



Campus
K D 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 -(65)
Date 17/09/2016

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

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 (Mechanical) MOCK TEST no. 65

1. (A) B O R E
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$
 $2 + 15 + 18 + 5 = 40$
 $40 \div 4 = 10$ (Divided by the number of letters)

Similarly,

- H O T E L
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$
 $8 + 15 + 20 + 5 + 12 = 60$
 $60 \div 5 = 12$ (Divided by the number of letters)

2. (D) Second is the quality which is present in the first except in option (D).

3. (C) $\begin{array}{c} \text{+1} \\ \text{+1} \\ \text{+1} \\ \text{A B C} : \text{B C D} :: \text{C D E} : \text{D E F} \\ \text{F} \quad \text{I} \\ \text{+3} \quad \text{+3} \end{array}$

4. (B) Cloth is made from thread. Similarly, Mesh is made from wire.
 5. (B) Cloth is cut by Scissors. Similarly, Wood is chopped by Axe.
 6. (B) Music is a combination of Notation. Similarly, the pattern of poem is formed by the combination of Stanza.
 7. (A) Stamp collectors are called the Philatelist. Similarly, coins collectors are called the Numismatist.

8. (A) $\frac{K}{T} = \frac{11}{20} \rightarrow$ Place value

Similarly,

$\frac{J}{R} = \frac{10}{18} \rightarrow$ Place value

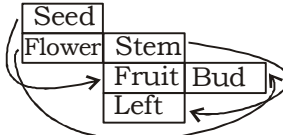
9. (C) $212 + 224 = 436$
 $560 + 224 = 784$
 10. (C)
 11. (C) In all other options money is deposited whereas amounts is paid in the salary.
 12. (D) Except option (D) all games are played between two players.

13. (D) (A) $\begin{array}{c} \text{R} \quad \text{G} \quad \text{T} \quad \text{F} \\ \text{+2} \quad \text{+1} \\ \text{+1} \quad \text{-1} \end{array}$ (B) $\begin{array}{c} \text{M} \quad \text{L} \quad \text{O} \quad \text{K} \\ \text{+2} \quad \text{+1} \\ \text{+1} \quad \text{-1} \end{array}$
 (C) $\begin{array}{c} \text{C} \quad \text{T} \quad \text{E} \quad \text{S} \\ \text{+2} \quad \text{+1} \\ \text{+1} \quad \text{-1} \end{array}$ (D) $\begin{array}{c} \text{V} \quad \text{D} \quad \text{Z} \quad \text{C} \\ \text{+4} \quad \text{+1} \\ \text{+1} \quad \text{-1} \end{array}$

14. (D) $9 \frac{1}{11} = \frac{100}{11}$; $7 \frac{9}{13} = \frac{100}{13}$; $5 \frac{15}{17} = \frac{100}{17}$

But, $5 \frac{6}{19} = \frac{101}{19}$

15. (D) Except option (D), all other pairs are composite number.
 16. (C) Except option (C), all are related to entertainment.
 17. (C) $84 - 67 = 17$
 $112 - 95 = 17$
 $79 - 63 = 16$
 $167 - 150 = 17$
 18. (C) Except option (C) all are related to navy.

19. (B) 

20. (D) $24 + 8 - 4 \times 2 \div 3 = 47$
 After changing the sign
 $24 \times 8 \div 4 + 2 - 3 = 47$
 $\Rightarrow 24 \times 2 + 2 - 3 = 47$
 $\Rightarrow 48 + 2 - 3 = 47$
 $\Rightarrow 50 - 3 = 47$
 $\Rightarrow 47 = 47$ (True)

21. (A) Moc Don Cil \rightarrow Beautiful Big House(i)
Fit Kon Don \rightarrow House is Fine(ii)
 Bai Tin Fit \rightarrow Cost is More(iii)

From eq. (i) & (ii)

House and Don are common

So, House \Rightarrow Don

From eq. (ii) & (iii)

'Is' and 'Fit' are common

So, Is \Rightarrow Fit

Then, Kon \Rightarrow Fine [from eq. (ii)]

