



KD Campus Pvt. Ltd

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

Answer-key & Solution

SSC JE (Mechanical)
MOCK -(89)
Date 18.03.2017

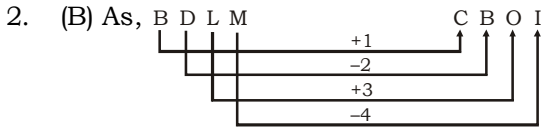
1. C	26. B	51. D	76. C	101. B	126. A	151. B	176. B
2. B	27. C	52. B	77. B	102. D	127. B	152. B	177. B
3. D	28. A	53. D	78. C	103. A	128. D	153. B	178. D
4. B	29. A	54. A	79. B	104. B	129. D	154. D	179. B
5. D	30. A	55. B	80. D	105. C	130. A	155. C	180. B
6. D	31. C	56. B	81. B	106. C	131. C	156. C	181.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

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. 89

1. (C) Toshiba is a Japanese company and Samsung is a **South Korean** company.



3. (D) In second figure, we are joining the corners by lines.

4. (B) $32 \Rightarrow 3^3 - 2^2 = 27 - 4 = 23$
 $21 \Rightarrow 2^3 - 1^2 = 8 - 1 = 7$

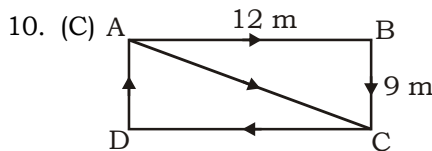
5. (D) $3214 \Rightarrow 3 + 2 + 1 + 4 = 10 \Rightarrow 10^2 = 100$
 $2531 \Rightarrow 2 + 5 + 3 + 1 = 11 \Rightarrow 11^2 = 121$
 $3243 \Rightarrow 3 + 2 + 4 + 3 = 12 \Rightarrow 12^2 = 144$
 $1245 \Rightarrow 1 + 2 + 4 + 5 = 12 \Rightarrow 12^2 \neq 256$
 $\therefore 1245 - 256$ is different from others.

6. (D) Except (D), others are types of angle.

7. (B) Except (B), other figures can be drawn with the help of lines.

8. (D) Kafan, Mansarovar and Gaban are the books of Munsri Premchand. **Gramya** is the book of Sumitranandan Pant.

9. (B) Both the given conclusions clearly bring out the central theme of the proverb given in the statement. So, both I and II follow.



Required distance
 $= 12 + 9 + 12 + 9 + \sqrt{12^2 + 9^2}$
 $= 42 + \sqrt{225}$
 $= 42 + 15$
 $= 57 \text{ m}$

11. (B) $3 \times 0.5 + 0.5 = 2$
 $2 \times 1 + 1 = 3$
 $3 \times 1.5 + 2 = 6.5$
 $6.5 \times 2 + 4 = 17$
 $17 \times 2.5 + 8 = 50.5$
 $50.5 \times 3 + 16 = 167.5$

12. (B) $13 - 1 = 0$
 $23 + 2 = 10$
 $33 - 3 = 24$
 $43 + 4 = 68$
 $53 - 5 = 120$
 $63 + 6 = 222$

$73 - 7 = 336$

13. (A) The sequence is
H I J H H I J H H I J H

14. (B) All these three games are different from each other.

15. (C) Let x and y be the number of elephants and peacocks in the zoo respectively. Then,
 $x + y = 80$... (i)
 $4x + 2y = 200$ or $2x + y = 100$... (ii)
Solving (i) and (ii), we get $x = 20$, $y = 60$
Required Difference = $60 - 20 = 40$

16. (A) The man in the photograph is the son of the only son of Charulata's grandfather i.e., the man is the son of Charulata's father. Hence, the man is the **brother** of Charulata.

