Answer-key & Solution

SSC JE (MECH)
Practice Set-5

1. B	26. C	51. C	76. B	101. B	126. A	151. C	176. B
2. D	27. C	52. A	77. C	102. D	127. B	152. A	177. D
3. A	28. B	53. A	78. D	103. D	128. D	153. C	178. C
4. C	29. B	54. B	79. B	104. D	129. D	154. B	179. B
5. B	30. B	55. A	80. D	105. C	130. C	155. D	180. B
6. D	31. C	56. A	81. D	106. B	131. A	156. A	181. D
7. A	32. D	57. B	82. C	107. D	132. B	157. A	182. A
8. D	33. B	58. B	83. D	108. D	133. C	158. B	183. B
9. A	34. B	59. B	84. D	109. C	134. B	159. C	184. C
10. B	35. C	60. B	85. A	110. A	135. D	160. B	185. A
11. D	36. A	61. D	86. D	111. C	136. B	161. B	186. B
12. D	37. B	62. A	87. C	112. D	137. C	162. D	187. C
13. C	38. C	63. A	88. C	113. B	138. A	163. C	188. A
14. B	39. D	64. D	89. C	114. A	139. C	164. C	189. A
15. B	40. D	65. A	90. B	115. C	140. B	165. D	190. D
16. C	41. B	66. A	91. B	116. B	141. D	166. C	191. D
17. B	42. B	67. D	92. B	117. A	142. A	167. A	192. A
18. C	43. C	68. A	93. A	118. A	143. A	168. D	193. B
19. B	44. A	69. C	94. A	119. C	144. D	169. D	194. D
20. C	45. B	70. B	95. C	120. D	145. A	170. C	195. C
21. B	46. C	71. A	96. C	121. A	146. C	171. A	196. B
22. A	47. A	72. C	97. B	122. B	147. C	172. B	197. A
23. B	48. B	73. A	98. C	123. D	148. D	173. A	198. A
24. B	49. C	74. A	99. A	124. C	149. D	174. D	199. A
25. D	50. C	75. B	100. A	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 9560620353*

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

SOLUTION SSC JE (Mechanical) Practice Set-5

1. (B) Previous prime number to 97 is 89. Similarly for 43, the previous prime number is 41.

2. (D) As Tiger is found in Forest, similarly Otter is found in the water.

3. (A) $22 : 22^2 + 22 :: 27 : 27^2 + 27$
$$\Downarrow \qquad\qquad \Downarrow$$
$$506 \qquad\qquad 756$$

4. (C) Letter   B E   A C
Position   2 5   1 3
$$\Downarrow \qquad\qquad \Downarrow$$
$(2 \times 5) \times (2 + 5) = 70$ $(1 \times 3) \times (1 + 3) = $ **12**

5. (B) A Monarch is a type of Butterfly and Cobra is a type of Snake.

6. (D) As chairman is the highest authority in a conference, similarly Editor is in Newspaper at highest authority.

7. (A) $5 : 5^3 + 5^2 :: 11 : 11^3 + 11^2$
$$\Downarrow \qquad\qquad \Downarrow$$
$$150 \qquad\qquad \textbf{1452}$$

8. (D) A Huckster is one who deals in Advertising and a Gangster is one who deals in Crime.

9. (A)
T   R   A   D   E   U   Q   B   C   F
+1, −1, +1, −1, +1

Similarly,

P   L   A   T   E   **Q   K   B   S   F**
+1, −1, +1, −1, +1

10. (B) The country of Argentina neighbours the country of Brazil. Similarly, Iraq shares the borders with Iran.

11. (D) All except locust are reptiles, while locust is an insect.

12. (D) Excepts (D), the rest options gives the same result as 19.

13. (C) In all except Trifle, 'tri' indicates 'three'.

14. (B) Except (B), In rest of the options the position of a number gets interchange.

15. (B) All except Argentina are continents, while Argentina is a country.

16. (C) Except (C), in rest of the options, second can be obtained by Multiplying 2.5 to first.

17. (B) All except Director spend money.

18. (C) Orange is the only citrus fruit in the group.

19. (B) MOUSE

20. (C) REPORT

21. (B)

A
↓ 5 m
B ⌐ — C
  3 m
     ↓ 5 m
     D
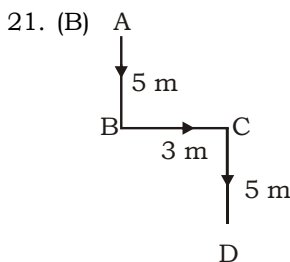
Hence X will face in the end towards South.

22. (A) When the sheet shown in question figure is folded to form a box (cuboid), then the two rectangular-shaded faces lie opposite to each other, two rectangular white faces lie opposite to each other and the two square shaped faces (one shaded and one white) lie opposite to each other. Clearly, the cuboids shown in figures (2) and (4) cannot be formed as in each of the two cuboids the two shaded rectangular faces appear adjacent to each other. So, only the cuboids in figures (1) and (3) can be formed.

