



# KD Campus Pvt. Ltd

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

## Answer-key & Solution

SSC JE (Mechanical)  
MOCK -(140)  
Date:- 02.6.2018

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

1. (A) Lawyer is related to court. Similarly, **Teacher** is related to school.

2. (C)  $\begin{matrix} \underline{KMO} & \underline{HJL} \\ & \uparrow \\ & -3 \end{matrix}$

Similarly,

$\begin{matrix} \underline{EGI} & \underline{BDF} \\ & \uparrow \\ & -3 \end{matrix}$

3. (C)  $5 \times (-1) \times 4 = -20$

Similarly,

$-8 \times (-1) \times 4 = 32$

4. (C) Except **Plate**, other are used to cut the food.

5. (D)  $\begin{matrix} \underline{AEI} & \underline{JNR} & \underline{SWA} & \underline{FJM} \\ \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +4 & +4 & +4 \end{matrix}$

6. (B) Except **421**, other are square number.

7. (D) Difference between both dates,  
 $= 21+30+31+30+31+31+30+31+15$   
 $= 250$

$= 35 \text{ weeks} + 5 \text{ days}$

Hence, required day

$= \text{Friday} + 5 \text{ days}$

$= \text{Wednesday}$

8. (D) **210**  $\neq$  **80 + 90 + 50**

or **210**  $\neq$  **80 + 90 + 30**

9. (D) **CARES**

10. (D)  $\begin{matrix} \underline{MIGRNT} & \underline{LHFQZMS} \\ & \uparrow \\ & -1 \end{matrix}$

Similarly,

$\begin{matrix} \underline{LOGITECH} & \underline{KNFHSDBG} \\ & \uparrow \\ & -1 \end{matrix}$

11. (C) **Senile**  $\rightarrow$  3 Consonant.

12. (A) **XXXXXXO**

13. (D)  $\begin{matrix} \frac{3}{5} & \frac{7}{5} & \frac{11}{5} & \frac{15}{5} & \frac{19}{5} & \frac{23}{5} \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ +\frac{4}{5} & +\frac{4}{5} & +\frac{4}{5} & +\frac{4}{5} & +\frac{4}{5} & +\frac{4}{5} \end{matrix}$

14. (B)  $36 \times 4 \div 25 + 6 - 130$

Change the symbol, as per given details,

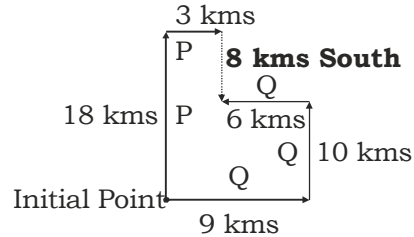
$36 \div 4 - 25 \times 6 + 130 = -11$

15. (C)  $\frac{11+27}{2} = 19$

$\frac{12+40}{2} = 26$

$\frac{40+50}{2} = 45$

16. (A)



17. (D) **I. True**

**II. False**

18. (B)  $21 + 95 = 116$

$87 + 11 = 98$

$90 + 45 = 135$

26. (A) Current is related to Ocean. Similarly, **Stream** is related to River.

27. (D)  $\begin{matrix} \underline{WUSQ} & \underline{DFHJ} \\ \uparrow & \uparrow \\ 23+4=27 & 21+6=27 \\ \uparrow & \uparrow \\ 19+8=27 & 17+10=27 \end{matrix}$

Similarly,  $\begin{matrix} \underline{MKIG} & \underline{NPR T} \\ \uparrow & \uparrow \\ 13+14=27 & 11+16=27 \\ \uparrow & \uparrow \\ 9+18=27 & 7+20=27 \end{matrix}$

28. (A)  $\frac{5}{3} \Rightarrow \frac{-1}{-\frac{3}{5}}$

Similarly,  $-\frac{17}{11} \Rightarrow \frac{-1}{\frac{11}{17}}$

29. (A) **Mother-in-law** is a female character.

30. (B) Except **XYZ**, others have vowels.