22. (C) RETURN

23. (B) $\frac{15+12}{3} = 9$; $\frac{44+28}{8} = 9$;

$\frac{64+53}{13} = 9$

24. (B) $14 \times 4 = 56$ $16 \times 4 = 64$ $15 \times 4 = 60$
 $\sqrt{25} = 5$ $\sqrt{81} = 9$ $\sqrt{49} = 7$

25. (A) $\sqrt{169} + \sqrt{64} + \sqrt{81} = 13 + 8 + 9 = 30$

$\sqrt{625} + \sqrt{324} + \sqrt{44} = 25 + 18 + 7 = 50$

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$$\sqrt{1296} + \sqrt{576} + \sqrt{100} = 36 + 24 + 10 = 70$$

26. (C)
$$\begin{array}{ccc} 8-5 & 9-6 & 5-2 \\ \downarrow & \downarrow & \downarrow \\ \boxed{3} & \boxed{3} & \boxed{3} \end{array}$$

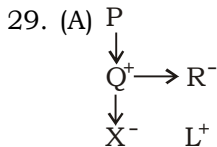
$$\begin{array}{ccc} 8-2 & 10-4 & 15-9 \\ \downarrow & \downarrow & \downarrow \\ \boxed{6} & \boxed{6} & \boxed{6} \end{array}$$

$$\begin{array}{ccc} 6-3 & 15-9 & 14-12 \\ \downarrow & \downarrow & \downarrow \\ \boxed{3} & \boxed{6} & \boxed{2} \end{array}$$

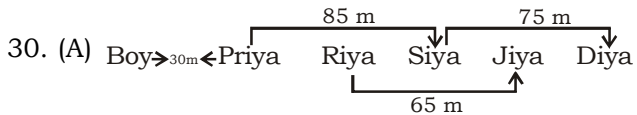
27. (B) $(2 + 6 + 2 + 3)^2 - 1 = 168$
 $(3 + 5 + 1 + 2)^2 - 1 = 120$
 $(2 + 3 + 5 + 4)^2 - 1 = \mathbf{195}$

28. (A)
$$\frac{\text{Leopard}}{6} \quad \frac{\text{Load}}{4} \quad \frac{\text{Loan}}{3} \quad \frac{\text{Loath}}{1} \quad \frac{\text{Long}}{2}$$

Luminous
 5



So, L is grandson of P.



Required distance = $30 + 85 + 65 = 180$ m

31. (B)

32. (C)

33. (B)
$$\frac{\text{Stone}}{5} \quad \frac{\text{Rock}}{1} \quad \frac{\text{Hill}}{2} \quad \frac{\text{Mountain}}{3} \quad \frac{\text{Range}}{4}$$

34. (C) Let the number of boys be x .

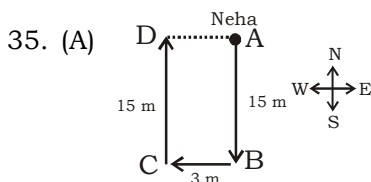
$$2x + 4(7-x) = 20$$

$$2x + 28 - 4x = 20$$

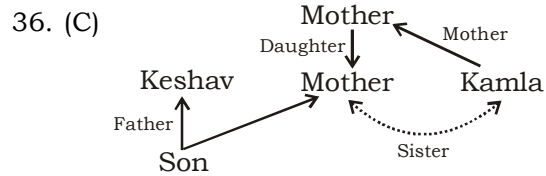
$$8 = 2x$$

$$4 = x$$

Then, number of dogs = $7 - 4 = 3$



Hence, Neha is facing towards the North direction.



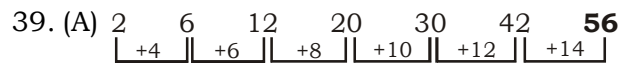
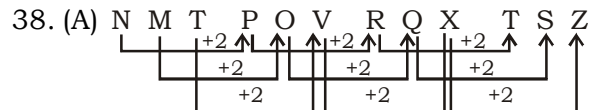
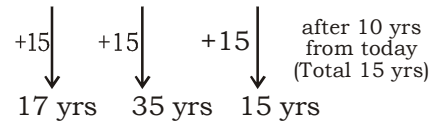
37. (B) Rahul : Rani = $1x : 10x$

$$\text{Today} = 1x + 10x + \frac{10 \text{ yrs}}{5 \text{ yrs of each}} = 32 \text{ yrs.}$$

$$11x = 22$$

$$x = 2$$

Rahul : Rani = 2 : 20 (5 yrs ago.)



