



KD Campus Pvt. Ltd

PLOT NO.2, SSI INDUSTRIAL AREA, G.T. KARNAL ROAD, JAHANGIRPURI, DELHI-110033

Answer-key & Solution

SSC JE (Mechanical)
MOCK -(146)
Date:- 02.09.2018

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

1. (C) As, $(3 + 3)^3 = 216$
Similarly, $(5 + 5)^3 = 1000$
2. (A) As,

Similarly,
3. (C) As, Taste is the action by Tongue. Similarly, **Touch** is the action by skin.
4. (D) Except **Fish**, others are amphibian.
5. (D) Except **STRM**, others have vowel.
6. (A) **1728** is a perfect cube.
7. (B) Harvest → Hearse → Horizon → Hormone → Horrendous
8. (D) P E A C E
@ % φ @
9. (B) **MAGNATE**
10. (B) Total number of persons = $17 + 17 - 1 = 33$
11. (A) $1, 3, 7, 13, 21, 31$
12. (B)

A	+6	G	+6	M	+6	S
D		J		P		V
13. (C) $8 = 4 = 12$
 $4 + 12 = 16$
 $12 + 16 = 28$
 $16 + 28 = 44$
14. (D) As, BRIDGE has 6 Alphabets
 $\therefore \text{BRIDGE} \Rightarrow 6 \times 2 = 12$
 Similarly, BRICK has 5 Alphabets
 $\therefore \text{BRICK} \Rightarrow 5 \times 2 = 10$
15. (D)

 \therefore Required direction = West

16. (A) $(15 + 12) \div 3 = 9$
 $(44 + 28) \div 8 = 9$
 $(64 + 53) \div 13 = 9$
17. (B) $9 \times 6 \times 5 = 270$
 $7 \times 8 \times 6 = 336$
 $8 \times 4 \times 7 = 224$
26. (C) As, 'Do or die' was the slogan given by Mahatma Gandhi. Similarly, 'Satyamev Jayate' was the slogan given by **Madan Mohan Malviya**.
27. (B) As,

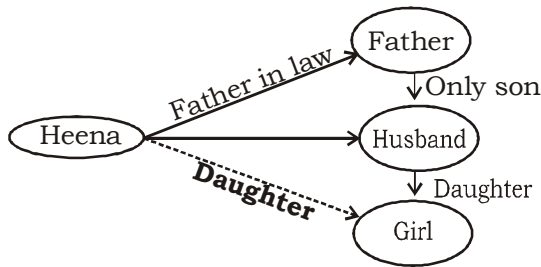
 Similarly,
28. (A) As, $86 \Rightarrow \frac{8 \times 6}{2} = 24$
 Similarly, $92 \Rightarrow \frac{9 \times 2}{2} = 9$
29. (D) Except **'Solar energy'**, others are non-renewable sources.
30. (D) Except **'725'**, others are perfect square number.
31. (C)

C	DD	ER	SS	T
+	+	+	+	+
1	1	1	1	1

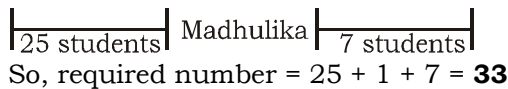
W	YY	ZM	NN	O
+	+	+	+	+
2	1	1	1	1
32. (C) Impertinent → Important → Importune → Impress → Improvise
33. (B)

BAZ	EDC	IHG	NML
+	+	+	+
3	4	5	5
34. (C) $48, 49, 52, 49, 64$

35. (C)



36. (B)

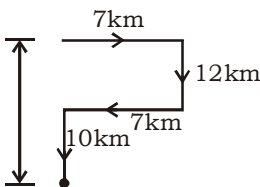


37. (C) **LOCKET**

38. (A) As, RAID has 4 letters $\therefore (4)^2 = 16$
and, DEVGN has 5 letters $\therefore (5)^2 = 25$
Similarly, DRASTIC has 7 Letters $\therefore (7)^2 = \mathbf{49}$

39. (A) $24 + 8 \div 12 \times 256 - 16$
After changing the signs as per the given details,
 $24 \times 8 + 12 - 256 \div 16 = \mathbf{188}$

40. (A)

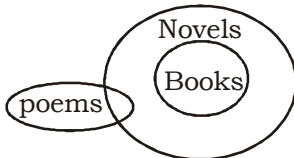


Required distance = 12 + 10 = 22 km and,
and, Required direction = South

41. (C) $(2 \times 3) + 4 = 10$
 $(6 \times 12) + 20 = 92$
 $(5 \times 7) + 9 = \mathbf{44}$

42. (B) $2^3 + 3^3 = 35$
 $4^3 + 2^3 = 72$
 $3^3 + 5^3 = \mathbf{152}$

43. (A)



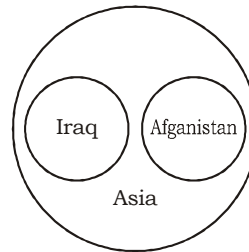
I. True
II. False
Hence, only Conclusion I follows.

