



KD Campus Pvt. Ltd

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

Answer-key & Solution

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

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

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

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.
104. (A) The Government of India set-up Bureau of Energy efficiency (BEE) on 1st March 2002 under the provision of the Energy Conservation Act, 2001. The Mission of the Bureau of energy efficiency is to assist in developing policies and strategies with a thrust on self regulation and market principles.



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107.(B) Independent loops = $b - n + 1$
 $3 = b - 4 + 1$
 No. of branch $b = 6$

108.(A) $P_{max} = \frac{V_{th}^2}{4R_{th}}$
 $= \frac{10 \times 10}{4 \times 100} = 0.25 \text{ watt}$

113.(D) In parallel operation of a transformer, loading of the transformer gets divided between the whole set in proportion of their per unit impedances. Thus if per unit impedances are not same then loading will not be in the ratio of their KVA rating.

120.(C) Thermal Power Station -

- needs space less than that required by hydro-power station of same capacity.
- approximate efficiency is 30–40%.
- Modern steam power plant work on Rankine Cycle (45–80% efficiency)
- Operating cost of thermal power station is less than that of diesel power plant.
- Overall efficiency is product of Boiler efficiency, turbine efficiency and generator efficiency.

125.(C) The Corona decreases with increasing the diameter of the conductor. A stranded conductor exhibits more Corona than a solid conductor, the shape of cross section is a series of across of circles each of much smaller diameter than the conductor as a whole.

128.(C) $PU_{new} = 0.4 \times \left(\frac{132}{132}\right)^2 \times \left(\frac{100}{50}\right) = 0.8$

129.(D) Order of the harmonics for 12-pulse and 6-pulse bridge converters are $(12k \pm 1)$ & $(6k \pm 1)$: where k = an integer respectively

135.(A) $V \propto I^2$
 $\frac{100}{V} = \left(\frac{1}{0.5}\right)^2$
 $V = 100 \times 0.25 = 25 \text{ volt}$

136.(D) Power factor = $\cos \left[\tan^{-1} \left(\frac{\sqrt{3}(W_1 - W_2)}{(W_1 + W_2)} \right) \right]$

$$\cos \left[\tan^{-1} \left(\frac{\sqrt{3}(W - W)}{W + W} \right) \right]$$

$$= \cos \left[\tan^{-1} (\sqrt{3} \times 0) \right]$$

$$= \cos 0^\circ$$

Power factor = 1

137.(A) Test voltage for Meggering when AC voltage is used, the rule of thumb is Test Voltage (AC) = $(2 \times \text{Name plate voltage}) + 1000$

when DC voltage is used (most used in All Megger). Test Voltage (DC) = $2 \times \text{Name plate Voltage}$

138.(B) According to IE rules, the voltage at the point of commencement of supply shall not be vary more than $\pm 6\%$ in case of low voltage (250 V – 650 V), $\pm 7\%$ to 9% in the case of high voltage (upto 33kV)

140.(A) Series Capacitors will -

- increase power transmission capability
- improve system stability
- reduce system losses
- improve voltage profile of the line
- optimize power flow between parallel lines

146.(A) For switching OFF -
 open the circuit breaker > disconnect isolator > Engage earth switch > Look & Tag
 For switching ON -
 Remove Tag & Lock > Disengage earth switch > connect isolator > Close circuit breaker

153.(C) 1 tonne of refrigeration = 13,898 kJ/h
 $= 3.86 \text{ kW}$
 $= 231 \text{ kJ/min}$

154. (D) $\frac{R_A}{R_B} = \frac{l_A}{l_B}$

$$\frac{800}{100} = \frac{l_A}{l_B}$$

$$\boxed{\frac{l_A}{l_B} = 8}$$

155. (C)
 Apply KVL :

$$V(s) = \left(R + sL + \frac{1}{Cs} \right) I(s)$$

$$V(s) = \frac{(R Cs + L Cs^2 + 1)}{Cs} I(s)$$

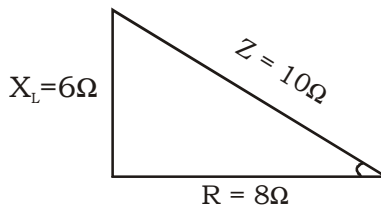
$$V(s) = \frac{LC \left(s^2 + \frac{R}{L}s + \frac{1}{LC} \right)}{Cs} I(s)$$