31. (A) **440**  $\Rightarrow (21)^2 - 1$

$122 \Rightarrow (11)^2 + 1$

$170 \Rightarrow (13)^2 + 1$

$485 \Rightarrow (22)^2 + 1$

32. (B) Difference between both dates

$= 27 + 30 + 31 + 26 = 114$

$= 16 \text{ weeks} + 2 \text{ days}$

Hence, Required days = Thursday + 2

days = **Saturday**

33. (A) **310**  $\neq$  **50 + 60 + 70 + 120**

34. (B) **CREATE**

35. (A)  $\begin{matrix} \underline{ETHANOL} & \underline{HWKDQRO} \\ & \uparrow \\ & +3 \end{matrix}$

Similarly,  $\begin{matrix} \underline{MIXER} & \underline{PLAHU} \\ & \uparrow \\ & +3 \end{matrix}$

36. (A) Shy Food Plate Recess **Monsoon**  
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$   
 3 4 5 6 7= letters

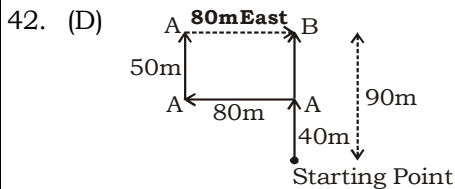
37. (C) **IIIIIX**

38. (D) 49 64 **81** 100 121  
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$   
 $7^2 \quad 8^2 \quad 9^2 \quad 10^2 \quad 11^2$

39. (D)  $36 \times 9 - 8 + 2$   
 Change the symbol, as per given details,  
 $36 \div 9 + 8 \times 2 = \mathbf{20}$

40. (C)  $1 + 9 + 2 + 5 = 17$   
 $1 + 5 + 2 + 5 = 13$   
 $4 + 6 + 1 + 3 = \mathbf{14}$

41. (C) Option A  $35 - 5 \neq 7 \times 12 + 13$   
 Option B  $35 + 5 \neq 7 \times 12 - 13$   
 Option C  **$35 \times 5 \div 7 - 12 = 13$**   
 Option D  $35 - 5 + 7 \neq 12 \times 13$



44. (B)  $17^2 + 15 = 304$   
 $7^2 + 8 = 57$   
 $23^2 + 25 = \mathbf{554}$

51. (D) Average Selling price (ASP) of goods or commodities is the average price at which a particular product or commodity is sold across channels or markets.

52. (B) As per Keynes theory of employment, effective demand signifies the money spent on the consumption of goods and services and on investment. The total expenditure is equal to the national income, which is equivalent to the national output. Therefore, effective demand is equal to total expenditure as well as national income and national output.

53. (D) "Protection of wild animals and birds is listed in concurrent list given in the 7th Schedule in the constitution of India.

54. (D) The Lok Sabha Secretariate comes under direct supervision of speaker of Lok Sabha.

55. (A) Madurai was the capital of Pandya's emperor.

56. (A) The Bijapur school of painting developed independently during the Mughal period.

57. (C) According to Government of India Act-1858, end the Rule of East India Company.

58. (D) Hiranya, It was probably a tax paid in cash.

59. (B) The formation of Sikkim-15 May 1973.  
 • The formation of Mizoram-19 February 1987.

• The formation of Arunachal Pradesh-February 1987

• The formation Goa-29 May, 1987.

60. (D) Jharkhand does not share boundary with Madhya Pradesh.

61. (C) Mediterranean sea forests are found in the areas between 30° to 45° latitudes in the western part of continents.

62. (B) The best conductor of heat is Mercury.

63. (B) When a barometer reading suddenly recedes it indicates that climate will be extremely stormy.

64. (D) Graphite is a good conductor of electricity because of the its molecules of carbon bonding is tightly.

65. (B) Sugar cane is carbohydrate.

66. (B) The chemical name of Baking soda is Sodium bicarbonate.

67. (D) Silk fiber chemically is cellulose.

68. (C) Penicillin is extracted form of fungus.

69. (D) The cross section of stem of tree has fifty rings. It means the age of the tree is 50 years.

70. (A) Our bones and teeth are made of Tricalcium phosphate.

71. (A) Kidney disease in mainly is caused by the pollutant of cadmium.

72. (C) A rare and endangered animal in silent-valley is lion-tailed macaque.

73. (B) Typhoid fever is caused by Bacteria. Typhoid, is a bacterial infection due to Salmonella typhi. Almorth Edward wright developed the first effective typhoid vaccine. The test name is WIDAL test.