44. (C) 15 triangles

45. (C) **ab/abc/abcd**

46. (B) 14 Feb 2006 - Tuesday
14 Feb 2007- Wednesday
14 ---- 2008- Thursday
14 --- 2009- **Saturday** [\therefore 2008 is leap year]

47. (C)



51. (A) The main watchdog of International Trade is World Trade Organization (WTO). WTO is a permanent international trade body which replaced the General Agreement on Tariff and Trade (GATT) on January 1, 1995. Its headquarters is in Geneva .WTO is the only global international organization dealing with the rules of trade between nations.

53. (A) Post the elections, the MLAs from the ruling party elect their leader who goes on to becoming the Chief Minister. The Chief Minister then selects other MLAs as his ministers. Once that is done, the Governor of the state appoints the Chief Minister and all other ministers.

54. (C) The Maurya Empire (322 BCE - 185 BCE) was an Iron Age power in ancient India ruled by the Maurya Dynasty. The famous ruler of the Mauryan Dynasty was Ashoka. Ashoka was famous because he ruled almost all the Indian Subcontinents and propagated the policy of dhamma.

55. (B) Khan Abdul Ghaffar, also known as or Badshah Khan was a Pashtun non-violent activist and close confidant of Mahatma Gandhi. He was born a Pashtun in 1890 in the Northwest border city of Utmanzai, located in today's Pakistan. His family was wealthy landowners.

56. (C) Zero degrees latitude is the line designating the Equator and divides the Earth into two equal hemispheres (north and south). Zero degrees longitude is an imaginary line known as the Prime Meridian.

57. (A) A lithosphere is the solid portion of the earth that has the composition of the crust and the portion of the upper mantle or earth's surface. It extends to a depth of about 60 mi (100 km).

58. (C) Menopause is a phase of life in women that signifies the end of their reproductive period. It signifies the end of menstruation. This means that the

ovaries of the women stop producing an egg every four weeks and there is no monthly period. Beyond menopause a women will no longer be able to have children.

59. (C) Protons and neutrons are both nucleons, which may be bound together by the nuclear force to form atomic nuclei. The nucleus of the most common isotope of the hydrogen atom is a lone proton.

60. (C) Phosphorus and nitrogen are examples of Nutrients of impurities in sewage.

Type of impurities Examples

- Organic impurities : Human faces, animal waste, oil, urea (urine), pesticides, herbicides, fruits and vegetables
- Inorganic impurities : Nitrates, phosphates, metals
- Nutrients impurities : Phosphorus, nitrogen
- Bacteria impurities : Various types; such as those causing cholera, typhoid, etc.

62. (C) In 1869 Russian chemist Dmitri Mendeleev started the development of the periodic table, arranging chemical elements by atomic mass.

63. (A) Ratha Yatra or Chariot Festival is a Hindu festival associated with Lord Jagannath held at Puri in the state of Odisha, India. Jagannath is considered a form of Vishnu. He is a part of a triad along with his brother Balabhadra and sister Subhadra.

64. (D) Andy Marino is a British writer. He is the author of "Narendra Modi; A Political Biography", published by Harper Collins. His biography on Modi is remarkable because of his unprecedented access to Modi, he was "the only foreigner known to have unfettered access to Mr. Modi".

66. (D) One of the essential conditions of "perfect competition" is same price for same things at one time. A perfectly competitive market has the following characteristics:

- There are many buyers and sellers in the market.
- Each company makes a similar product.
- Buyers and sellers have access to perfect information about price.
- There are no transaction costs.
- There are no barriers to entry into or exit from the market.

67. (A) Bank of Bengal, Bank of Bombay and Bank of Madras amalgamated on January 27, 1921 and the Imperial Bank of India was formed under the Imperial Bank of India Act, 1920. After Independence, the Imperial Bank of India was nationalized under the State Bank of India Act, 1955 and State Bank of India (SBI) was formed.

70. (B) Rakhigarhi is a village in Hisar District in the state of Haryana in India. It is the site of a pre-Indus Valley Civilization settlement going back to about 6500 BCE. Later, it was also part of the mature Indus Valley Civilization, dating to 2600-1900 BCE.

71. (A) Chor Minar or 'Tower of Thieves' is a 13th-century minaret with 225 holes, situated just off Aurobindo Marg in the Hauz Khas area, in New Delhi. It was built under the rule of Alauddin Khalji, of the Khalji dynasty (1290-1320) in the thirteenth century.

74. (A) The instrument used to regulate temperature to a particular degree is called Thermostat. Thermostats use different types of sensors to measure the temperature.

