = \frac{1}{90}$

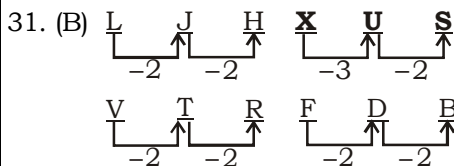
29. (D) Except **Geeta Phogat**, other are Olympics medalist.

30. (C)  $170 \Rightarrow 1 + 7 + 0 = 8$

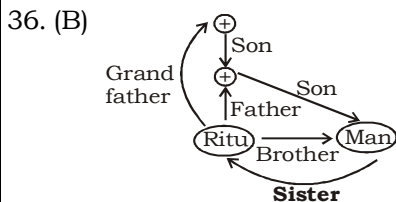
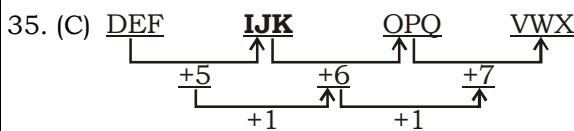
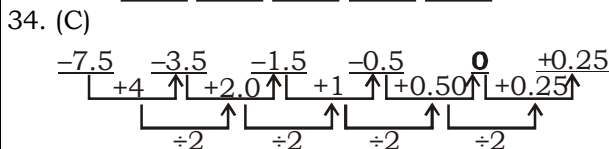
$224 \Rightarrow 2 + 2 + 4 = 8$

**290**  $\Rightarrow 2 + 9 + 0 = 11$

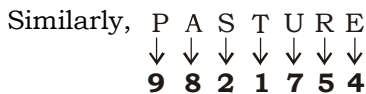
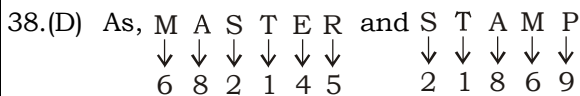
$323 \Rightarrow 3 + 2 + 3 = 8$



32. (D) Pitiful  $\rightarrow$  Pitiless  $\rightarrow$  Plague  $\rightarrow$  Plankton  $\rightarrow$  Plaque

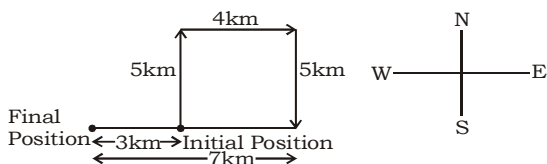


37. (A) BLUE



39. (B)  $44M24K56L14J64$   
 $= 44 - 24 \times 56 \div 14 + 64$   
 $= 108 - 24 \times 4$   
 $= 108 - 96$   
 $= 12$

40. (D)



$\therefore$  Required distance & direction = 3 km, west

41. (B)  $13 \times 7 - 1 = 90$   
 $23 \times 13 - 1 = 298$   
 $29 \times 17 - 1 = 492$

42. (B)  $3 + 2 + 5 + 4 + 2 + 7 = 23$   
 $1 + 3 + 6 + 8 + 3 + 2 = 23$   
 $2 + 4 + 3 + 11 + 1 + 2 = 23$

43. (C) Students Boys Girls **I. False II. False**

44. (C) 48 triangles

45. (A) Number of cardboard boxes = 8

50. (D) C R E E D  
 32 76 65 56 77

51. (B) In 1712 Innovative steam engines produced by Thomas Newcomen and developed by James Watt powered Britain to prominence as the first industrial country in the world. The invention of the steam engine was crucial to the industrialization of modern civilization.

52. (A) The Indian National Army (INA; Azad Hind Fauj) was an armed force formed by Indian nationalists in 1942 in Japan during World War II. Its aim was to secure Indian independence from British rule. The army was first formed in 1942 under Mohan Singh.

53. (C) Ministries of Power and Textiles union ministries have jointly launched a new scheme "SAATHI". Under this initiative, Energy Efficiency Services Limited (EESL), a public sector entity under the administrative control of Ministry of Power, would procure energy efficient Power looms, motors and Rapier kits in bulk and provide them to the small and medium Powerloom units at no upfront cost.

