Answer-key & Solution

SSC JE (Mechanical)
MOCK -(61)
Date 20/ 08/ 2016

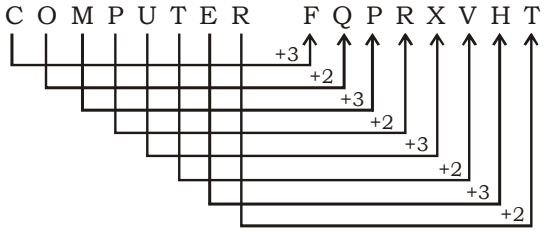
1. B	26. C	51. B	76. C	101. B	126. A	151. C	176. B
2. C	27. B	52. D	77. B	102. D	127. D	152. A	177. D
3. C	28. D	53. D	78. B	103. D	128. D	153. C	178. C
4. D	29. D	54. D	79. C	104. D	129. D	154. B	179. B
5. A	30. A	55. C	80. A	105. C	130. C	155. D	180. B
6. C	31. D	56. C	81. A	106. B	131. A	156. A	181.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

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

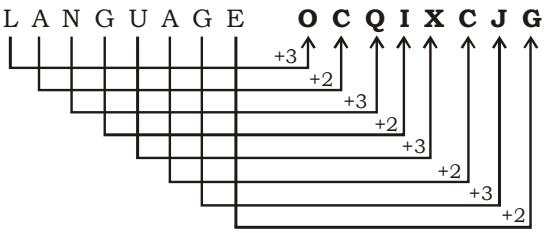
Note : *If you face any problem regarding result or marks scored, please contact : 9313111777*

SOLUTION SSC JE (Mechanical) MOCK TEST no. 61

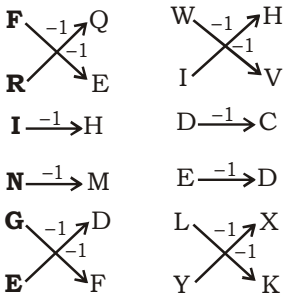
1. (B) A pod is a group of dolphins, and a herd is a group of cows.
2. (C) Each term in the series is the product of the digits of the preceding term.
So, missing term = 1 × 8 = 8.
3. (C) As,



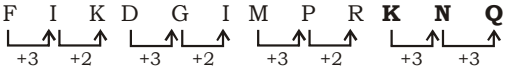
Similarly,



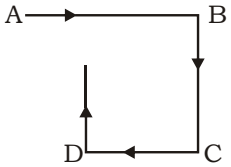
4. (D) To chat is to talk and to flutter is to flap.
5. (A)



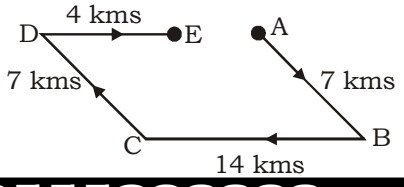
6. (C) A professor works at a college, and a mechanic works at a garage.
7. (A) The doze is to sleep lightly, and to tiptoe is to walk lightly.
8. (A) As, 121 = $(5)^3 - 4$ and 61 = $(4)^3 - 3$
Also, 337 = $(7)^3 - 6$
∴ ? = $(6)^3 - 5$ = 211
9. (B) 10 – 1 = 9 and 9 × 11 = 99
9 – 1 = 8 and 8 × 11 = 88
10. (C) A purse is used to hold money and an urn is used to hold ashes.
11. (B) Except option (B), rest are the books written by Munshi Premchand whereas Maila Aanchal is written by Phaniswar Nath 'Renu'.
12. (D) All except chalk are obtained from crops.
13. (D) 4913 is a perfect cube whereas rest are perfect square.
14. (D) All excepts sharp are related to dimension.
15. (A) Except (41-72) The difference between rest of the intervals is a multiple of 9.
16. (D) All except Agra are cities situated on the banks of river Ganga.
17. (D)



18. (C) All except Scallop live in shells.
19. (C) Each row contains 12 plants
There are 11 gaps between the two corner trees i.e. (11 × 2 = 22) meters and 1 metre is left on each side.
∴ Length of the garden = 22 + 2 = 24 m.
20. (A) The upper element is converted to an element similar to the lower elements and each one of the lower elements converted to an element similar to the upper element.
21. (A) There were all sparrows but six' means that six birds were not sparrows but only pigeons and ducks.
Similarly, Number of sparrows + number of ducks = 6
Number of sparrows + Number of pigeons = 6.
This is possible only when there are 3 sparrows, 3 pigeons and 3 ducks i.e. 9 birds in all.
22. (A)