40. (B) $a a \underline{a} / b a a \underline{b} / a a \underline{a} / b a \underline{a} b$

41. (D) $b a a \underline{b} / \underline{b} a a b / \underline{b} a a b / b \underline{a} a b$

42. (C) People who don't play any game

$$= 40 - (25 + 22 - 16)$$

$$= 40 - 31 = 9$$

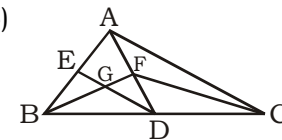
43. (C) Three meaningful word-

ELECTION

ELECTRON

ELECTRIC

44. (B)



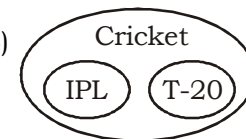
There are 13 triangles in the given fig.

$\triangle ABC, \triangle ABD, \triangle ADC, \triangle AFC, \triangle FDG,$

$\triangle AFB, \triangle FDB, \triangle FBC, \triangle GBD, \triangle ADE,$

$\triangle GBE, \triangle FDG$ and $\triangle DBE$

45. (B)



46. (A)

47. (C)

48. (B)

49. (B)

50. (B)
57. (C) Contour ploughing is the farming practice of ploughing across a slope following its elevation contour lines. The rows from slow water run-off during rainstorms to prevent soil erosion and allow the water time to settle into the soil.
61. (D) The Volga is the largest river in Europe in terms of length, discharge, and watershed. It flows through the western part of Russia and is widely viewed as the national river of Russia.
63. (D) At present, the IUCN Red List of Threatened Species (also known as the Red Data List) lists eight classes of organism under the group of threatened categories of critically endangered. The classes of organism for which the 'threatened' tag is applied are mammals, birds, reptiles, amphibians, fishes, insect, mollusc and plants.
65. (B) Satyameva Jayate (Truth Alone Triumphs) is a mantra from the ancient Indian scripture Mundaka Upanishad which is one of the earlier, primary (mukhya) Upanishad, a genre of Hindu scriptures commented upon by Shankara. It is associated with the Atharva Veda. Upon independence of India, it was adopted as the national motto of India. The origin of the motto is a well-known mantra 3.1.6 from the Mundaka Upanishad.
67. (D) If the mass of the body is m , the force of attraction of the earth, or the weight w of the body, is given by the Newton's law of gravitation as $w = mg$, with acceleration due to gravity $g = \frac{GM}{R^2}$ where M and R are the mass and radius of the Earth respectively. Weight of the body is maximum at the centre of the earth and zero at the centre of the earth.
68. (C) A microcomputer is a small relatively inexpensive computer with microprocessor as its Central Processing Unit (CPU). It is most commonly associated with the first wave of all-in-one 8-bit home computers and small business microcomputer (such as the Apple II, Commodore 64, BBC Micro, and TRS 80).
70. (A) Pitch is a perceptual property that allows the ordering of sounds on frequency-related scale. Pitch may be quantified as a frequency - related scale. Pitch is not a purely objective physical property. It is a subjective psycho-acoustical attribute of sound. When the frequency is high, the wavelength of the sound is shorter.
71. (C) Rajasthan is a land-locked state which is bordered by Pakistan to the west, Gujarat to the south-west, Madhya Pradesh to the south-east, Uttar Pradesh and Haryana to the north-east and Punjab to the north.
73. (B) The Indian citizenship and nationality law and the constitution of India provide single citizenship for all of India. However, there is a form of Indian nationality, the holders of which are known as Overseas Citizens of India. Prime Minister, Atal Bihari Vajpayee, on January 10, 2003 announced a provision for dual citizenship for People of Indian Origin (PIO) living in certain countries. Dual citizenship was made available to PIOs of seven countries - the US, Canada, Australia, New Zealand, Singapore and Malaysia.
74. (C) All proteins contain Nitrogen. Precisely, they contain about 16 percent Nitrogen. The determination of protein requirement is based on Nitrogen balance, which include total Nitrogen in food and excreta.
79. (B) The 52nd Constitutional Amendment of 1985 amended articles 101, 102, 190 and 191; and inserted Schedules 10 to the Constitution of India. It dealt with the Anti Defection Law and provided disqualification of members from parliament and assembly in case of defection from one party to other.
80. (C) Services provided by housewives can be categorized as non-economic services and thus cannot be accounted in national income which is the sum total of all the goods and services produced in a country, in a particular period of time.
83. (C) The international Monetary Fund has headquarters in Washington, D.C., United States. It is an international organization that was created on July 22, 1944 at the Bretton Woods conference and came into existence on December 27, 1945 when 29 countries signed the Articles of Agreement.
84. (B) Dr. A.P.J. Abdul Kalam is the undisputed father of India's missile programme. He

