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

Answer-key & Solution

SSCJE (Mechanical)

MOCK -(81)

Date 14/01/2017

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

1. (A) People of France are called French and people of Holland are called Dutch.

2. (B) As $\frac{525}{21} = 25$

Similarly, $\frac{315}{21} = 15$

3. (D)
$$\begin{array}{ccccccccc} & & & & +2 & & & & \\ & & & & \downarrow & & & & \\ A & B & C & D & & F & G & I & H \\ \uparrow & \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow & \uparrow \\ +1 & +1 & +1 & +1 & & +1 & +1 & -1 & \end{array}$$

$$\begin{array}{ccccccccc} & & & & +2 & & & & \\ & & & & \downarrow & & & & \\ Y & Z & A & B & & D & E & G & F \\ \uparrow & \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow & \uparrow \\ +1 & +1 & +1 & +1 & & +1 & +1 & -1 & \end{array}$$

4. (D) A **hydrant** is a source of water and tree is a source of sap.

5. (C) As, B E H K
 ↓ ↓ ↓ ↓ (Opposite)
 Y V S P

Similarly, CFIL → XURO

6. (C) On observing every options, we have.

(a) 16, 25 ⇒ (4)², (5)²

(b) 36, 49 ⇒ (6)², (7)²

(c) 64, 83 ⇒ (8)², 83

(d) 100, 121 ⇒ (10)², (11)²

7. (B) Frog, Turtle and Crab can survive without water whereas fish can't.

8. (C) Except (63), rest are prime numbers.

9. (D) (a) $X \xrightarrow{+2} Z \xrightarrow{-1} Y$

(b) $M \xrightarrow{+2} O \xrightarrow{-1} N$

(c) $P \xrightarrow{+2} R \xrightarrow{-1} Q$

(d) $E \xrightarrow{-4} A \xrightarrow{+2} C$

10. (C) 1986 1988 1990 1992 1994

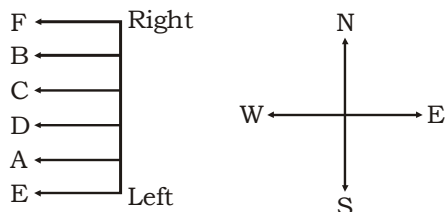
$$\begin{array}{cccccc} \boxed{17} & 35 & 71 & 125 & 197 \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ +18 \times 1 & +18 \times 2 & +18 \times 3 & +18 \times 4 & \end{array}$$

11. (C) As, $(1 \times 2) (2 \times 2) (4 \times 2) = 248$

and $(1 \times 2) (2 \times 2) (3 \times 2) = 246$

then, $(3 \times 2) (2 \times 2) (4 \times 2) = 648$

12. (B) The order in which boys are sitting is mentioned below.



13. (B)

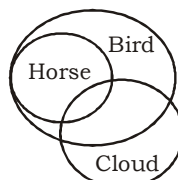
14. (C)

15. (C)

16. (C) Page → Books → Bookshelf →

(1) (4) (2)
Library → School
(3) (5)

17. (A)



So, only conclusion I follows.

18. (A) $\sqrt{49} - \sqrt{4} + \sqrt{25}$
⇒ 7 - 2 + 5 = 10

$\sqrt{81} - \sqrt{49} + \sqrt{16}$
⇒ 9 - 7 + 4 = 6

$\sqrt{64} - \sqrt{9} + \sqrt{36}$
⇒ 8 - 3 + 6 = 11

19. (D) $2 = \sqrt{24 - 20}$

$3 = \sqrt{39 - 30}$

$4 = \sqrt{56 - 40}$

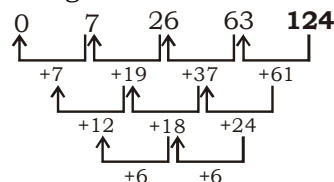
20. (A) After interchanging the signs as per option (A), we have.

