



KD Campus Pvt. Ltd

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

Answer-key & Solution

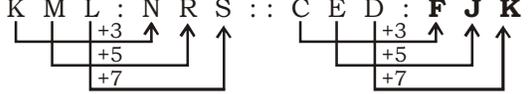
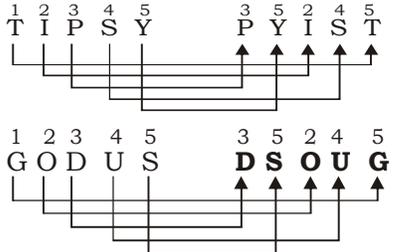
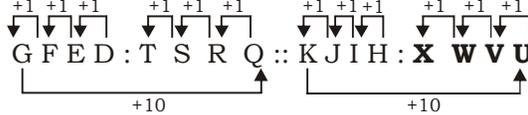
SSC JE (Mechanical)
MOCK -(110)
Date 12.8.2017

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

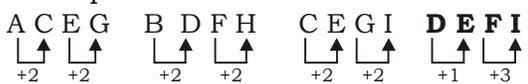
Note : If your opinion differ regarding any answer, please message the mock test and Question number to 9560620353

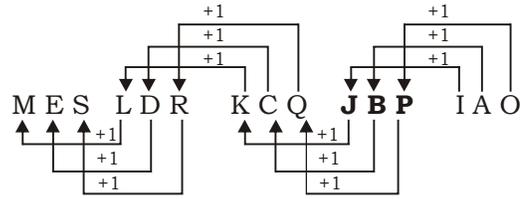
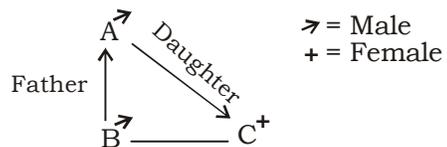
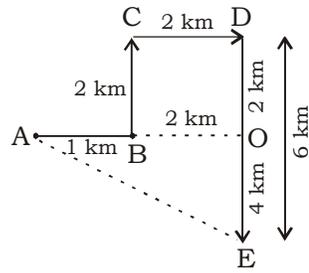
Note : If you face any problem regarding result or marks scored, please contact : 9313111777

SOLUTION SSC JE (Mechanical) MOCK TEST no. 110

1. (D) 
2. (C) $(207 \times 2) + (7)^2 = 414 + 49 = 463$
 $(109 \times 2) + (9)^2 = 218 + 81 = 299$
3. (B)
4. (C) Each figure shifts to its next block in clockwise direction.
5. (C) All the letters belong to **Alphabet** class.
6. (B) Bus runs on road and Train runs on track.
7. (A) Inspector is senior to Constable and Principal is senior to **Teacher**.
8. (B) 
9. (C) 
10. (C) $0 \ 9 = 0 + 9 = 9$ $6 \ 2 = 6 + 2 = 8$
 $8 \ 1 = 8 + 1 = 9$ $2 \ 4 \ 2 = 2 + 4 + 2 = 8$
11. (D) $3^3 - 1 = 26$; $5^3 - 1 = 124$
12. (C) $4^3 = 64 + 8 = 72$ $\xrightarrow{\text{reverse}}$ 27
 $9^3 = 729 + 8 = 737$ $\xrightarrow{\text{reverse}}$ **737**
13. (D) All numbers except 391 are divisible by 29.
14. (D) All the rest are the antonyms of each other whereas long and high are almost similar.
15. (B)

Letters	Position
G	7
V	22
Q	17
M	13

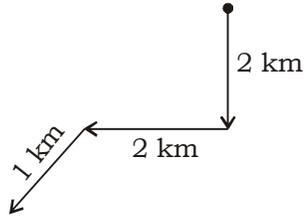
 Position of V is at even place in English alphabet where as position of others are at odd places.
16. (D) 
17. (C) Lucknow is a capital city.
18. (A) 2 is a prime number.
19. (C) In other figures the top part of the circle are shaded.
20. (A)
21. (B)