has breathed life into ballistic missiles like the Agni and Prithvi, which put China and Pakistan well under India's missile range. It is too exhausting to track Dr Abdul Kalam's achievements to date. In the 60s and 70s he was a trail blazer in the space department. In the 80s he transformed the moribund Defence Research and Development Laboratory in Hyderabad into a highly motivated team. By the 90s Kalam emerged as the boon for Indian science and technology and was awarded the Bharat Ratna.

85. (C) Hot money is a term that is most commonly used in financial markets to refer to the flow of funds for capital) from (or capital) from one country to another in order to earn a short-term profit on interest rate differences and/or anticipated exchange rate shifts. These speculative capital flows are called "hot money" because they can move very quickly in and out markets, potentially leading to market instability.
88. (D) Lysosomes are known as digestive bag because it digest foreign material as well as worn out cell organelles. They contain powerful digestive enzymes which are capable of breaking down all organic materials.
89. (C) The decibel (DB) is a logarithmic unit that indicates the ratio of a physical quantity (usually power or intensity) relative to a specified or implied reference level. A ratio in decibels is ten times the logarithm to base 10 of the ratio of two power quantities.
94. (A) Rajendra Kumar Pachauri has been serving as the chairperson of the Intergovernmental Panel on Climate Change since 2002, who was awarded the Nobel Peace Prize in 2007 during his tenure. The IPCC shared the 2007 Nobel Peace Prize with former U.S. Vice President Al Gore, who had earlier criticised Pachauri when he was first elected in 2002.
97. (B) The red blood cells develop in the bone marrow and circulate for about 100-120 days in the body before their components are recycled by macrophages. Each circulation takes about 20 seconds. Approximately a quarter of the cells in the human body are red blood cells.

99. (A) Biogas typically refers to a gas produced by breakdown of organic matter in the absence of oxygen. Organic waste such as dead plant and animal material, animal faeces and kitchen waste can be converted into a gaseous fuel called biogas. Biogas originates from biodegradable materials such as biomass, manure, sewage, municipal waste, green waste, plant material, and crops, Biogas comprises primarily methane (CH₄) and carbon dioxide (CO₂) and may have small amounts of hydrogen Sulphate (H₂S), moisture and siloxanes.
100. (D) Shivsamudra is a small town in the Mandya District of the state of Karnataka. It is situated on the banks of the river Kaveri, which forms here the boundary to the Chamarajanagar District and the location of one of the first Hydro-electric power stations in Asia, which was set up in the year 1902.
105. (B) For the given system Q = 0 and work done is equivalent to simultaneous working of bulb, fan and electric iron.