17. (A) $\sqrt{8 \times 3 \times 6} = \sqrt{144} = 12$

$\sqrt{16 \times 8 \times 2} = \sqrt{256} = 16$

$\sqrt{2 \times 18 \times 9} = \sqrt{324} = 18$

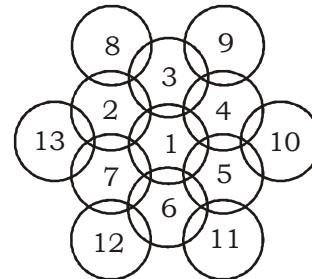
$\sqrt{12 \times 8 \times 6} = \sqrt{576} = 24$

18. (B) $\frac{6 \times 8}{3} = 16$, $\frac{4 \times 12}{6} = 8$

$\frac{8 \times 12}{4} = 24$, $\frac{12 \times 16}{8} = 24$

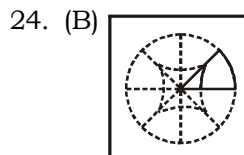
19. (D) $3 \rightarrow 4 \rightarrow 2 \rightarrow 1$

21. (C) The figure may be labelled as shown.



There are **13 circles** in the given figure. This is clear from the adjoining figure in which the centres of all the circles in the given figure have been numbered from 1 to 13.

22. (C) From figures (ii) and (iii), we conclude that the alphabets C, D, B and F appear adjacent to the alphabet E. Therefore, the alphabet A appears to opposite to E. Conversely, **E** appears opposite A.



25. (B) Numerical value of letters has been taken from last to first as per the english alphabet i.e, Z = 1, Y = 2 , B = 25 and A = 26.

RAAZ = 9 + 26 + 26 + 1 = 62%
 AKIRA = 26 + 16 + 18 + 9 + 26 = 95%
 SULTAN = 8 + 6 + 15 + 26 + 13 = 68%
 MIRZAYA = 14 + 18 + 9 + 1 + 26 + 2 + 26

26. (B) Cure is treatment of Disease in the same way Heal is referred as treatment of an Injury.

27. (C) Pesticide protects the plants and vaccination protects the babies.

28. (A) 6 + 3 = 9 in same way 6 + 8 = 14

29. (A) Except Book all are stationary items.

30. (A) Except Barber all use raw material.

31. (C) AG = Difference = 6

WA = Difference = 22

ET = Difference = 15

IQ = Difference = 08

Difference between ET is odd number.

32. (B) Repair → Rescue → Research → Residue
 2 5 4 3

→ Resign
 1

33. (C) 1 9 17 33 49 73 97
 +8 +8 +16 +16 +24 +24

34. (D) 2 + 5 = 7

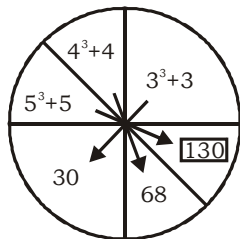
5 + 7 = 12

7 + 12 = 19

12 + 19 = 31

35. (B) abc/ cba/ abc/ cba/ abc

36. (C)



37. (A) $\frac{4}{2} + 2^3 = 10$

$\frac{6}{2} + 4^3 = 67$

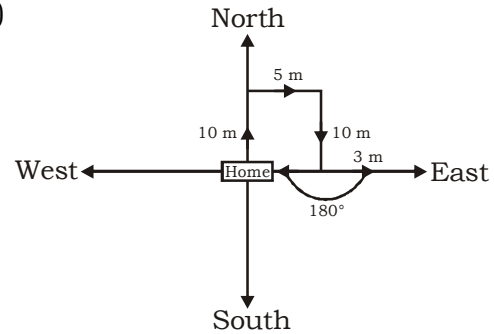
$\frac{10}{2} + 3^3 = 32$

38. (A) 3 + 2 + 10 + 5 = $\frac{20}{2} = 10 =$ middle number in figure.

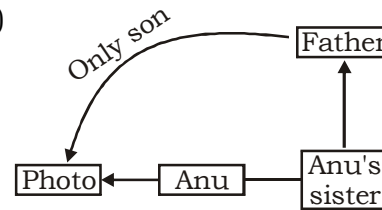
4 + 7 + 6 + 3 = $\frac{20}{2} = 10 =$ middle number in figure.