22. (C) Encroach
23. (A) $yzy / \underline{xzx} / yzy / xzx / \underline{yzy} / xzx / y$
24. (D) 
25. (B) 7×11 (Product of two consecutive prime numbers)
26. (C) $1^3 = 01 \xrightarrow{\text{reverse}} 10$
 $2^3 = 08 \xrightarrow{\text{reverse}} 80$
 $3^3 = 27 \xrightarrow{\text{reverse}} 72$
 $4^3 = 64 \xrightarrow{\text{reverse}} 46$
 $5^3 = 125 \xrightarrow{\text{reverse}} 521$
 $6^3 = 216 \xrightarrow{\text{reverse}} \mathbf{612}$ (621 given in series)
 $7^3 = 343 \xrightarrow{\text{reverse}} 343$
27. (D) $6341 - 909 = 5432$,
 $\mathbf{4523} - 909 = 3614$
28. (C) 
29. (C) STATION
30. (B) HOMAGE
31. (A) $(14 + 1) \times (15 + 1) = 15 \times 16 = 240$
 $(16 + 1) \times (17 + 1) = 17 \times 18 = 306$
 $(18 + 1) \times (19 + 1) = 19 \times 20 = \mathbf{380}$
32. (A) $8 + 4 + 32 + 12 = 56$
 $9 + 4 + \mathbf{18} + 25 = 56$
 $10 + 3 + 29 + 14 = 56$
33. (C) 
- We have,
 $AO = AB + BO = 1 + 2 = 3 \text{ km}$
 $OE = DE - DO = 6 - 2 = 4 \text{ km}$

$$AE = \sqrt{(AO)^2 + (OE)^2} = \sqrt{3^2 + 4^2}$$

$$= \sqrt{25} = 5 \text{ km}$$

34. (D)



35. (A)

36. (C) DAUGHTER → TERUDAGH
1 2 3 4 5 6 7 8 6 7 8 3 1 2 4 5

APTITUDE → UDETAPIT
1 2 3 4 5 6 7 8 6 7 8 3 1 2 4 5

37. (A) **Words :** G E R M A N Y
 ↓ ↓ ↓ ↓ ↓ ↓ ↓
Position in : 7 5 18 13 1 14 25
Alphabet

F R A N C E
↓ ↓ ↓ ↓ ↓ ↓
6 18 1 14 3 5

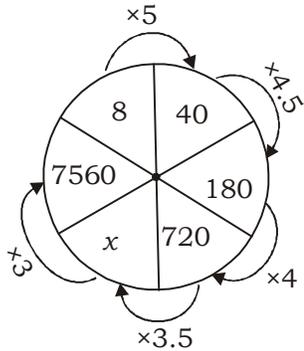
38. (D) (B) $15 \times 5 \div 3 = 25$
(C) $15 \times 5 = 3 \times 25$

39. (B) $18 \div 9 + 6 < 8 + 6 \times 2 \Rightarrow 8 < 20$

40. (A) 41. (D) 42. (B)

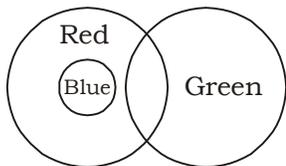
43. (A) In next figure 4 lines will be used.

44. (B)



$$\therefore x = 720 \times 3.5 = 2520$$

45. (A)



46. (A)

47. (C)

48. (B)

49. (C) $\frac{60}{5} + \frac{84}{6} = 12 + 14 = 26$

$$\frac{80}{4} + \frac{90}{3} = 20 + 30 = \mathbf{50}$$

$$\frac{70}{2} + \frac{44}{4} = 35 + 11 = 46$$

51. (B) The word Panchayat means "assembly" (ayat) of five (panch) and Raj means "rule". It was constitutionalised through 73rd Constitutional Amendment Act of 1992. The fifth entry of the state list in the seventh schedule of the Constitution of India deals with the 'Local Government'. It thus evolved the three-tier system of Panchayati Raj.

52. (A) Nek Chand Saini (15th Dec 1924 - 12th June 2015) was a self-taught Indian artist, known for building the Rock Garden of Chandigarh, an eighteen acre sculpture garden in the city of Chandigarh, India. He was awarded the Padma Shri by Government of India in 1984.

53. (A) Mandla Plant Fossils National Park is located in Mandla district of Madhya Pradesh in India. It spreads over 274,100 square metres. This National Park has plants in fossil form that existed in India anywhere between 40 million and 150 million years ago spread over seven villages of Mandla district.

54. (C) The 'Annual Financial Statement' laid before both the Houses of Parliament constitutes the Budget of the Union Government. This statement takes into account a period of one financial year. The financial year commences in India on 1st April each year. The statement embodies the estimated receipts and expenditure of the Government of India for the financial year.

55. (B) Territorial disputes in the South China Sea involves both island and maritime claims among several sovereign states within the region, namely Brunei, the People's Republic of China, Taiwan, Malaysia, the Philippines and Vietnam. Disputes are related to both spratly and the Paracel islands, as well as maritime boundaries in the Gulf of Tonkin and elsewhere. Disputes are also there in the waters near the Indonesian Natuna Islands. It is due to the interests of different nations which includes acquiring fishing areas around the two archipelagos, the potential exploitation of suspected crude oil and natural gas under the waters of various parts of the South China Sea and the strategic control of important shipping lanes.

