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2007, OUTRAM LINES, 1ST FLOOR, NEAR GTB NAGAR METRO STATION, GATE NO. - 2, DELHI-110009

Answer-key & Solution

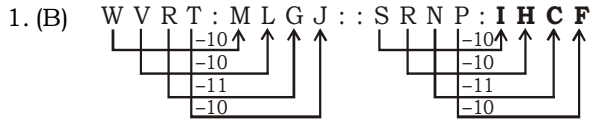
SSC JE (MECH)
Practice Set-17

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

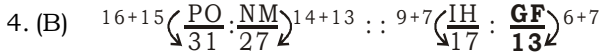
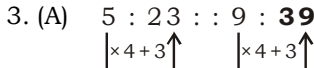
Note : *If your opinion differ regarding any answer, please message the mock test and Question number to 8375805483*

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

SOLUTION SSC JE (Mechanical) Practice Set-17

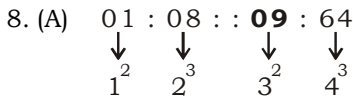
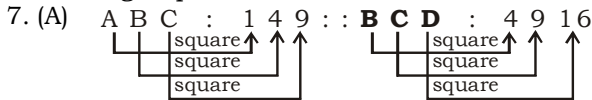


2. (C)

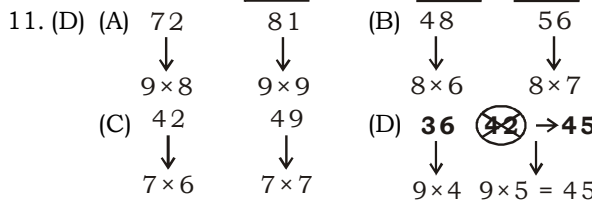
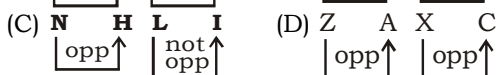
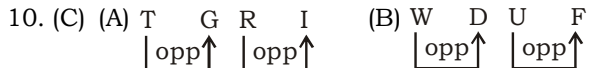
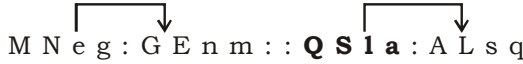


5. (A)

6. (A) A group of Cows is called a herd. Similarly a group of fish is called a school



9. (B) capital letters become small letters and vice versa



12. (B) All the remaining have 3 letters in each group.

13. (B)

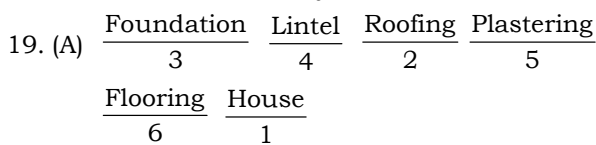
14. (C) Sluggish is the antonym of the remaining three.

15. (B) Except A all are consonants

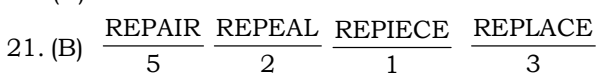
16. (A) It is divisible by 3

17. (C)

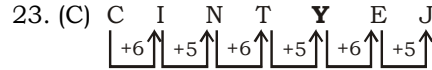
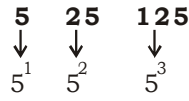
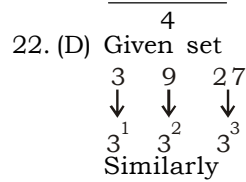
18. (C) Except option (C) all are only voice communication system



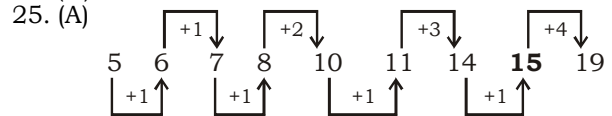
20. (C)



REPOINT



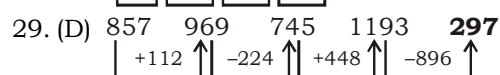
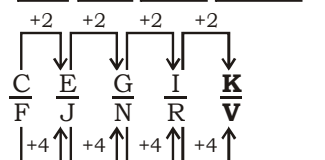
24. (D)



26. (A)