$2 \times 3 + 6 - 12 \div 4 = 17$

⇒ $2 + 3 \times 6 - 12 \div 4 = 17$

⇒ $2 + 18 - 3 = 17$

21. (C) The given series is

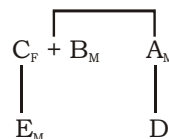


22. (B) The given letter series is

D M N N / D M N N / D M N N

23. (A)

24. (D) After drawing the relational diagram, we have,



Clearly, we can say that E is the cousin of D.

25. (C)

26. (D) As, $(1)^2 = 1$

Similarly, $(25)^2 = 625$

27. (B) Video is stored in a cassette and Computer uses floppy to store the data.

28. (C) As, A D H M

 ↓ ↓ ↓ ↓ (opposite letters)

 Z W S N

- Gandhi's Prime ministership — "the security of India" was declared "Threatened by internal disturbances."
60. (D) A rainbow is an optical phenomenon that is caused by both reflection and refraction of light in water droplets resulting in a spectrum of light appearing in the sky. It is caused by light being refracted inside on the back of the droplet and refracted again when leaving it.
62. (A) Social accounting is a method by which a firm seeks to place a value on the impact on society of its operations. It is a systematic analysis of the effects of the organisation on its shareholders, with stakeholder input as part of the data that are analysed for the accounting statement. One social accounting system primarily attempts to measure National Income, final product, consumption and accumulation of capital.
63. (C) Relative humidity is the amount of moisture in the air compared to what the air can hold at that temperature. It signifies the mass of water vapour present in the air expressed as a percentage of the mass that would be present in an equal volume of saturated air at the same temperature. So Relative humidity is normally expressed as a percentage.
66. (C) The standard of living is a measure of the material welfare of the inhabitants of a country. The baseline measure of the standard of living is real national output per head of population or real GDP per capita. This is the value of national output divided by the resident population. Other things being equal, a sustained increase in real GDP increases a nation's standard of living providing that output rises faster than the total population.
68. (C) Bhatkal, also known as Batecala in some Portuguese historical texts is a port town in Uttara Kannada district of Karnataka. Alappuzha also known as Alleppey, is a city in Alappuzha District of Kerala state of southern India. Kakinada is a city and a municipal corporation in the headquarters of East Godavari district of Andhra Pradesh. Thoothukudi, also known as Tuticorin, is a port city and a Municipal Corporation in Thoothukudi district of the Indian state of Tamil Nadu.
71. (C) In HTML, The Bold element specifies that the enclosed text should be displayed in boldface. The Underlined element specifies that the enclosed text should be displayed underlined. The Italic element specifies that the enclosed text should be italicized.
73. (B) Woodrow Wilson quipped, "A living things is born" after the League Covenant was drafted in 1919. The League was an inter-governmental organisation founded on 10th January 1920 as a result of the Paris Peace Conference that ended the First World War.
76. (C) Under the Indian legal system, jurisdiction issues 'prerogative writs'. It is given to the Supreme Court and to the High Courts of Judicature of all Indian states. Parts of the law relating to writs are set forth in the Constitution of India. The Supreme Court which is the highest in the country, may issue writs under Article 32 of the Constitution for enforcement of Fundamental Rights and under Articles 139 for enforcement of rights other than Fundamental Rights, while High Courts, the superior courts which is of the States, may issue writs under Articles 226.
79. (C) After the Second Battle of Tarain and the foundation of Muslim rule in India, Muhammad Ghori returned west to Ghazni to deal with the threat to his western frontiers from the unrest in Iran, where he appointed Qutb-ud-din Aibak as his regional governor for northern India. His armies, mostly under Turkic generals continued to advance through northern India, raiding as far east as Bengal. Aibak ransacked Ayodhya temples in 1193, followed by his conquest of Delhi.
80. (C) Vijayanagara is in Bellary District, northern Karnataka. It is the name of the now-ruined capital city that surrounds modern-day Hampi, of the historic Vijayanagara empire which extended over the southern part of India. The name translates as 'City of Victory', from vijaya (victory) and nagara (city). As the prosperous capital of the largest and most powerful kingdom of its time in all of India, Vijayanagara attracted people from all around the world.
83. (B) Terrace farming is a type of farming that was developed first by the Inca people. This method of farming uses "steps", called andenes that are built into the side of a mountain or hill. On each anden, various crops are planted, and when it rains, instead of washing away all of the nutrients they are stopped and protected in the next level. Additionally, these "steps" prevent a free flowing avalanche of water that would take plants with it and destroy all of the crops on the hillside.