23. (B) Let B and G represent the number of daughters and sons respectively.
Then, we have:
B – 1 = G and 2 (G – 1) = B.
Solving these two equations, we get :
B = 4, G = 3.

24. (B) The statement requests people not to use lift while moving down. This implies that the lift may be used to move up and the request has been made so that more people can use the lift for ascending which would otherwise cause more physical stress than going down the stairs. So, we can conclude that only II is implicit.

25. (D) The woman is the mother of Shashank's granddaughter. Hence, the woman is the daughter-in-law of Shashank.

26. (C) The correct order is :
Arrival   Introduction   Presentation
(3)   (5)   (1)
Discussion   Recommendation
(4)   (2)

27. (C) Father and mother are parents but they are two different entity.

28. (B) The pattern is +4, +9, +16, +25, +36, +49 ...... i.e. $+2^2, +3^2, +4^2, +5^2, +6^2, +7^2$.....

So, missing term = $94 + 7^2 = 94 + 49$ = **143**.

29. (B) The pattern is ÷1, ÷2, ÷3, ÷4, ÷5.

So, missing term = 360 ÷ 1 = 360.

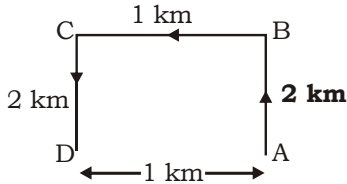30. (B) The pattern is × 3, + 4, × 5, + 6, × 7, ...

So, missing term = 1022 + 8 = 1030.

31. (C) In these 2 positions one common face with number 3, is in same position. Hence 1 is opposite to 6 and 4 is opposite to 2. Therefore 5 is opposite to 3.

32. (D)
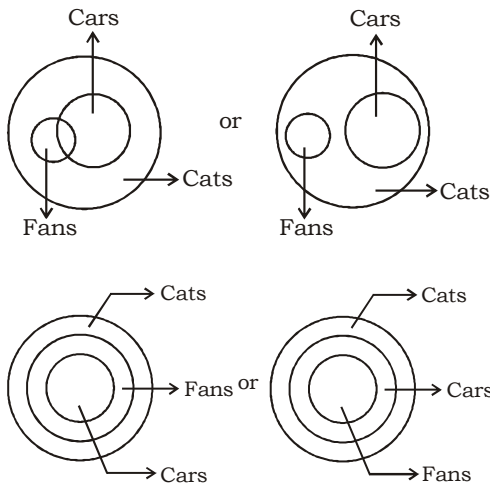
Hence, neither conclusion 1 nor 2 follows.

33. (B)

So, initially the boy rode 2 km Northward.

34. (B) When Rahul was born, his brother's age = 6 years
His father's age = (6 + 32) years = 38 years
His mother's age = (38 – 3) years = 35 years
His sister's age = (35 – 25) years = 10 years.

35. (C) ab**c**de/c**d**ea b/d**e**abc/e**a**b**c**d

36. (A) $\dfrac{(25+23)}{2}$ = 24

and $\dfrac{(26+28)}{2}$ = 27

Therefore $\dfrac{(18+14)}{2}$ = 16.

37. (B) $6 + (2)^2 = 10$
$10 + (3)^2 = 19$
$19 + (4)^2 = 35.$

38. (C) $(4 + 8) × 9 = 108 \Rightarrow 108 × 10 = 1080$
$(5 + 4) × 12 = 108 \Rightarrow 108 × 10 = 1080$

39. (D)

40. (D)

41. (B) 2, 6, 9 contain a triangle with its three medians as the outer element and another element (similar or different) placed inside it.
1, 5, 7 contain a rectangle with its two diagonals as the outer element and another element (similar or different) placed inside it.
3, 4, 8 contain a circle with its two mutually perpendicular diameters as the outer element and another element (similar or different) placed inside it.

42. (B) Every identity is moving at each of the different 5 places in a block.
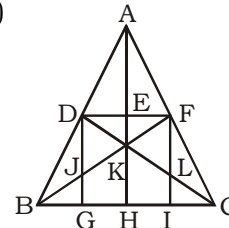
43. (C)

44. (A)
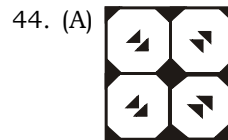
45. (B)

46. (C)

47. (A) All the number in the given set are prime numbers. Here, 5 is also a prime number and it belongs to the same group.