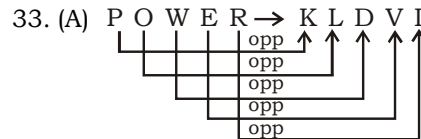
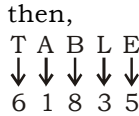
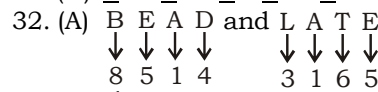


28. (A)

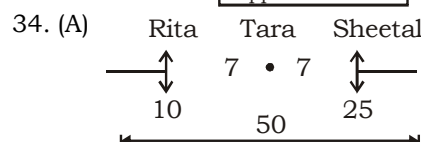
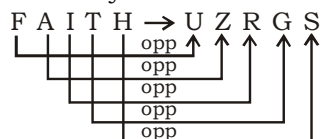


30. (B)

31. (D) **b a b d b a b d b a b d b a b d**



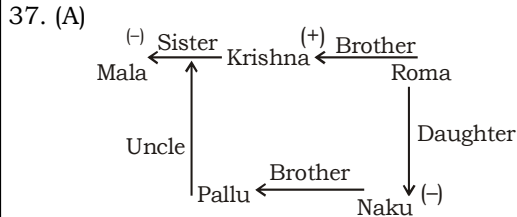
Similarly



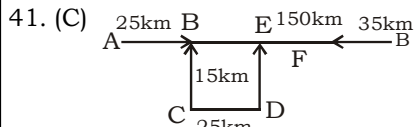
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- Position of Tara from the front
 10 (Position of Rita) + 7 + 1 (Tara) = 18
35. (A) $5 \times (8 - 3) = 25$
 $5 \times 5 = 25$
36. (A) $5 + 6 \times 3 - 12 \div 2 = 17$
 $5 + 6 \times 3 - 6 = 17$
 $5 + 18 - 6 = 17$
 $23 - 6 = 17$
 $17 = 17$

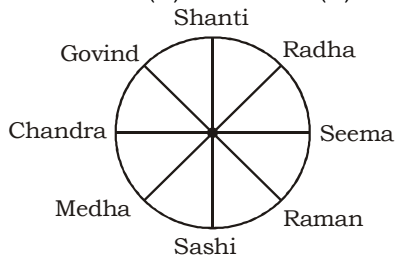


38. (C) SCHOOL
39. (C) 937 (28) 216
 521 (?) 418
 (28) → 9 + 3 + 7 + 2 + 1 + 6 = 28
 Similarly
 (?) → 5 + 2 + 1 + 4 + 1 + 8 = **21**
40. (C) $9 \times 7 \times 3 = 189$
 $8 \times 9 \times 2 = 144$
 Similarly,
 $3 \times 4 \times x = 96$
 $12x = 96$
 $\therefore x = 96 \div 12$
 $\therefore x = 8$

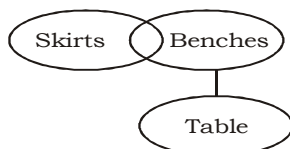


Required distance = DF =
 AB - (AE + BF)
 = 150 - (50 + 35)
 = 150 - 85 = 65 km

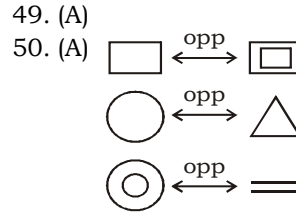
42. (D) SUGARCANE
 43. (B) 44. (C) 45. (B)
 46. (D)



47. (A)
 48. (B)



Conclusions : I = ×
 II = ✓
 III = ×
 IV = ×



103. (D) For Air,
 $\gamma = 1.4$

$$C_p = 1.008 \text{ kJ/kg-K}$$

$$C_v = 0.728 \text{ kJ/kg-K}$$

$$R = 0.287 \text{ kJ/kg-K}$$

104. (C) $R = C_p - C_v$

105. (D) $\gamma = 1.4$

106. (C) $W = \int P(V_2 - V_1)$
 $= \int P(0) = 0$

107. (B) Does not depend on path history
 (T, P, V)

108. (B) $\eta = 1 - \frac{T_L}{T_H} = 1 - \frac{0}{T_H} = 1 = 100\%$

(When $T_L = 0$)

108. (D) It is the heat content of a body. Its unit is joule.

$$H = U + PV.$$

110. (C) For isothermal process $dU = 0$
 U is the function of T only, for ideal gas.