75. (B) The 'SAMPADA' scheme of Government of India is related to Food processing. The objective of PMKSY is to supplement agriculture, modernize processing and decrease agriculture-Waste.

76. (C) **Lead Sulphide** is an inorganic compound with the formula PbS. **PbS**, also known as **galena**, is the principal ore, and most important **compound of lead**. It is a semiconducting material with **niche** uses.

77. (C) The **mangrove flora** of the world is represented by about 65 species. Mangrove, any of certain shrubs and trees that belong primarily to the **families Rhizophoraceae**, Acanthaceae, Lythraceae, Combretaceae, and Arecaceae; grow in dense thickets or forests along tidal estuaries, in salt marshes, and on muddy coasts; and characteristically have prop roots i.e., exposed supporting roots.

78. (C) The **benthic zone** is the ecological region at the **lowest level of a body of water** such as an ocean or a lake, including the sediment surface and some sub-surface layers. Communities of organisms that

- are dependent on each other and on their environment live in **aquatic ecosystems**.
79. (B) **Aridhaman** is an indigenously built **nuclear powered submarine** inducted in service of India Navy in 2017. It is the **second nuclear-powered ballistic missile** submarine being built by **India**.
81. (D) The **Hambantota Port** is a maritime port in Hambantota, **Sri Lanka**. It is also known as the **Port of Hambantota**. **China** recently purchased a 70 percent stake in a strategically located Hambantota deep water port.
82. (B) The 48th International Film Festival of India was held from 20 to 28 November 2017 in Goa.
- Best Film: Golden Peacock Award: **Beats per Minute** by Robin Campillo
 - Best **Director: Vivian Qu** for Angels Wear White
 - Best Debut Film of a **Director: Kiro Russo** for Dark Skull
 - IFFI Best **Actor Award (Male):** Silver Peacock Award: **Nahuel Perez Biscayart** for BPM (Beats per Minute)
 - IFFI Best **Actor Award (Female):** Silver Peacock Award: **Parvathy** for Take Off
83. (C) The **Gem Portal** of Government of India deals with **Public procurement**. Government e-Marketplace (**GeM**) is a very bold step of the Government with the aim to transform the way in which procurement of goods and services is done by the Government Departments, PSUs, autonomous bodies etc.
84. (B) **Ram Nath Kovind** is the **14th** and current President of India, in office since 25th July 2017. Previously he had served as the **Governor of Bihar** from 2015 to 2017 and was a Member of Parliament, Rajya Sabha from 1994 to 2006.
86. (B) A **constellation** is a **group of stars** that is considered to form imaginary outlines or meaningful patterns on the celestial sphere, typically representing animals, mythological people or gods, mythological creatures, or manufactured devices.
87. (B) The erythrocyte is commonly known as a red blood cell. Oxygen is one of the substances transported with the assistance of red blood cells. The red blood cells contain a pigment called hemoglobin, each molecule of which binds four oxygen molecules.
88. (D) The **gas exchanger** in mammals is **internalized** to form lungs, as it is in most of the larger land **animals**. Gas exchange occurs in microscopic dead-end air-filled sacs called **alveoli**, where a very thin membrane separates the blood in the alveolar capillaries from the alveolar air in the sacs.
89. (B) The number of atoms present in a molecule of an element is known as its **Atomicity**. Based on atomicity, molecules are **classified** into **3 categories**. They are Monoatomic Molecule Atomicity-1 Eg- Argon, Helium & Neon etc.
94. (C) **Megasthenes** was the ambassador sent to the court of **Chandragupta Maurya** by Greek ruler of West Asia, **Seleucus Nicator**. Megasthenes wrote an account of India and also that of Chandragupta's reign in his book entitled "**INDIKA**".
95. (C) **Lord Dufferin** (1826-1902) was the Governor General and Viceroy of India from 1884 to 1888). **Womesh Chandra Bonnerjee** was the first president of Congress; the first session was attended by **72** delegates.
96. (B) Mohandas Karamchand Gandhi was an Indian activist who was the leader of the Indian independence movement against British rule. At the request of Gopal Krishna Gokhale, conveyed to him by C. F. Andrews, Gandhi returned to India in 1915. He brought an international reputation as a leading Indian nationalist, theorist and community organizer.
99. (A) Economists divide the factors of production into four categories: land, labour, capital, and **entrepreneurship**. The **first factor** of production is **land** and **second factor** of production is **labour** but this includes any natural resource used to produce goods and services.
100. (C) **Buffer stock** is the **stock** of food grains procured by the government through **Food Corporation of India (FCI)**. It is created in order to distribute food grains in deficit areas and among poorer section of society at an affordable price.
101. (C) Given $P_2 = 2P_1$
 $V_2 = 2V_1$
 $T_1 = 27^\circ\text{C} = 273 + 27 = 300\text{ K}$
 we know,