56. (B) During the British Raj, Surendra Nath Banarjee was one of the earliest Indian Political leaders. He founded the Indian National Association which later became Indian National Congress. He was also known as the sobriquet, Rashtraguru (the teacher of the nation).
57. (B) In the presence of sunlight Ground level or bad ozone is created by chemical reactions between Oxides of Nitrogen (NO_x) and Volatile Organic Compounds (VOC). It is not directly emitted into the air. Major sources of NO_x and VOC are emissions from industries, electric utilities, motor vehicle exhaust, gasoline vapours and chemical solvents. Breathing of ozone can cause lung diseases such as asthma. Ground level ozone can also have harmful effects on sensitive vegetation and ecosystems.
58. (D) The 23rd session of the congress was held at Surat. There was an open clash between Moderates and Extermists and led to the split in the Congress also known as Surat split. Extremists wanted to hold the session at Nagpur but Moderates wanted to hold the session at Surat. Further Extremists wanted to make either Tilak or Lala Lajpat Rai as the President of the session while the Moderates wanted to make Shri Ras Bihari Ghosh as the President and wanted to exclude the resolution on Swadeshi, Byocott and National Education as were passed in the Calcutta session. Moderates continued and Extremists left the session and a split ocured. So, Ras Bihari Ghosh was made the president of Surat session and the Extremists and Moderates worked separately till 1916.
59. (D) Mughal Emperor Nasir-ud-Din Muhammad Shah was also known as Roshan Akhtar. He was the son of Khujista Akhtar, the fourth son of Bahadur Shah I. He was the Mughal Emperor between 1719 to 1748. He ascended the throne at the age of 17 with the help of Sayyid Brothers. He was a great patron of arts, including musical, cultural and administrative developments. His pen-name was 'Sada Rangila' (ever Joyous).
60. (A) Vima Kadphises was a Kushan emperor from around 90–100 AD. He added to the Kushan territory by his conquests in Afghanistan and North-West Pakistan.
- He issued an extensive series of coins and inscriptions. He was the first to introduce gold coinage in India, in addition to the existing copper and silver coinage.
62. (C) Fertile Crescent was first coined in 1916 by James Henrey. Fertile Crescent is approximately a semi-circle, with the open side toward the south, having the west end at the south-east corner of the Mediteranean. Basically, it is the region in the Middle East which covers, like a quarter-moon shape, from the Persian Gulf, through Modern day southern Iraq, Syria, Lebanon, Jordan, Israel and northern Egypt. It is also associated with the earthly location of the Garden of Eden. It is also known as Cradle of civilization and regarded as the birth place of agriculture, urbanisation, writing, trade, science, history and organized religions.
63. (B) Cloud seeding is a form of weather modification, which is an attempt to change the amount or type of precipitation that falls from clouds, by dispersing substances into the air that serve as cloud condensation or ice nuclei, which alter the microphysical processes within the cloud. The most common chemicals used for cloud seeding include Silver Iodide, Potassium Iodide and dry ice (solid Carbon Dioxide). Liquid propane, which expands into a gas, has also been used.
64. (A) Diesel Exhaust Fluid (DEF) is also known as AdBlue in Europe, Australia and New Zealand. It is an aqueous urea solution made with 32.5% high-purity urea and 67.5% deionized water. It is used as a consumable in selective catalytic reduction (SCR) in order to lower NO_x concentration in the diesel exhaust emissions from diesel engines.
65. (A) The Computer programme which contains the instructions to make the hardware work are called software. There are two primary software categories namely Operating System or System software and Application Software.
66. (D) **Magnetic Stripe** - Rolled out on debit cards in 1970's with the introduction of ATMs. It stores card data which can be read by physical contact and swiping past a reading head.
- Smart Card** : also known as chip card,