$$W = 3[100 \times 60] \times \frac{1}{1000} = 180 \text{ kJ}$$

110. (C) $\delta Q = \delta W + du$
 $-400 = -1000 + du$; $du = 600 \text{ J}$
 \therefore Change in specific internal energy

$$du = \frac{600}{2} = 300 \text{ J / kg}$$

111. (A) For a process $\delta Q = \delta W + du$
 For all the three paths, dU remains same. Accordingly the order of Q₁, Q₂ and Q₃ will be same as that of work done during corresponding paths. Since work done is given by the area under the path curve,

$$Q_1 < Q_2 < Q_3$$

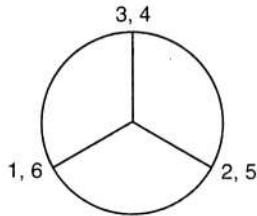
114. (B) $\eta_{th} = \frac{W}{Q_1} = \frac{Q_1 - Q_2}{Q_1}$

$$Q_1 - Q_2 = \frac{1}{4} Q_2 \quad (\text{given})$$

$$\eta_{th} = \frac{\frac{1}{4} Q_2}{\frac{5}{4} Q_2} = 0.2 \text{ or } 20\%$$

118. (B) In a six cylinder engine, the firing interval is $720/6 = 120^\circ$ and the

corresponding spacing of cranks is shown in the adjoining figure.



122. (C) In a reciprocating compressor, one should aim at compressing the air isothermally with exponent n in the compression process $pv^n = \text{constant}$ equal to unity. With this, work input to the compressor will be least. However, then the engine operation will be at slow speeds.

130. (B) For a vertically immersed surface.

$$y_p = y_c + \frac{I_c}{Ay_c} = \frac{h}{2} + \frac{bh^3/12}{bh \times h/2} = \frac{2}{3}h$$

131. (C) For equilibrium, the total upthrust equals the downward force. If V is the volume of sphere, then

$$13.6g \times \frac{V}{2} + 0.8g \times \frac{V}{2} = \rho g \times V$$

$$\rho = 7.2 \text{ g/cm}^3$$

140. (D) Poise is unit of dynamic viscosity

$$1 \text{ poise} = 1 \frac{\text{dyne sec}}{\text{cm}^2} = 10^{-5} \frac{\text{Ns}}{10^{-4} \text{m}^2} = 0.1 \frac{\text{Ns}}{\text{m}^2}$$

Apparently viscosity expressed in $\frac{\text{Ns}}{\text{m}^2}$ is

converted into poise unit of viscosity by multiplying with 10.

143. (B) $F = \rho AV^2 = (0.7 \times 1000) \times 0.03 \times 10^2 = 2100 \text{ N} = 2.1 \text{ kN}$

145. (B) In a modern Francis turbine, the water enters the runner radially and leaves axially, and accordingly it is a mixed-flow type turbine.

148. (B) Specific speed is a characteristic index number which serves to identify the type of turbine.

For a Pelton wheel

$N_s = 10$ to 25 for a single jet

$= 50$ for a double jet

For a Francis turbine : $N_s = 50$ to 300

For a Kaplan turbine : $N_s = 300$ to 1000

150. (A) Unit power of the turbine

$$P_u = \frac{P}{H^{3/2}} = \frac{640}{(16)^{3/4}} = 10 \text{ kW}$$

160. (B) Material of the belt is elastic and accordingly, the belt elongates more on the tight side than on the slack side resulting in unequal stretching. Since, the peripheral speed of a pulley depends upon the length of belt received by it, the driven pulley shall run at a smaller peripheral speed than the driving pulley. This partial slipping due to elastic property of the belt material is called creep.

162. (C) The governor controls the supply of working fluid to the engine in accordance with varying load conditions, and keeps the mean speed within certain limits.

165. (C) Coefficient of fluctuation of speed is defined as the ratio of maximum fluctuation of speed to mean speed. That is

$$C_f = \frac{\omega_{\max} - \omega_{\min}}{(\omega_{\max} + \omega_{\min})/2} = \frac{2\omega_{\max} - 2\omega_{\min}}{\omega_{\max} + \omega_{\min}}$$

$$C_f \omega_{\max} + C_f \omega_{\min} = 2\omega_{\max} - 2\omega_{\min}$$

$$\therefore \frac{\omega_{\max}}{\omega_{\min}} = \frac{2 + C_f}{2 - C_f}$$

172. (C) The Young's modulus is a property of the material and its value is independent of magnitude of force, geometrical configuration of the body, and type of loading (tension or compression.)