Hence finally Sujata is facing towards North.
23. (D) Number of cuts made to cut a roll into 10 pieces = 9.
Therefore required number of rolls
$= \frac{(45 \times 24)}{9} = 120.$
24. (C)



Required distance = AE = 14 – 4 = 10 kms

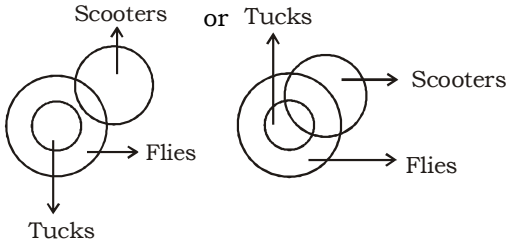
25. (C) The correct order is :
Plant Cotton Yarn Cloth Saree
(2) → (4) → (1) → (5) → (3)

26. (C) Each term in the series is obtained by adding 1 to the square of the preceding term.
So, missing term = $(101)^2 + 1$ = **10202**.

27. (B) The terms of the given series are $(2^2 - 1)$, $(4^2 - 1)$,..., $(8^2 - 1)$, $(10^2 - 1)$, $(12^2 - 1)$.
So, missing term = $(6^2 - 1) = (36 - 1)$ = **35**.

28. (D) The pattern is +0, +3, +8, +15, ... i.e.
$(1^2 - 1)$, + $(2^2 - 1)$, + $(3^2 - 1)$, + $(4^2 - 1)$, ...
So, missing term = $28 + (5^2 - 1) = 28 + 24$ = **52**.

29. (D)



1. 5 2. 5

30. (A) The colours adjacent to yellow are (orange, blue) and (red, pink). Hence violet will be opposite to yellow.

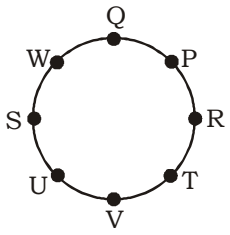
31. (D) The girl is the wife of the grandson of Amit's mother i.e. the girl is the wife of son of Amit.
Hence, Amit is father-in-law of that girl.

32. (A) Such decisions as given in the statement are taken only after taking the existing vacancies into consideration. So, I implicit while II isn't.

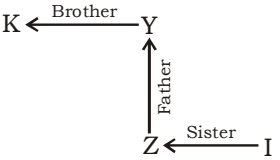
33. (D) 'Migen' means 'Cup'; 'Lasan' means 'Board'; 'Poen' means 'Walk'; 'Cuop' means 'Pull'; and 'Dansa' means 'Man'.
The only possible choices left are choices a and d. Choice a can be ruled out because migen means 'Cup'. So, (D) is the right option.

34. (D)

35. (C)



36. (B)



So, the relation (K + Y × Z – I) shows that 'I' is the niece of 'K'.

37. (C) $\frac{(20 + 9 + 14 + 7)}{2} = 30$

and $\frac{(11 + 16 + 10 + 13)}{2} = 25$

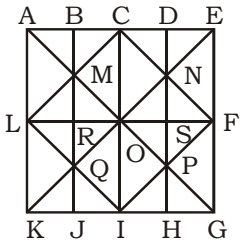
Therefore, $\frac{(18 + ? + 12 + 20)}{2} = 32$

$\Rightarrow$? = 64 – 50 = 14

38. (D) $(15 \times 6) + 2 = 92$
$(7 \times 6) + 2 = 44$
$(7 \times 15) + 2 = 107$.

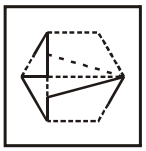
39. (D) $(1)^2 + (5)^2 + (4)^2 + (3)^2 = 51 \times 10 = 510$
and $(3)^2 + (4)^2 + (6)^2 + (2)^2 = 65 \times 10 = 650$
Similarly, $(3)^2 + (1)^2 + (2)^2 + (8)^2 = 78 \times 10 = 780$

40. (B) The figure may be labelled as shown.



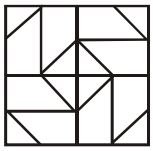
The horizontal lines are AK, BJ, CI, DH and EG i.e. 5 in number.
The vertical lines are AE, LF and KG i.e. 3 in number.
The slanting lines are LC, CF, FI, LI, EK and AG i.e. 6 in number.
Thus, there are 5 + 3 + 6 = 14 straight lines in the figure.