74. (D) Saur Sujal Yojana started with Chattishgarh State on 1<sup>st</sup> November 2016. Under this scheme, solar powered irrigation pumps of 3 HP and 5 HP capacity worth Rs 3.5 Lakh and 4.5 Lakh respectively would be distributed among the farmers by March 31, 2019. The beneficiaries would get the pumps at the subsidised price.

75. (A) Ministry of Railway, Shri Suresh Prabhakar Prabhakar unveiled Mission 41K during the Round table Discussion with External stakeholders on energy Initiatives of Indian Railways. Ministry of Railway has come up with Mission 41k to save Rs 41000 crore in the next decade in Railways energy cost.

76. (D) **Marina Beach** is a natural urban beach in the city of **Chennai**, India, along the **Bay of Bengal**. Spreading from the mouth of the **Cooum River** in the north to the Lighthouse in the south; the Marina Beach is a **13-kilometer** uninterrupted stretch of golden sands and foamy sea. Often regarded as the second longest beach in the world, this urban stretch in the coastal city of Chennai has a significant history that's as old as the city.
77. (C) Animals, such as mammals and birds maintain a constant body temperature regardless of the temperature of the surroundings. A list of warm-blooded pets would certainly include all animals and also birds, such as **apes, monkeys, whales, elephants, cheetahs, giraffes, pets, felines, pigs and humans**.
79. (A) Brine, **salt water**, is a highly concentrated water solution of common salt (**sodium chloride**). The process of electrolysis involves using an electric current to bring about a chemical change and to make new chemicals. The electrolysis of **brine** is a large-scale process used to manufacture **chlorine from salt**.
80. (A) **Globally**, India has the largest deposits of **Monazite** (beach sand mineral containing Lanthanum, Cerium, Praseodymium, Neodymium and Thorium). As in March 2015, the country had Monazite reserves of **11.93 million tonnes**. **Andhra Pradesh** has the highest Monazite reserves (3.72 Mt).
81. (C) The **Government of India Act, 1935** was originally passed in August 1935, and is said to be the longest Act (British) of Parliament ever enacted by that time. The most **significant aspects** of the Act were:
- The grant of a large measure of autonomy to the provinces of British India (ending the system of diarchy introduced by the Government of India Act, 1919)
  - Provision for the establishment of a "Federation of India", to be made up of both British India and some or all of the "princely states".
82. (B) **Second schedule** lists the emoluments for holders of constitutional offices such as **salaries** of President, Vice President, Ministers, Judges and Comptroller and Auditor-General of India etc.
83. (B) **Mohenjo-daro** is situated on the bank of **Indus River** in Larkana District, Sindh, **Pakistan**, in a central position between the Indus River and the Ghaggar-Hakra River. Mohenjo-daro, Sindh for **Mound of the Dead Men**; is an archaeological site in the province of Sindh, Pakistan.
84. (C) Vedas are the universal texts of Hindu religion. Vedas were not created in any one time. The scholars began the composition of the Vedas in 4500 B.C. It was slowly formed and finally the Vedas were compiled in three parts - **Rig Veda, Yajurveda and Samaveda**, which was called Vedratni.
85. (C) Rishabhanatha also **Zcabhadeva**, is the first **Tirthankara** (Teaching God) of the present half cycle of time in **Jainism**. The word Tirthankara signifies the founder of a **tirtha** which means a fordable passage across a sea. He was born in the city of **Ayodhya**, where the Hindu god Rama was born.
86. (D) Phycology, also called **algology** which is the **study of algae**, a large heterogeneous group of chiefly aquatic plants ranging in size from microscopic forms to species as large as shrubs or trees.
88. (C) A **diopeter** is the unit of measurement of the optical **Power of a lens** or a curved mirror. In terms of numerical value, it is equal to the reciprocal of the focal length of a lens of a curved mirror measured in meters. In other words, a diopter is the unit of reciprocal **length**.
90. (B) A **compound** is a substance formed when two or more chemical elements are chemically bonded together. In mixtures, the substances present are not chemically bonded together. These bonds form as a result of the sharing or exchange of electrons among the atoms. The smallest unbreakable unit of a **compound** is called a **molecule**.
91. (B) **Ferdinand Magellan** (1480-1521) was a Portuguese explorer who is credited with masterminding the first expedition to circumnavigate the world.
92. (C) The International Gandhi Peace Prize, named after Mahatma Gandhi, is awarded annually by the **Government of India**. The award carries **₹1 Crore** (10 million) in cash, convertible in any currency in the world, a plaque and a citation. It is open to all persons regardless of nationality, race, creed or sex.