84. (D) The Kanger Ghati National Park, near Jagdalpur, in the Bastar region of Chhattisgarh is one of the most beautiful and densest National Park which is well known for its Biodiversity with picturesque landscape, magnificent waterfalls and very famous subterranean geomorphologic limestone caves.
86. (C) Anamudi is located in the Indian state Kerala. It is the highest peak in the Western Ghats and South India, at an elevation of 2,695 metres. The name Anamudi literally translates to "elephant's forehead", a reference to the resemblance of the mountain to an elephant's head.
89. (B) The Kaveri, also spelled Cauvery in English, is a large Indian river. The origin of the river is traditionally placed at Talakaveri, Kopagu in the Western Ghats in Karnataka, flows generally south and east through Karnataka and Tamil Nadu and across the southern Deccan plateau through the south-eastern lowlands, emptying into the Bay of Bengal through two principal mouths. Rising in south-western Karnataka, it flows in south-east, some 800 km to enter the Bay of Bengal.
90. (C) Chloroform was once a widely used anaesthetic. Its vapour depresses the central nervous system of a patient, allowing a doctor to perform various activities and may damage the liver where chloroform is metabolized to phosgene.
92. (D) Sea weed is a sourced of iodine, necessary for thyroid function and to prevent goitre. However, an excess of iodine is suspected in the heightened cancer risk in Japanese who consume a lot of the plant, and even bigger risks in post-menopausal women.
93. (A) Xerophthalmia is a medical condition in which the eye fails to produce tears. It may be caused by a deficiency in vitamin A and is sometimes used to describe that lack, although there may be other causes, Xerophthalmia caused by a severe vitamin A deficiency. It is described by pathologic dryness of the conjunctiva and wrinkled. If untreated, it can lead to corneal ulceration and ultimately to blindness as a result of corneal damage.
94. (A) The longest cell in human body is nerve cell. The ovum is the largest cell in the human body, typically visible to the naked eye without the aid of a microscope or other magnification device. The smallest is the male sperm cell, it is one-tenth of the diameter of a human hair. Now, it is true that neurone can have very long extensions or axons, the axon isn't a cell, but a peripheral extension. The actual neuron is tiny compared to the egg cell.
97. (C) The Rajiv Gandhi Khel Ratna (RGKR) is Indira's highest honour given for achievement in sports. The words "Khel Ratna" literally mean "sports gem" in Hindi. The award is named after the late Rajiv Gandhi, former Prime Minister of India. It carries a medal, a scroll of honour and a substantial cash component. Till ₹ 2004-05, the cash component was ₹ 500,000. The money has been increased from ₹ 500,000 to ₹ 750,000. Mahendra Singh Dhoni is an Indian cricketer and the current captain of the Indian national cricket team and the Chennai Supper Kings cricket team. He made his One Day International (ODI) debut in December 2004 against Bangladesh, and a year later played his first Test, against Sri Lanka.
98. (B) Dr. Babasaheb Ambedkar is an Indian feature film in English language, directed by Jabbar Patel. The role of Ambedkar was played by actor Mammooty: He won the National Film Award for Best Actor that year. Dr. Babasaheb Ambedkar won the National Film Awards for Best feature film in English and Best Art Direction in 1999.
99. (A) Rita Ang Sherpa, a Nepalese mountaineer has the feat of climbing Mount Everest ten times without oxygen. He first conquered Mount Everest in 1983 and then in 1984 and 1985. He went twice in 1988 and was victorious on both attempts. After these successful expeditions he continued to climb it once a year in 1990, 1992, 1993, 1995 and 1996. This resulted in him having conquered Mount Everest ten times and creating a new world record.
113. (A) $\int p dv = - \int v dp$
or $\int p dv = + \int v dp = 0$ or $\int p (dv) = 0$
That gives; $p v = \text{constant}$ i.e., isothermal process
114. (B) Theoretical $\eta = \frac{T_1 - T_2}{T_1} = 1 - \frac{T_2}{T_1} = 1 - \frac{3}{5} = 0.4$
Actual $\eta = \frac{\text{work done}}{\text{heat supplied}} = 0.4 \times 0.75 = 0.3$
That is 30% of heat supplied is converted into work.
115. (C) As per Clausius inequality:
- cycle is reversible if $\frac{dQ}{T} = 0$
 - cycle is irreversible if $\frac{dQ}{T} < 0$