54. (D) Ctrl + Esc: Open the Start menu. (Instead, you could use the Windows key.)

- Alt+Enter: Show properties on currently selected object, full screen for command based windows.

- Alt+F4: Closes the application

- Ctrl+Shift+Esc: Opens the task manager

55. (D) Patkai Hills, Indian Mountain Range The patkai hills are situated on India's north-eastern border with Burma. The Indian states along the Patkai range comprise of Assam, Manipur, Meghalaya, Mizoram and Nagaland. Patkai includes three hills namely the Patkai-Bum, the Garo-Khasi-Jaintia, and the Lushai Hills.

56. (C) The flightless ostrich is the world's largest bird. Ostriches have three stomachs. Unlike all other living birds, the ostrich secretes urine separately from farces. Ostriches are the fast

- runners of any birds or other two-legged animal and can sprint at over 70 km/hr., covering up to 5m in a single stride.
57. (C) The Virupaksha Temple in Hampi is dedicated to lord Shiva. It is located in Hampi 350 km from Bangalore, in the state of Karnataka in southern India. It is part of the Group of Monuments at Hampi, designated a UNESCO World Heritage Site.
59. (C) Sarojini Naidu known as "The Nightingale of India" because of her mesmerizing poetry. Her works, rich in imagery, covered a variety of themes - love, death, separation among others. Most of her poems have lines repeated across stanzas.
60. (A) In 1885, a German mechanical engineer named Karl Benz designed and built the world's first practical automobile powered by an internal-combustion engine.
62. (B) Phalacrocoracidae is a family of some 40 species of aquatic birds commonly known as cormorants and shags. Cormorants are generally gregarious, nesting in colonies, gathering in flocks and often also hunting together in groups, which sometimes number up to 4,000 birds.
63. (C) Seismic wave, vibration generated by an earthquake, explosion, or similar energetic source and propagated within the Earth or along its surface. Earthquakes generate four principal types of elastic waves; two, known as body waves, travel within the Earth, whereas the other two, called surface waves, travel along its surface.
65. (D) Smiling Buddha was the assigned code name of India's first successful nuclear bomb test on 18 May 1974. The bomb was detonated on the army base, Pokhran Test Range (PTR), in Rajasthan by the Indian Army under the supervision of several key Indian generals.
68. (D) Java Trench, also Known as Sunda Double Trench, deep submarine depression in the eastern Indian Ocean that extends some 2,000 miles (3,200 km) in a northwest-southeast arc along the south western and southern Indonesian archipelago.
69. (C) Cash Reserve Ratio (CRR): It is the percentage of cash deposits that banks need to keep with the Reserve Bank of India on a fortnightly basis. Presently the CRR is 4% that is, for every Rs 100 deposited in the bank; bank will need to deposit Rs 4 with RBI. So It has Rs 96 to lend.
71. (B) GST (Goods and Services Tax) is the biggest indirect tax reform of India. GST is a single tax on the supply of goods and services. It is a destination based tax. GST has subsumed taxes like Central Excise Law, Service Tax Law, VAT, Entry Tax, Octroi, etc.
72. (A) A market-clearing price is the price of a good or service at which quantity supplied is equal to quantity demanded, also called the equilibrium price. The theory claims that markets tend to move toward this price.
74. (B) Smog is a problem in a number of cities and continues to harm human health. Ground-level ozone, sulfur dioxide, nitrogen dioxide carbon monoxide are especially harmful for senior citizens, children, and people with heart and lung conditions such as emphysema, bronchitis, and asthma.
76. (A) Goa chief minister Manohar Parrikar in December 2017 launched the country's first-ever mobile food testing laboratory. Built at a cost of ₹41 lakh, the laboratory is mounted on a bus which will travel across the state checking food samples on the spot.
77. (C) Dance in India comprises numerous styles of dances, generally classified as classical or folk. The dance forms recognized by the Indian origin:
  - Bharatanatyam, from Tamil Nadu.
  - Bhangra, from punjab.
  - Kathakali, from Kerala.
  - Kuchipudi, from Andhra Pradesh and Telangana.
  - Odissi, from Odisha.
  - Chhau, from eastern Indian states of Odisha, Jharkhand and West Bengal.
79. (D) Kesari is a Marathi newspaper which was founded in 1881 by Lokmanya Bal Gangadhar Tilak, a prominent leader of the Indian Independence movement.
80. (B) The Academy Awards, also known as the Oscars, are a set of 24 awards for artistic and technical merit in the American film industry, given annually by the Academy of Motion Picture Arts and Sciences (AMPAS). The awards were first presented in 1929.
81. (A) The 2020 Summer Olympics will be hosted in Tokyo, Japan. It will be Tokyo's second time hosting the Summer Olympics; they previously hosted the 1964 Summer Olympics. The games are scheduled to be held from July 24 to Aug. 9 in 2020.