93. (C) Mixed economy, in economics is a market system of resource allocation, commerce, and trade in which free markets coexist with **government intervention**. A mixed economic system is an economic system that features characteristics of both **capitalism and socialism**.

94. (D) **Fourth Five Year Plan (1969-74):**

- At this time Indira Gandhi was the Prime Minister. The **Indira Gandhi government** the Green Revolution in India advanced agriculture.
- **14 major** Indian banks were nationalized.
- The target growth rate was **5.6%**, but the actual growth rate was **3.3%**.
- India conducted **nuclear test** in 1974.

97. (C) India's first '**Robocop**', capable of performing police duties, has been launched in **Hyderabad**. Developed by the city-based Artificial Intelligence and Machine Learning start-up H-Bots Robotics, this **5 ft 7 inch** tall smart police robot, weighing **43 kg**, can receive complaints, record audio and video clips, identify suspects, detect metals and monitor temperature.

103. (B)  $Q - W = \Delta U$   
 $Q = W + \Delta U$   
 $= 50 - 30 = +20 \text{ kJ}$

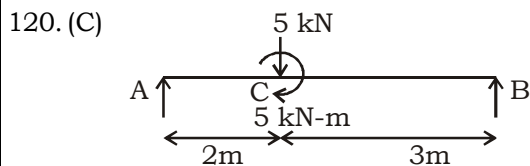
108. (A) A velocity ratio of that flat belt drive (4 : 1) is generally lower than V-Belt drive (7 : 1).

109. (C)  $K_w = K_{sh} \times K_c$   
 Where,  
 $K_w$  is wahl's factor  
 $K_{sh}$  is shear stress concentration factor  
 $K_c$  is curvature factor

111. (B) Given,  
 Inner diameter,  $d = 50 \text{ mm}$   
 Outer diameter,  $D = 100 \text{ mm}$   
 Using uniform wear theory,

$$R_f = \frac{D+d}{4} = \frac{50+100}{4}$$

$$R_f = 37.5 \text{ mm}$$



$$R_A + R_B = 5$$

$$\Sigma M_B = 0$$

$$5R_A + 5 - 5 \times 3 = 0$$

$$R_A = 2 \text{ kN}$$

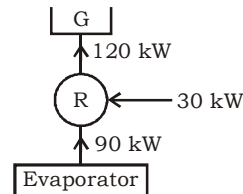
$$R_B = 5 - 2 = 3 \text{ kN}$$

123. (A)  $(\tau)_\theta = -\frac{1}{2}[\sigma_x - \sigma_y] \sin 2\theta + \tau_{xy} \cos 2\theta$

Here,  $\sigma_y = \tau_{xy} = 0$   
 $\sigma_x = P$

$$(\tau)_\theta = -\frac{P}{2} \sin 2\theta$$

126. (C)  $COP = \frac{90}{30} = 3$



129. (B) For self locking screw,  
 $\phi > \alpha$   
 Where,  
 $\phi$  is friction angle and  $\alpha$  is helix angle.

134. (D)  $COP \Rightarrow \frac{T_L}{T_H - T_L}$   
 $5 \Rightarrow \frac{1}{\left(\frac{T_H}{T_L} - 1\right)}, \frac{T_H}{T_L} - 1 \Rightarrow \frac{1}{5}$

$$\frac{T_H}{T_L} \Rightarrow 1.2$$

141. (B)  $\eta_{bth} \Rightarrow \frac{B.P}{m_f \times c_p}$   
 $m_f \Rightarrow \frac{10}{40000 \times 0.3} \text{ kg / s}$   
 $\Rightarrow \frac{10 \times 60 \times 60}{40000 \times 0.3} \text{ kg / hr.}$

$$m_f \Rightarrow 3 \text{ kg/hr.}$$

145. (A) For maximum efficiency,

$$\alpha = 45^\circ - \frac{\phi}{2}$$

$$\alpha = 45^\circ - \frac{60^\circ}{2}$$

$$\alpha = 15^\circ$$

146. (C) A good journal bearing must have both conformability and embeddability.