130. (A) $E = 2G(1 + \mu)$
 $\mu = 0.5$
 $E = 3G$

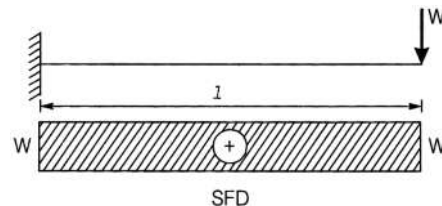
131. (B) $E = 2G(1 + \mu)$
 $120 = 2 \times 50(1 + \mu)$
 $\mu = 0.2$

132. (B) Shearing area = $4\sqrt{12}Dt$

$$(\pi Dt)\tau = P \times \frac{\pi D^2}{4}$$

$$\tau = \frac{PD}{4t} = \frac{1.5 \times 1250}{4 \times 12} = 39.06 \text{ MPa}$$

133. (C)



134. (C) Bending moment at B = $\frac{W}{2} \times \frac{L}{2} = \frac{WL}{4}$

135. (A) Bending moment at fixed end
 $= \frac{2}{2} \times 37.5 \times 1000 \times 2 \times 1000$

- $= 50 \times 10^6 \text{ N-mm}$
136. (A) In reverted gear train, first and last gear is on the same axis such an arrangement has application on speed reducers, clocks and machine tools.
139. (B) y-axis : Controlling force
x-axis : radius of rotation
141. (C) Coefficient of friction for Ball and Roller bearings are very low hence they are known as antifriction bearing.
142. (B) Ball bearing may deform at heavy loads.
146. (d) The pressure at any point in a fluid at rest has the same magnitude in all directions. In other words, when a certain pressure is applied at any point in a fluid at rest, the pressure is equally transmitted in all the direction and to every other point in the fluid. It is known as Pascal's Law.
148. (C) Dynamic viscosity, $\mu = \rho\nu$
 $= (0.9 \times 1000) \times (0.28 \times 10^{-4})$
 $= 0.0252 \text{ Ns/m}^2$
150. (A) Hydrostatic law states that the pressure varies with the depth, in a static fluid.
151. (D) $P = P_0 + \frac{4s}{r} = P_0 + \frac{8s}{D}$
153. (A) $P = \bar{\rho}gH$
 $= 13.6 \times 10^3 \times 9.812 \times 20 \times 10^{-2}$
 $= 26.68 \text{ kPa}$
155. (A) At inlet of reaction turbine water is admitted with high pressure head (above atmospheric pressure) with some kinetic energy. The pressure head of water gradually decreases from inlet to exit. Finally water leaves the runner with low pressure and small kinetic energy to tail race.

156. (B) $Pu = \frac{P}{(H)^{3/2}}$

$$P \propto (H)^{3/2}$$

$$\frac{1000}{P} = \left(\frac{40}{20}\right)^{3/2}$$

$$P = \frac{1000}{(2)^{3/2}} = 353.55 \text{ kW}$$

157. (C) Head loss in a turbulent flow
 $H_L = V^{1.7 \text{ to } 2}$

159. (A) $V = \frac{Q}{A} = \frac{6 \times 10^{-3}}{40 \times 10^{-4}} = 1.5 \text{ m/s}$

162. (C) Q = Quarternary Joint

T = Ternary Joint

B = Binary Joint

$$1Q = 3B$$

$$1T = 2B$$

164. (A) L = 4

$$J = 5$$

$$\text{DOF} = 3(4 - 1) - 2 \times 5$$

$$= 9 - 10 = -1$$

169. (D) $h = \frac{895}{N^2}$

$$h \propto \frac{1}{N^2}$$

171. (C) Friction at the sleeve makes the governor less sensitive.

173. (B) $\frac{T_1}{T_2} = e^{\mu\theta}$

176. (D) Gun Metal: It is an alloy of copper, Tin and Zinc.

Phosphorous Bronze: It is most important alloy of Copper and Tin.

White Metal: it is also called Babbitt.

181. (B) Due to production of long continuous chips in case of soft material, continuous chips forced to enter into the space between the abrasive grains and leads to frequent clogging of wheel.

186. (C) Spot facing is similar to counter boring, but removes only a very small portion of material around the existing hole to provide a flat surface square to the hole axis. This is normally done to provide a bearing surface for a washer or a nut or the head of a bolt.

190. (A) Centre-less grinding is used for grinding cylindrical workpieces without actual fixing the workpiece.