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| <p>82. (B) The Kempegowda International Airport will become the first airport in the country to have a helicopter-taxi (helitaxi) service for those who cannot afford to spend time battling traffic to travel across the city.</p> <p>83. (B) The original throne, built for the Mughal emperor Shah Jahan in the early 17th century, was reportedly one of the most splendid thrones ever made. It was ascended by silver steps and stood on golden feet set with jewels, and it was backed by representations of two open peacocks' tails, gilded, enamelled, and inset with diamonds, rubies, and other stones.</p> <p>85. (B) Darwin's finches are a group of about fifteen species of passerine birds. They are well known for their remarkable diversity in beak form and function. They are often classified as the subfamily Geospizinae or tribe Geospizini.</p> <p>89. (A) Article 360 states that if the President is satisfied that a situation has arisen whereby the financial stability or the credit of India or any part thereof is threatened, President may declare a state of financial emergency.</p> <p>90. (C) JPEG is a term for any graphic image file produced by using a JPEG standard. JPEG stands for "Joint Photographic Experts Group." JPEG is a popular image file format.</p> <p>92. (C) Tibetan New year, also known as Losar, is the most important festival in the Tibetan calendar. It is mainly celebrated over a period of 3 days in late January or February, according to the Tibetan calendar.</p> <p>93. (D) Acharya Vinoba Bhave was the first Indian to win the Ramon Magsaysay Award in 1958. Acharya Vinoba Bhave is considered as spiritual successor of Mahatma Gandhi and is regarded as the National Teacher of India. Magsaysay Award is given in six different fields, and Vinoba Bhave was awarded for Community Leadership.</p> <p>94. (D) The sperm whale or cachalot is the largest of the toothed whales and the largest toothed predator. The sperm whale is a pelagic mammal with a worldwide range.</p> <p>95. (A) The purpose of the inclusion of Directive Principles of State Policy in the Indian Constitution is to establish: Social and Economic Democracy.</p> <p>98. (A) Apple juice tends to have a low pH, which means it is acidic. Apple juice ranges in pH from 3.35 to 4, as different types of apples have different pH levels.</p> | <p>99. (C) Nitrous oxide (<math>N_2O</math>), also known as laughing gas, was first discovered in 1772 by Joseph Priestley. A key step towards this was the design of experimental apparatus to collect gas over water, by Stephen Hales in the early 1700s.</p> <p>100. (A) A factor of production is an economic term that describes the inputs that are used in the production of goods or services in order to make an economic profit. The factors of production include land, labor, capital and entrepreneurship. These production factors are also known as management, machines, materials and labor.</p> <p>106. (C) Given, <math>h = 6</math> m<br/><math>b = 8</math> m</p> $h^* = \frac{2h}{3} = \frac{2 \times 6}{3}$ $h^* = 4$ m <p>107. (C) <math>V_m = 25</math> m/s<br/><math>V_p = 5</math> m/s<br/><math>(Re)_m = (Re)_p</math></p> $\frac{\rho V_m D_m}{\mu} = \frac{\rho V_p D_p}{\mu}$ $\frac{D_m}{D_p} = \frac{5}{25} = 1:5$ <p>108. (A) <math>F = \rho \cdot g \cdot A \bar{X} N</math><br/>or <math>= \rho A \bar{X} kg</math></p> $= 10^3 \times 1 \times \left(2 + \frac{1}{2}\right)$ $F = 2500 kg$ <p>115. (C) <math>\mu = ax</math> &amp; <math>v = by</math><br/>The continuity equation must be satisfied for the existence of flow.</p> $\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0$ $a + b = 0$ <p>So <math>a = -b</math> -----(i)<br/>and Streamline equation</p> $\frac{dx}{u} = \frac{dy}{v}$ $\frac{dx}{ax} = \frac{dy}{by}$ <p>or <math>b \ln x = a \ln y + \ln c</math><br/>or <math>b(\ln x + \ln y) = \ln c</math><br/>or <math>\ln xy = \ln k</math><br/><math>xy = k</math></p> <p><i>This is the equation of hyperbola for different value of 'k', we get family of hyperbola.</i></p> |
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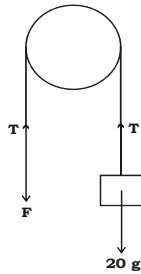
139.(A)  $Q \neq f(\text{density})$   
So, discharge will be same