41. (D)



42. (C)

43. (C) 1, 3, 5 are figures having partially or completely curved boundaries.
2, 6, 8 are all triangles.
4, 7, 9 are all quadrilaterals.

44. (A)
45. (D)
46. (A) 
47. (D) In question figure, one of the dots lies in the region common to the circle and the square only, another dot lies in the region common to the square, the triangle and the rectangle only and the third dot lies in the region common to the triangle and the rectangle only. In each of the figures (A), (B) and (C) there is no region common to the square, the triangle and the rectangle only. Only figure (D) consists of all the three types of regions.
48. (C)
49. (A) Clearly, the smallest such number is 3.

D
D
D

'D' represents the 'ducks'.

50. (C)
52. (D) In the photoelectric effect, electrons are emitted from solids, liquids or gases when they absorb energy from light. It is the phenomenon of emission of electrons from the surface of metals when the radiations of suitable frequency and suitable wavelength fall on the surface of the metal.
55. (C) Electromagnetic waves include radio waves, microwaves, infrared, visible light, ultra-violet, x-rays and gamma rays. Electromagnetic waves are transverse waves and they all travel at the speed of light in vacuum.
59. (C) One can use the MAX function to find the highest number in a series of numbers.
62. (B) Tritium is a radioactive isotope of hydrogen. The name of this isotope is formed from the Greek word "tritos" meaning "third".
64. (C) A terrestrial ecosystem is an ecosystem found only on landforms. Six primary terrestrial ecosystems which exist are tundra, taiga, temperate deciduous forest, tropical rain forest, grassland and desert.
66. (D) Ronald Wilson Reagan was the 40th President of the United States. Prior to his presidency, he served as the 33rd Governor of California and also was an actor in film and television actor.
67. (A) Money is referred to as a measure of value and prices. Because the market enables any commodity to be turned into money and money into any commodity, objective exchange value is expressed in terms of money. It is a price index.
69. (A) Selling Price is an artifact of "monopolistic competition". The firm under monopolistic competition should incur certain expenditure on promotion of the sales. The amount spent by the firm on sales promotion is known as selling costs. Selling costs also include some of the other costs such as salaries of salesman, door to door canvassing etc.
70. (C) Article 37 of the Constitution declares that the Directive Principles of State Policy shall not be enforceable by any court, but the principles therein laid down are nevertheless fundamental in the governance of the country and it shall be the duty of the state to apply these principles in making laws.
72. (C) The Forty-second Amendment of the Constitution of India, enacted in 1976, brought about the most widespread changes to the Constitution until then. It is often called a "mini-Constitution" or the "Constitution of India".
74. (C) The southernmost point in India is Indira Point on Great Nicobar Island. Kanyakumari and it is the southernmost tip of the Indian mainland.
78. (B) Assuming they are the diatomic forms, N_2 and O_2.
Oxygen is 32 grams per mole and nitrogen is 28 grams per mole.
So, we have
32 × 21 = 672, 28 × 79 = 2212
Now after adding it together we will get 2884.
Required percent of nitrogen = 2212/ 2884
= .7669 * 100
= 76:69 or 77%
79. (C) In the nucleus of each cell, the DNA molecule is packaged into thread-like structures called chromosomes. Each chromosome is made up of DNA tightly coiled many times around proteins called histones that support its structure.
80. (A) The highest temperature ever recorded on Earth was 136 Fahrenheit (58 Celsius) in the Libyan desert (El Azizia).
The coldest temperature ever measured was (–126) Fahrenheit or (–88) Celsius. at Vostok Station in Antarctica.
81. (A) A lichen is not a single organism. It is a stable symbiotic association between a fungus and algae and/or cyanobacteria. Like all fungi, lichen fungi require carbon

as a food source. This is provided by their symbiotic algae and/or cyanobacteria that are photosynthetic. The lichen symbiosis is thought to be a mutualism, since both the participants benefit.

83. (C) In the Mixed Cropping system of India, a legume (pulses) is grown in one line and in another line the main crop is grown. Some successful mixed cropping practices are: Soyabean + Pigeon pea, Maize + Black gram, Pigeon pea + Green gram, Groundnut + Sunflower, Sorghum + Pigeon pea, Wheat + Chickpea, Barley + Chickpea, Wheat + Mustard, Cotton + Groundnut, Wheat + Chick pea, etc.

87. (C) Alluvium soils are generally suitable for a variety of crops like wheat, rice, millets, pulses, maize, sugarcane, rubber, jute, vegetables etc. These soils develop from the weathering material transported by rivers from their catchment areas and deposited in their basins during floods.