48. (B) $2 * 3 \Rightarrow 2^3 + 3^2 = 8 + 9 = 17 \Rightarrow 17^2 = 289$
$3 * 4 \Rightarrow 3^3 + 4^2 = 27 + 16 = 43 \Rightarrow 43^2 = 1849$
$2 * 4 \Rightarrow 2^3 + 4^2 = 8 + 16 = 24 \Rightarrow 24^2 = 576$

49. (C)

The Horizontal lines are DF and BC i.e. 2 in number. The Vertical lines are DG, AH and FI i.e. 3 in number.
The Slanting lines are AB, AC, BF and DC i.e. 4 in number.
Thus, there are **2 + 3 + 4 = 9 straight lines** in the figure.
Now, we shall count the number of triangles in the figure.
Simplest triangles are ADE, AEF, DEK, EFK, DJK, FLK, DJB, FLC, BJG and LIC i.e. 10 in number.
Triangles composed of two components each are ADF, AFK, DFK, ADK, DKB, FCK, BKH, KHC, DGB and FIC i.e. 10 in number.

Triangles composed of three components each are DFJ and DFL i.e. 2 in number. Triangles composed of four components each are ABK, ACK, BFI, CDG, DFB, DFC and BKC i.e. 7 in number. Triangles composed of six components each are ABH, ACH, ABF, ACD, BFC and CDB i.e. 6 in number. There is only one triangle i.e. ABC composed of twelve components. There are **10 + 10 + 2 + 7 + 6+ 1 = 36 triangles** in the figure.

53. (A) Influenza, commonly known as the 'flu', is an infectious disease of birds and mammals caused by RNA viruses. The most common symptoms are fever, sore throat, muscle pains, headache (often severe), cough, weakness/fatigue and general discomfort. Typically, Influenza is transmitted through the air by coughs or sneezes, creating aerosols containing the virus.

63. (C) Pulses are (20 to 25%) protein by weight, which is double the protein content of wheat and three times that of rice. While pulses are generally high in protein, and the digestibilty of that protein is also high, they are often relatively poor in the essential amino acid methionine.

71. (A) The busiest rail section in respect to goods transportation is Delhi-Kolkata section.

75. (B) Kolar, Hutti, Gadag, Ramagir, Honalli, Wyand, Lawa, Mysara, Pahardia, Kundredocha have been some of the gold mines of India. Presently gold is produced from three mines viz Hutti, Uti, Hirabuddni (HGML) in Karnataka and as by product from base-metal sulphide deposite of Khetri (Rajasthan), Mosabani, Singhbum (Jharkhand).

80. (D) The processing of agricultural products, the production of grain by threshing, the production of flour by milling, the curing of sking and the production of leather, the production and preservation of meat and fish products, the preservation of fruit by drying, bottling, etc., the production of dairy products such as butter or cheese, the production of beer, wine or spirits, the production of baskets and mats, etc, come under processing of primary commodities for own consumption.

83. (D) Molars are the posterior most and most complicated kind of tooth in most of the mammals. Adult humans have twelve molars. They are in four groups in which three are at the back of the mouth. The third, rearmost molar in each group is called a wisdom tooth.

85. (A) In economics, the study of factor pricing is related to the theory of functional distribution which attempts to explain the prices of land, labour, and capital. It take care of the demand for land, labour and capital as derived demand, stemming from the demand for final goods.

88. (C) Copper : 9% less conductive than silver, aluminium is 10% less conductive than than copper, while steel is the least conductive among the given options. So, the most electrically conductive metal is silver.

92. (B) Reflected waves are simply those waves that are neither transmitted nor absorbed, but are reflected from the surface of the medium they encounter. The amount of incident-wave energy that is reflected from a surface depends on the nature of the surface and the angle at which the wave strikes the surface. The amount of wave energy reflected increases as the angle of incidence. The reflection of energy is the reflecting surface.

99. (A) In order to give more strength and more elasticity, natural rubber is heated with sulphur or sulphur compounds at 150°C temperature. Vulcanized rubber has good tensile strength. The working temperature of vulcanized rubber is enhanced up to 100°C. It has good resistance to organic solvents.

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

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

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

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

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+μ)

120 = 2×50 (1+μ)

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

μ = 0.2

114. (A) t_1 =2 secs.

Initial velocity, u = 0

acceleration due to gravity, a = 9.8 m/s^2

≈ 10 m/s^2

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

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

Total displacement = 2×S$_1$ = 40m

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

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

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 × 0.12

a = 666666.67m/s^2

Force exerted, F = ma

= 0.03 × 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) α = 0°

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°

148. (D) $V_1 T_1^n = V_2 T_2^n$

$$V_1 T_1^{0.25} = \frac{V_1}{2} T_2^{0.25}$$

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

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

T$_2$ = 16T$_1$

150. (A) $R_e = \frac{\rho vd}{\mu} = \frac{0.85 \times 1000 \times 2 \times 0.05}{0.38}$

R$_e$ = 223.64 = 224

151. (C) $COP = \frac{Q_1}{Q_1 - Q_2} = \frac{1}{1 - \dfrac{Q_2}{Q_1}}$