$$I(s) = \frac{V(s).s}{L \left(s^2 + \frac{R}{L}s + \frac{1}{LC} \right)}$$

$$I(s) = \frac{50}{0.5(s^2 + 50s + 25)} = \frac{100}{(s+5)^2}$$

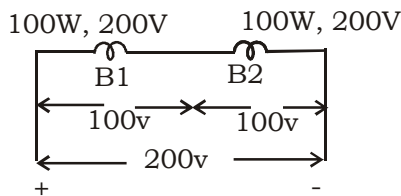
$$I(t) = L^{-1} [I(s)] = 100te^{-5t}$$

156. (D)



$$\cos\phi = R/z = 0.8 \text{ lagging}$$

158. (B)



$$R_1 = V^2 / p = (200)^2 / 100$$

Power consumed by

$$\text{Each bulb} = V^2/R$$

$$\frac{(100)^2}{(200)^2} \times 100 = \frac{100}{4} = 25 \text{ W}$$

161.(C) The purpose of the choke is to provide a very high voltage (high enough to ionize the gas that it starts emitting light) initially between the filaments, but once the gas in the tube is ionized to the desired level, the choke provides a low voltage for normal functioning until someone switches it off.

162.(D)

Lamp Type	Luminous Efficiency
Standard Filament lamp	8-15lm/W \approx 14 lm/W
Halogen Filament lamp	15-20lm/W \approx 20 lm/W
Compact Fluorescent Lamps	30-70lm/W \approx 60 lm/W
Fluorescent Tubes	60-110lm/W \approx 50 lm/W
Modern LED Lamps	30-100lm/W \approx 70 lm/W
High Pressure Mercury Lamp	44-57lm/W \approx 50 lm/W
High Pressure Sodium Lamp	67-121lm/W \approx 90 lm/W
Low Pressure Sodium Lamp	101-175lm/W \approx 150 lm/W
Metal Halide Lamp	75 lm/W

163.(C) **Activity Illumination Lux, lumen/m²**

Machine Shop	500
Printing	200
Operation theatre	1000
Drawing halls	300

165.(C) During charging and discharging, the lead on the plates gets gradually eaten away and the sediment falls to the bottom, this dead sediment is a conductive material and that makes short circuit in between the positive and negative plates and finally it becomes a full short circuit.

169.(A) SAE number, code for specifying the viscosity of lubricating oil, established by the US society of Automotive Engineers.

$$177.(C) \frac{R_1}{R_2} = \left(\frac{N_1}{N_2} \right)^2$$

$$\frac{6250}{10} = \left(\frac{N_1}{N_2} \right) = 25$$

178.(C) In case of D.C. Shunt motor

$$T = KI_a \phi$$

D.C. Shunt motor Toque $T \propto I_a$

$$I_a = 4 \text{ Amp.}$$

$$T = 20 \text{ Nm}$$

$$T = 20 \times 2 = 40 \text{ Nm}$$

182.(D) 75

$$\Delta\phi = \phi_1 - \phi_2$$

$$= \frac{\pi}{4} - \left(\frac{\pi}{6} \right)$$

$$= 45^\circ + 30^\circ = 75^\circ$$

184.(C) L = 100 mH

$$I = 1 \text{ Amp}$$

$$= \frac{1}{2} i^2 L$$

$$= \frac{1}{2} \times 1^2 \times \frac{100}{1000}$$

$$\frac{1}{20} = 0.05J$$

186.(C) According to maximum power transfer theorem-

Condⁿ for maximum power transfer

$$R_L = R_{th}$$

$$R_{th} = 3\Omega$$

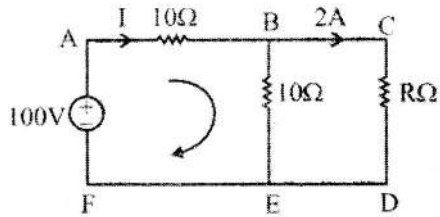
$$\frac{R \times 6}{R + 6} = 3$$

$$6R = 3R + 18$$

$$3R = 18$$

$$R = 6\Omega$$

187.(B)



apply KVL on Loop A B E F

$$100 = 10 I + 10 (I-2)$$

$$100 = 10 I + 10 I - 20$$

$$20 I = 120$$

$$I = 6 \text{ A}$$

$$V_{BE} = V_{CD}$$

$$4 \times 10 = 2 \times R$$

$$R = 20\Omega$$