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{P \times V}{300} = \frac{2P \times 2V}{T_2}$$

$$T_2 = 1200 \text{ K}$$

$$T_2 = 927^\circ\text{C}$$

103.(B) Given $F_1 = 10\text{N}$

$$F_2 = 10 \text{ N}$$

$$\theta = 90^\circ$$

We know ,

$$R = \sqrt{F_1^2 + F_2^2 + 2F_1 F_2 \cos \theta}$$

$$= \sqrt{(10)^2 + (10)^2 + 2 \times 10 \times 10 \times \cos 90^\circ}$$

$$= \sqrt{100 + 100 + 0} = 10\sqrt{2}\text{N}$$

104.(C) Given, $N_E = 200 \text{ rpm}$

$$D_E = 51 \text{ cm}$$

$$D_S = 30 \text{ cm}$$

We know,

$$\frac{N_S}{N_E} = \frac{D_E}{D_S} = \frac{51}{30}$$

$$N_S = \frac{200 \times 51}{30} = 340 \text{ rpm}$$

105.(C) Given $D = 40 \text{ cm}$

$$P = 10 \text{ kw}$$

$$N = 250 \text{ rpm}$$

$$\phi = 20^\circ$$

We know,

$$P = T\omega = \left(\frac{F}{\cos \phi} \frac{D}{2} \right) \frac{2\pi N}{60}$$

$$F = \frac{P \times 60 \times 2 \times \cos \phi}{D \times 2\pi \times N}$$

$$= \frac{10 \times 10^3 \times 60 \times 2 \times \cos 20}{40 \times 10^{-2} \times 2\pi \times 250}$$

$$F = 1794 \text{ N}$$

106.(A) Given $L = 4 \text{ m}$

$$W = 8 \text{ kN}$$

In simply supported beam, maximum bending moment given by

$$= \frac{WL}{4} = \frac{8 \times 10^3 \times 4}{4}$$

$$= 8 \text{ kNm}$$

107.(A) Given $d = 1.5 \text{ cm}$

$$D = 15 \text{ cm}$$

$$W = 1000 \text{ kg}$$

According to Pascal's Law,

$$\frac{F}{a} = \frac{W}{A}$$

$$F = \frac{W \times a}{A} = \frac{W \times d^2}{D^2}$$

$$= \frac{1000 \times 1.5^2}{15^2} = 10 \text{ kg}$$

108.(B) Only forces in option 'B' i.e. 3 & 1 kg will have resultant $\sqrt{10}$, if they are acting at 90° .

121.(A) Given $D = 150 \text{ mm}$

$$N = 3000 \text{ rpm}$$

$$V = \frac{\pi DN}{60 \times 1000}$$

$$= \frac{\pi \times 150 \times 3000}{60 \times 1000} = 7.5\pi$$

122.(D) Given $f_2 = 2 f_1$

We know, $h_1 = \frac{f_1^2}{8R_1}$

$$h_2 = \frac{f_2^2}{8R_2}$$

If $h_1 = h_2$

$$\frac{f_1^2}{8R_1} = \frac{f_2^2}{8R_2}$$

$$\frac{f_1^2}{8R_1} = \frac{4f_1^2}{8R_2}$$

$$R_2 = 4R_1$$

138.(D) $h = 1\text{m}$

$$P = \rho gh$$

$$= 1000 \times 9.81 \times 1 = 9810 \text{ Pa}$$

140.(A) Given $D = 20 \text{ cm}$

$$\nu = 0.0101 \text{ stoke}$$

$$\nu = 0.0101 \times 10^{-4} \text{ m}^2/\text{sec}$$

$$Re = 2320$$

$$Re = \frac{\rho VD}{\mu} = \frac{VD}{\nu}$$

$$V = \frac{2320 \times 0.0101 \times 10^{-4}}{20 \times 10^{-2}}$$

$$= 116 \times 0.0101 \times 10^{-2} = 1.1716 \text{ cm/sec}$$



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144.(D) Net weight = weight - Buoyancy force

$$W_{net} = w - F_B$$

In air ($F_B = 0$)

$$W_{net} = w = 60 \text{ gm}$$

In water

$$50 = 60 - \rho_w \cdot V$$

$$V = \frac{10}{\rho_w} \dots\dots\dots(i)$$

& In Oil

$$40 = 60 - \rho_o \cdot V$$

$$\rho_o \cdot V = 20$$

from equation (i)

$$\rho_o \cdot \frac{10}{\rho_w} = 20$$

$$S_o = 2$$

179.(A) Given $\mu = 0.25$

We know,

$$E = 2G (1 + \mu)$$

$$\frac{G}{E} = \frac{1}{2(1 + \mu)}$$

$$= \frac{1}{2(1 + 0.25)} = \frac{1}{2.5}$$

$$\frac{G}{E} = 0.4$$