- Integrated Circuit Card (ICC). It is a pocket-sized card embedded with integrated circuits which can process data.
- Fleet Card** : It is used as a payment card most commonly for gasoline, diesel and other fuels at gas stations. It can also be used to pay for vehicle maintenance and expenses at the discretion of the fleet owner or manager.
68. (A) Mahatma Gandhi got his inspiration to resist things that were wrong i.e. concept of non-violence from Henry David Thoreaus. He suggested that individuals could resist immoral government action by simply refusing to cooperate and he developed his thoughts in the form of Satyagraha (Non-Cooperation) or Truth Force.
69. (C) Disposable income is Gross income of an individual or firm from which direct taxes (such as PAYE, income tax) have been deducted. When essential expenditure (such as on food, clothing, shelter) is deducted from the disposable income, the balance is called discretionary income which the income earner is free to spend or save.
72. (C) Penicillin is a group of antibiotics and derived from Penicillium fungi.
73. (D) Transfer payment is a redistribution of income in the market system. These payments include welfare (financial aid), social security and government making subsidies for certain businesses (firms).
74. (D) Einstein's Mass-Energy relation is the relationship between Mass (m) and Energy (E) in the special theory of relativity embodied in the formulae $E = mc^2$ where c is the speed of light.
77. (C) Humidity is the amount of water vapour in the air. There are three main measurements of humidity – **Absolute humidity** is the total mass of water vapour in a given volume of air. **Relative humidity** expressed as a percent, measures the current absolute humidity relative to the maximum (highest point) for that temperature. **Specific humidity** is a ratio of the water vapour content of the mixture to the total air content on a mass basis.
79. (C) The Wailing Wall is also known as the western wall or kotel which is located in the Old City of Jerusalem.
82. (D) Sponges are animals of the phylum Porifera means "Pore bearer". They are multicellular organisms that have bodies full of pores and channels allowing water to circulate through them. Sponges do not have nervous, digestive or circulatory systems. So, they rely on maintaining a constant water flow through their bodies to obtain food and oxygen and also to remove wastes.
83. (B) SARS is severe Acute Respiratory syndrome and a serious form of Pneumonia. It is caused by virus.
86. (C) Kharif crops are also known as Monsoon crops which are grown during the monsoon (rainy season). Eg.-paddy, maize, millet, rice, bajra, cotton crops etc.
89. (B) Features borrowed from Ireland in our Constitution are concept of Directive Principles of State Policy, method of election of President and nomination of members in the Rajya Sabha by the President.
90. (A) The sargasso sea is located entirely within the Atlantic Ocean and is the only sea without a land boundary. This sea is a vast patch of ocean named for a genus of free-floating seaweed called Sargassum.
93. (C) BIFR (Board for Industrial and Financial Reconstruction) is an agency of the government of India, part of the department of Financial Services of the Ministry of Finance. And was established under the Sick Industrial Companies (special provision) Act 1985 (SICA). Its objective is to determine the sickness of industrial companies and to assist in reviving those that may be viable and shutting down the others.

103.(A) $E_1 = E_2$

$$\frac{\sigma_1}{\epsilon_1} = \frac{\sigma_2}{\epsilon_2}$$

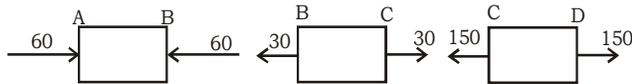
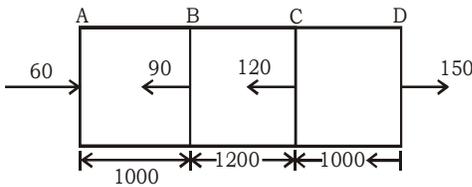
$$\frac{P}{A_1 \left(\frac{\delta L_1}{L_1} \right)} = \frac{P}{A_2 \left(\frac{\delta L_2}{L_2} \right)}$$

$$\frac{L_1}{d_1^2 (\delta L_1)} = \frac{L_2}{d_2^2 (\delta L_2)}$$

$$\frac{L}{4 \cdot d_1^2 (\delta L_1)} = \frac{2L}{d_2^2 (\delta L_2)}$$

$$\frac{\delta L_1}{\delta L_2} = \frac{1}{8}$$

105.(A)



$$\delta_{BC} = \frac{30 \times 10^3 \times 1200 \times 10^{-3}}{(20 \times 20) \times 2 \times 10^5} \text{ mm}$$

$$\delta_{BC} = 0.45 \text{ mm}$$

111.(D) $M \propto Z$

$$\frac{M_C}{M_S} = \frac{Z_C}{Z_S}$$

$$= \frac{(I / y_{\max})_C}{(I / y_{\max})_S}$$

$$= \frac{\left(\frac{\pi d^3}{32} \right)}{\left(\frac{D^3}{6} \right)} = \frac{3\pi}{16} \left(\frac{d^3}{D^3} \right)$$

Let $D = d$

so $\frac{M_C}{M_S} = \frac{3\pi}{16}$

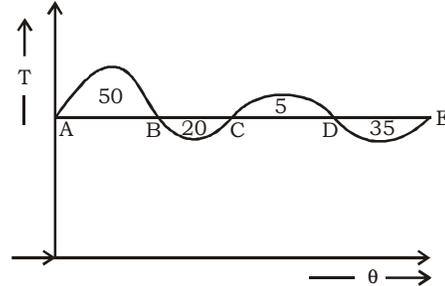
120.(C) $\alpha = 50 \text{ rad/s}^2$

$$r = 12 \text{ cm} = 0.12 \text{ m}$$

$$a_t = \alpha \cdot r$$

$$a_t = 6 \text{ m/s}^2$$

128.(C)