88. (B) Saponification is a process that produces soap, usually from fats and lye. The Ester Saponification method employs an ester exchange reaction of oils, fats and methyl alcohol by which methyl esters of the fatty acids are obtained. Special equipment is required to recover methyl alcohol.

89. (B) Ajoy Ghosh was born on February 20, 1909 in a small town called Mihijam which stands on the banks of the river. Ajoy Kumar Ghosh was the General Secretary of party from 1951 till the day of his death on January 13, 1962. He attended the meeting of Hindustan socialist republic army in September 1928.

90. (B) Mahmoud Abbas is the President of the State of Palestine and Palestinian National Authority. He has been the Chairman of the Palestine Liberation Organization (PLO) since 11 November 2004 and has been Palestinian president since 15 January 2005 (Palestinian National Authority since 15 January 2005 and State of Palestine since 8 May 2005). Abbas is a member of the Fatah party.

93. (B) Top 10 Countries with Highest rate of Illiteracy
1. Niger - 84.3 %
2. Burkina Faso - 77.0%
3. Afghanistan - 63.7%
4. Sierra Leone - 63.7%
5. The Gambia - 63.5%
6. Guinea-Bissau - 63.2%
7. Senegal - 62.7%
8. Benin - 62.5%
9. Ethiopia - 61.3%
10. Mauritania - 60.1%

95. (D) We orbit the Sun at a distance of about 150 million kilometers. This number is actually an average, since we follow an elliptical path. At its closest point, the Earth gets to 147 million km, and at its most distant point, it's 152 million km.

108. (D) Fixed at both ends, $L_e = l/2$

Fixed at one end and other is free, $L_e = 2l$

$$P = \frac{\pi^2 EI}{l_e^2} \Rightarrow P \propto \frac{1}{l_e^2}$$

$$\Rightarrow \frac{P_1}{P_2} = \frac{\frac{\pi^2 EI}{l^2/4}}{\frac{\pi^2 EI}{4l^2}} = 16:1$$

111. (C) S.F at B = 6kN

$W \times 1.5 = 6$ kN

$$W = \frac{6}{1.5} kN/m = 4kN/m$$

113. (B) $E = 2G(1+\mu)$

$120 = 2 \times 50(1+\mu)$

$$\frac{120}{120} - 1 = \mu$$

$\mu = 0.2$

114. (A) $t_1 = 2$ secs.

Initial velocity, u = 0

acceleration due to gravity, $a = 9.8\ m/s^2 \approx 10\ m/s^2$

$$S_1 = ut + \frac{1}{2}at^2$$

$$S_1 = (0 \times 2) + \frac{1}{2} \times 10 \times (2)^2 = 20\ m$$

Total displacement = $2 \times S_1 = 40$m

$$S = ut + \frac{1}{2}at^2$$

$$40 = (0 \times t) + \frac{1}{2} \times 10 \times t^2$$

t = 2.82 sec.

115. (C) $K.E = \frac{1}{2}mv^2$

$$1.5 = \frac{1}{2} \times m \times (1)^2$$

$$m = 3kg$$

116. (B) m = 0.03 kg
Initial Velocity, u = 400 m/s
Final Velocity, V = 0
S = 12 cm = 0.12 m

$V^2 - u^2 = 2aS$
$0 - (400)^2 = 2a \times 0.12$
$a = 666666.67 m/s^2$
Force exerted, F = ma
$= 0.03 \times 666666.67 = 20000$ N
= 20 kN

118. (A) $Power, P = \frac{(T_1 - T_2)V}{1000} kW$

$= \frac{(700 - 400) \times 5}{1000} = 1.5kW$

147. (D) $\alpha = 0^\circ$
t = 0.45
$t_c = 0.45$

$r = \frac{t}{t_c} = \frac{0.45}{0.45} = 1$

$\phi = \tan^{-1}\left(\frac{r\cos\alpha}{1 - r\sin\alpha}\right)$

$= \tan^{-1}\left(\frac{1 \times 1}{1 - 0}\right)$

$= 45^o$

148. (D) $V_1T_1^n = V_2T_2^n$

$V_1T_1^{0.25} = \frac{V_1}{2}T_2^{0.25}$

$\left(\frac{T_1}{T_2}\right)^{0.25} = \frac{1}{2}$

$\frac{T_1}{T_2} = \left(\frac{1}{2}\right)^{1/0.25} = \frac{1}{16}$

$T_2 = 16T_1$