So that 4 + 8 + 3 + 5 = $\frac{20}{2} = 10$

39. (B)



40. (B)

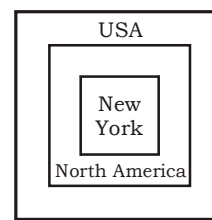


So, Photo is Anu's brother.

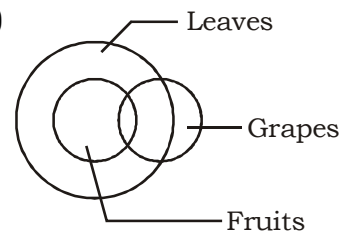
41. (C) 29 February means it is a leap year and in a leap year the month February and August month have the same calendar. So, on 29th August it is Monday.

42. (D) $\Rightarrow 12 \div 6 - 3 \times 20 + 8$
 $\Rightarrow 2 - 60 + 8$
 $\Rightarrow -50$

43. (C)



49. (A)



Only conclusion I follow.
 = 96%

77. (B) The largest committee is the committee of estimates and it has 30 members

Committee on	No. of members
Public Accounts	22
Estimates	30
Public undertakings	22
Petitions	LS(15), RS(10)

78. (C) Bollywood Actress Sonam Kapoor has been bestowed with the 2016 ET Panache Trendsetter Award in Mumbai, Maharashtra. Beside her, Vijay Shekhar Sharma, Kavin Bharti Mittal, Bhavin and Divyank Turakhia, Dipa Karmakar, Devendra Jhajharia, Ananya Birla, etc., has been honoured with the award. The award recognizes the efforts of entrepreneurs, innovators, newsmakers and athletes whose stories inspire millions and whose services transform lives. Each winner is harbingers of change, driven by professional passion, personal elan and a commitment to quality.
79. (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.
80. (D) The 104th edition of Indian Science Congress (ISC) 2017 will be held at the Sri Venkateswara University in Tirupati, Andhra Pradesh from January 3rd to 7th, 2017. In the 2017 ISC, 9 Nobel Laureates from the United States, Japan, France, Israel and Bangladesh would attend the event and share their experiences. In addition to this, a huge contingent of 200 scientists from foreign nations, 10,000 scientists representing various national laboratories, faculty and research scholars from Indian universities and several others will take part in the event to exchange their views on a range of scientific issues, both on national and international level.
82. (A) Revolt of 1857 is referred as Sepoy Mutiny by many historians. After the mutiny Lord Canning was made the Viceroy and power was transferred from the East India Company to the British crown by Act of 1858.
84. (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.
85. (C) The average albedo of earth is 34%. It varies according to the colour and texture of the surface. According to the ecosystem, the maximum albedo would be of Tundra, than Taiga, then tropical green forest and tropical deciduous forest respectively.
86. (C) Duration of Panchayats is five years. Fresh election to constitute a Panchayat shall be completed before the expiry of its term; or in case of dissolution before the expiry of a period of 6 months from the date of its dissolution.
87. (C) The World Food Day (WFD) is observed every year on October 16th to mark the foundation of Food and Agriculture Organisation (FAO) of the United Nations in 1945. The global message for WFD 2016 is "Climate is changing. Food and agriculture must too".
88. (C) Calcium is the most common and abundant mineral in the body. It is important for healthy bones and teeth, helps muscle relax and contract, important in nerve functioning, blood clotting etc. Sodium is needed for proper fluid balance, nerve transmission and muscle contraction.
90. (B)
- | Minerals | Mining area |
|-----------------|--------------------|
| Graphite | → Bellary |
| Lead | → Zawar |
| Salt | → Didwana |
| Siler | → Rampa |
91. (D) Female birds in most families have only one functional ovary (the left one), connected to an oviduct-although two ovaries are present in the embryonic stage of each female bird.
92. (D) In 1327, Tughluq passed an order to shift the capital from Delhi to Deogiri/Daulatabad (in present-day Maharashtra) in the Deccan region of south India. Tughluq said that it would help him to establish control over the fertile land of the Deccan plateau. He also felt that it would make him safe from the Mongol invasions which were mainly aimed at Delhi and regions in north India. Also, it was not always possible to operate an army from Delhi for the occupation of Southern states. Muhammad-bin-Tughlaq himself had spent a number of years when a prince in occupying and guarding the southern states during the rein of his father.
93. (C) Federal Bank is a major Indian commercial bank in the private sector, headquartered at Kochi, Kerala.
94. (D) China has successfully launched its longest-ever manned space mission