Let the energy at A (E_A) = E

energy at $E_B = E + 50$

energy at $E_C = E + 50 - 20 = E + 30$

energy at $E_D = E + 30 + 5 = E + 35$

energy at $E_E = E + 35 - 35 = E$

$E_{\max} = E + 50$

$E_{\min} = E$

Maximum fluctuation of energy

$$\Delta E = E_{\max} - E_{\min}$$

$$\Delta E = 50 \text{ J}$$

156.(B) $\eta_{\text{carnot}} = 0.75$

$$\eta_{\text{carnot}} = 1 - \frac{T_L}{T_H}$$

$$0.75 = 1 - \frac{T_L}{1000}$$

$$T_L = 250 \text{ K}$$

or $T_L = -23^\circ \text{C}$

159.(D) $(\text{COP})_{\text{Ref}} = \frac{T_E}{T_C - T_E}$

$$= \frac{270}{40} = 6.75$$

$$(\text{COP})_{\text{HP}} = 7.75$$

161.(B) $h_2 = 283 \text{ KJ/kg}$

$$h_3 = h_4 = 116 \text{ KJ/kg}$$

$$h_1 = 232 \text{ KJ/kg}$$

$$(COP) = \frac{h_1 - h_4}{h_2 - h_1}$$

$$= \frac{232 - 116}{283 - 232}$$

$$COP = 2.27$$

$$176.(D) \quad K = \frac{dp}{\left(\frac{-dv}{v}\right)} = \frac{dp}{\left(\frac{d\rho}{\rho}\right)}$$

$$K = \frac{\rho dp}{d\rho}$$

$$= \frac{500(3.5 - 3)}{(501 - 500)}$$

$$K = 250 \text{ N/m}^2$$

$$178.(B) \quad \rho_w g h_w = \rho_m g h_m$$

$$h_w = \frac{13600 \times 75}{1000}$$

$$h_w = 1020 \text{ cm}$$

$$181.(A) \quad U = ax, v = -ay$$

$$\frac{dx}{U} = \frac{dy}{v}$$

$$\frac{dx}{ax} = \frac{dy}{-ay}$$

$$\frac{dx}{x} + \frac{dy}{y} = 0$$

$$\int \frac{dx}{x} + \int \frac{dy}{y} = \int d(\text{constant})$$

$$\ln x + \ln y = \ln c$$

$$\ln xy = \ln c$$

$$xy = c$$

$$\text{at pt } (3, 1)$$

$$3 \times 1 = c$$

$$\text{or } c = 3$$

$$xy = 3$$

$$183.(B) \text{ Given}$$

$$v = 0.5 \text{ stokes}$$

$$= 0.5 \times 10^{-4} \text{ Pas}$$

$$D = 5 \text{ cm} = 0.05 \text{ m}$$

$$\text{critical reynold's number } Re_c = 2000$$

$$Re_c = \frac{V_c D}{\nu}$$

$$2000 = \frac{V_c \cdot 0.05}{0.5 \times 10^{-4}}$$

$$V_c = 2 \text{ m/s}$$

$$193.(A) \quad \tau \propto r$$

$$\frac{\tau_w}{\tau} = \frac{R}{r}$$

$$\tau_w = \tau \frac{R}{r} = 20 \frac{10}{4}$$

$$\tau_w = 50 \text{ Pa}$$

$$194.(D) \quad d_1 = 6 \text{ cm}$$

$$d_2 = 12 \text{ cm}$$

$$h_L = \frac{1}{2g} (V_1 - V_2)^2$$

$$= \frac{V_1^2}{2g} \left[1 - \frac{V_2}{V_1} \right]^2$$

from continuity equation

$$\frac{V_2}{V_1} = \frac{A_1}{A_2} = \left(\frac{d_1}{d_2} \right)^2$$

$$h_L = \frac{V_1^2}{2g} \left[1 - \left(\frac{d_1}{d_2} \right)^2 \right]^2$$

$$= \frac{V_1^2}{2g} \left[1 - \left(\frac{1}{2} \right)^2 \right]^2$$

$$= \frac{V_1^2}{2g} \left(\frac{3}{4} \right)^2$$

$$h_L = \frac{9}{16} \frac{V_1^2}{2g}$$