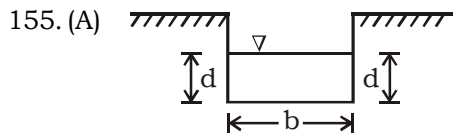
147. (A) For V-Belts,  
 $\frac{T_1}{T_2} = e^{\frac{\mu\theta}{\sin \alpha}} = e^{\mu'\theta}$

Where,

$$\mu' = \frac{\mu}{\sin \alpha}$$

$\mu'$  is called effective coefficient of friction.

152. (A)  $\gamma_{\max} = \frac{\omega L^4}{8EI} = \frac{5 \times 5^4}{8EI} = \frac{3125}{8EI}$



Hydraulic radius (R) =  $\frac{\text{Area of flow (A)}}{\text{Wetted perimeter (P)}}$

$$R = \frac{A}{P} = \frac{bd}{b + 2d}$$

156. (B) For cone clutch, to avoid self grabbing,  
 $\alpha > \phi$

Where,  
 $\alpha$  is semi cone angle and  $\phi$  is friction angle.

159. (D)  $C = \sqrt{\frac{8g}{f}}$

C = Chezy's constant  
f = Friction factor  
g = Gravitational constant

Dimensional formula =  $[LT^{-2}]^{\frac{1}{2}} = [L^{\frac{1}{2}}T^{-1}]$

161. (D) Given, S = 180

$$S = \frac{L_e}{K_{\min}} = \frac{L}{\sqrt{\frac{I_{\min}}{A}}}$$

$$I_{\min} = \frac{\pi}{64} d^4$$

$$A = \frac{\pi}{4} d^2$$

$$S = \frac{4L}{d}$$

$$\frac{d}{L} = \frac{4}{180} = \frac{1}{45}$$

162. (B)  $\gamma_{\max} = \epsilon_1 - \epsilon_2 = \text{Diameter of Mohr's circle.}$

168. (D)  $C_p - c_v = R$

$$R = 0.287 \text{ KJ/kg K}$$

$$\frac{C_p}{C_v} = \gamma, \frac{C_p}{C_v} = 1.375$$

$$c_p = 1.0267 \text{ KJ/kg K}, c_v = 0.7467 \text{ KJ/kg K}$$

173. (C) Negative Rake angle

,more horse power  
,more cutting force  
,High cutting speed etc.

177. (D) COP = Desired effect

$$= \frac{\text{Heat Rejected}}{\text{Work supplied}} = \frac{(360/60) \text{ KJ/s}}{2 \text{ kw}}$$

$$\text{COP} = 3.0$$

178. (A) Supercharging is usually done with the help of a compressor or blower.

182. (C)  $V \propto H^{1/2}$

$$\frac{V_1}{V_2} = \left( \frac{H_1}{H_2} \right)^{1/2}$$

$$\frac{H_1}{H_2} = 25$$

$$V_2 = 1 \times (25)^{1/2} = 5$$

188. (B) Coefficient of fluctuation of energy

$$K_e = \frac{\text{maximum fluctuations of energy}}{\text{work done per cycle}}$$

$$= \frac{\Delta E}{E}$$

and coefficient of fluctuation of speed

$$K_s = \frac{\text{range of speed}}{\text{mean speed}}$$

$$\text{Now, } \Delta E = I\omega^2 \times K_s = \frac{1}{2} I\omega^2 \times 2K_s$$

$$\text{or } EK_e = KE \times 2K_s$$

$$KE = \frac{K_e E}{K_s 2}$$

191. (B) For carnot engine  $\eta = \frac{T_1 - T_2}{T_1}$

$$= \frac{(273 + 227) - (273 + 27)}{500} = \frac{200}{500}$$

$$= 40\%$$

$$\eta \text{ of engine of manufacture} = \frac{\text{Net work}}{\text{Heat added}}$$

$$= \frac{20 \times 4500}{427 \times 400} = 0.527$$

In percentage, 52.7%

No engine can be more efficient than carnot engine, irrespective of cost sophistication. So it is impossible.

198. (C) For equilibrium, the total upthrust equals the downward force. If V is the volume of sphere, then

$$13.6g \times \frac{V}{2} + 0.8g \times \frac{V}{2} = \rho g \times V$$

$$\rho = 7.2 \text{ g/cm}^3$$