151. (C)  $x = t^2 (t - 4)$   
or  $x = t^3 - 4t^2$

Acceleration 'a' =  $\frac{d^2x}{dt^2} = 6t - 8$

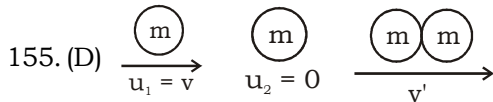
153. (B) for equilibrium condition  
 $2F_v = 0$   
 $R_A + 0 = W$   
So,  $R_A = W$   
and  $R_B = 0$

154. (A)



$F - T = 0$  .....(i)

or  $T = F$   
 $T = 30 \text{ kg}$



From conservation of momentum -  
 $mv + m \times 0 = 2m \times v'$

or  $v' = \frac{v}{2}$

159. (B) In case of prismatic bar -  $\delta_1 = \frac{\gamma_1 L^2}{2E}$

and In case of conical bar -  $\delta_2 = \frac{\gamma_2 L^2}{6E}$

$$\frac{\delta_1}{\delta_2} = 3 \frac{\gamma_1}{\gamma_2} = \frac{3 \cdot \frac{w}{\pi r^2 L}}{\frac{3w}{\pi r^2 L}}$$

$\frac{\delta_1}{\delta_2} = 1:1$

164. (D) In the case of central load at simply supported beam

$$\delta_1 = \frac{w.L^3}{48EI} \quad \text{.....(i)}$$

And in the case of fixed supported beam

$$\delta_2 = \frac{wL^3}{192EI} \quad \text{.....(ii)}$$

from equation (i) and (ii)

$$\frac{\delta_1}{\delta_2} = \frac{192}{48} = 4$$

177. (A)  $\omega \propto \sqrt{\frac{1}{I_0}}$

As radius of gyration increases  
 $I_0$  will be increases. So  $\omega$  decreases

178. (B)  $I = 30 \text{ kg m}^2$

$N = 800 \text{ rpm}$

$R = 170 \text{ m}$

$V = 240 \text{ km/hr}$

Gyroscope couple 'C' =  $I.\omega.\omega_p$

$$C = 30 \times \left( \frac{2\pi \times 800}{60} \right) \left( \frac{240 \times 10^3}{170 \times 3600} \right)$$

= 985.6 Nm

or  $C = 100 \text{ m kg.f}$

184. (B)  $\frac{d^2\theta}{dt^2} + \frac{2g}{3(R-r)}\theta = 0$  .....(i)

Basic Equation given as

$$\frac{d^2\theta}{dt^2} + \omega^2\theta = 0 \quad \text{.....(ii)}$$

Comparing equation (i) & (ii)

$$\omega = \sqrt{\frac{2g}{3(R-r)}} \quad \text{radian/sec.}$$

and  $v = \frac{1}{2\pi} \sqrt{\frac{2g}{3(R-r)}} \text{ hz}$