"Shenzhou-11" spacecraft into space by a Long March-2F carrier rocket from the Jiuquan Satellite Launch Centre near the Gobi Desert, China. The two astronauts will stay in space for 30 days to test complex's ability to support human life. They will also conduct medical and scientific experiments. The purpose of the mission is to dock with the Tiangong-2 space laboratory and gain experience from a 30-day residence and to test its life-support systems.

96. (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.
97. (C) The Constitution of India recognizes religious and linguistic minorities under article 29 and 30 (Cultural and Educational rights). However it does not define the term Minority.
98. (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 towards the equilibrium position as it is equal to zero.
171. (B) Coefficient of fluctuation of energy

$$K_e = \frac{\text{maximum fluctuations of energy}}{\text{work done per cycle}}$$

$$= \frac{\Delta E}{E}$$

and coefficient of fluctuation of speed

$$K_s = \frac{\text{range of speed}}{\text{mean speed}}$$

$$\text{Now, } \Delta E = I\omega^2 \times K_s = \frac{1}{2} I\omega^2 \times 2K_s$$

$$\text{or } EK_e = KE \times 2K_s$$

$$KE = \frac{K_e E}{K_s 2}$$

181. (C) $T_e = \sqrt{M^2 + T^2}$
 $25 = \sqrt{M^2 + 16}$
 $M = 3 \text{ kN.m}$

184. (D) $V_2 = \sqrt{2000(h_2 - h_1)}$

$$V_2 = \sqrt{2000(3450 - 2800)}$$

$$= 1140.2 \text{ m/s}$$

188. (A) At plane AB, we have

$$P = P_0 + \rho g z$$

Now:

$$P_0 = \rho g z$$

Where z_0 is the barometric height, the density of mercury and P_0 the atmospheric pressure therefore,

$$P = \rho g(z + z_0)$$

$$= 13,640 \text{ kg/m}^3 \times 9.8 \text{ m/sec}^2 \times (0.562 + 0.761)$$

$$= 177 \times 10^3 \text{ N/m}^3 = 1.77 \text{ kpa} = 1.77 \text{ bar}$$

195. (B) For Carnot engine $\eta = \frac{T_1 - T_2}{T_1}$

$$= \frac{(273 + 227) - (273 + 27)}{500} = \frac{200}{500}$$

$$= 40\%$$

$$\eta \text{ of engine of manufacture} = \frac{\text{Net work}}{\text{Heat added}}$$

$$= \frac{20 \times 4500}{427 \times 400}$$

No engine can be more efficient than Carnot engine, irrespective of cost sophistication. So it is impossible.

197. (B) The isentropic index for superheated steam is 1.3

$$\text{and throat pressure } p_2 \left(\frac{2}{n+1} \right)^{\frac{n}{n-1}}$$

$$= 10 \left(\frac{2}{13+1} \right)^{\frac{1.3}{0.3}} = 10 \left(\frac{2}{2.3} \right)^{4.33}$$

$$= 10 \times 0.869^{4.33} = 10 \times 0.546 = 5.46 \text{ bar}$$

- 200.(D) $(\text{COP})_{\text{HP}} = \frac{Q_A}{W}$ we know that

$$5 = \frac{Q_A}{1}$$

$$Q_A = 5 \text{ kW}$$

$$(\text{COP})_{\text{HP}} - (\text{COP})_{\text{R}} = 1$$

$$(\text{COP})_{\text{Ref}} = 4$$

$$(\text{COP})_{\text{Ref}} = \frac{Q_R}{W}$$

$$4 = \frac{Q_R}{1}$$

$$Q_R = 4 \text{ kW}$$