• cycle is impossible if $\frac{dQ}{T} > 0$

132. (A) Elastic energy

$$= \left(\frac{1}{2} \times \text{stress} \times \text{strain} \right) \times \text{volume}$$

$$= \frac{1}{2} \left(\frac{F}{A} \right) \times \frac{\Delta l}{l} \times (Al)$$

$$= \frac{1}{2} \times F \times \Delta l = \frac{1}{2} \times 200 \times \frac{1}{1000} = 0.1 J$$

135. (A) Maximum bending stress $(\sigma_b)_{\max}$

$$= \frac{M}{\frac{\pi}{32} d^3} = \frac{32M}{\pi d^3}$$

$$\text{Maximum shear stress } \tau_{\max} = \frac{T}{\frac{\pi}{16} d^3} = \frac{16T}{\pi d^3}$$

$$\therefore \frac{\tau_{\max}}{(\sigma_b)_{\max}} = \frac{T}{2M} = T : 2M$$

145. (D) Length of shear plane =

$$\frac{t_1}{\sin \phi} = \frac{2}{\sin 30} = 4 \text{ mm}$$

152. (C) Heat transfer takes place according to second law of thermodynamics as it tells about the direction and amount of heat flow that is possible between two reservoirs.

159. (D) Pressure inside rain drop

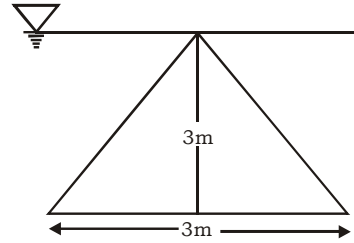
$$= \frac{4\sigma}{d} = \frac{4 \times 0.073}{0.001}$$

196. (A) Barometer measured the atmospheric pressure

$$P_{\text{atm}} = \rho gh$$

If there is a hole in the vacuum portion, then there will be zero pressure difference at top and bottom of the tube. The mercury in the tube will show zero reading i.e. if it will fall and get collected in reservoir.

197. (A)



$$F = \rho g A \bar{x}$$

$$= 1000 \times 10 \times \frac{3 \times 3}{2} \times \frac{2}{3} \times 3$$

$$F = 90 \text{ KN}$$

198. (D) Let the volume = V

According to principle of Buoyancy

$$0.75V + 75 = 1.25V$$

$$75 = 11.25 - 0.75V$$

$$V = 150 \text{ m}^3$$

199. (C) $V = C_v \sqrt{2gh}$

$$C_v = 1 \text{ given}$$

$$h = \frac{p}{\rho g} = \frac{100 \times 10^3}{0.8 \times 10^3 \times 9.81}$$

$$V = \sqrt{2 \times 9.81 \times \frac{100 \times 10^3}{0.8 \times 10^3 \times 9.81}} = 15.8 \text{ m/s}$$

$$V = 15.8 \approx 16 \text{ m/s}$$

200. (A) For flow to be laminar

$$0 \leq \text{Re} \leq 2000$$

for Highest velocity, $\text{Re} = 2000$

$$\mu = 0.01 \text{ poise} = 10^{-3} \text{ Ns/m}^2$$

$$2000 = \frac{\rho VD}{\mu}$$

$$2000 = \frac{1000 \times V \times 6 \times 10^{-3}}{10^{-3}}$$

$$V = \frac{1}{3} \text{ m/s} = \frac{100 \text{ cm}}{3 \text{ s}}$$