KD Campus
KD Campus Pvt. Ltd
2007, OUTRAM LINES, 1ST FLOOR, OPPOSITE MUKHERJEE NAGAR POLICE STATION, DELHI-110009

Answer-key & Solution

SSC JE (Mechanical)
MOCK -(131)
Date:- 13/01/2018

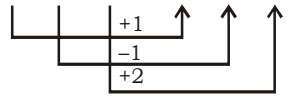
1. C	26. A	51. A	76. C	101 D	126 B	151 C	176 C
2. D	27. B	52. C	77. C	102 C	127 C	152 D	177 C
3. C	28. C	53. B	78. A	103 A	128 C	153 D	178 A
4. B	29. C	54. C	79. C	104 B	129 C	154 A	179 D
5. D	30. B	55. B	80. C	105 D	130 D	155 A	180 D
6. D	31. B	56. A	81. A	106 A	131 C	156 A	181 D
7. A	32. C	57. B	82.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

Note : *If your opinion differ regarding any answer, please message the mock test and Question number to 9821756838*

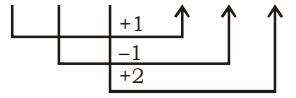
Note : *If you face any problem regarding result or marks scored, please contact : 9313111777*

SOLUTION SSC JE (Mechanical) MOCK TEST no. 131

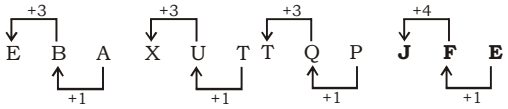
1. (C) Kanpur is one of the city in Uttar Pradesh whereas Gwalior is the city in **Madhya Pradesh**.
2. (D) First is the antonyms of second.
3. (C) Scissors is to knife as pitcher is to **watering Can**. The scissors and knife both are used for cutting. Both the pitcher and watering can are used for storing and pouring water.
4. (B) A fence and a wall mark a boundary. A path and an alley mark a passageway.
5. (D) A gym is a place where people exercise. A restaurant is a place where people eat food.
6. (D) Candid and Indirect refer to opposing traits. Similarly honest and untruthful refer to opposing traits.
7. (A) The relationship is $(2x + 2) : x$. Put $x = 31$, then $2x + 2 = 31 \times 2 + 2 = 64$.
8. (D) The relationship is $x^2 : (x + 1)^2 + 1$. Put $x = 7$ then $(x + 1)^2 + 1 = (7 + 1)^2 + 1 = 8^2 + 1 = 65$.
9. (B) K M F L L H



R M S **S L U**



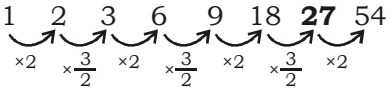
10. (C) Each letter of the first group is replaced by two letter - one that comes after it and one that comes before it, in the second group.
11. (A) All except Arrow are used while holding with hand.
12. (D) All except Hen are young ones of animals, while Hen is the female of Cock.
13. (C) All except Deer are flesh-eating animals.
14. (D) All except Veil cover the head, while veil covers the face.
15. (A) Sum of the digits in each of the number except 324 is 10.
16. (A) In all other numbers, the sum of the first and the last digits is equal to the sum of other two digits.
17. (B) In all other pairs, first is the study of second.
18. (D)



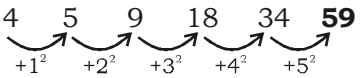
19. (C) Only son of Neena's father-in-law (Mahipal) → Neena's husband.
So, Raman is Neena's husband and Anita and Bindu are his daughters.
Thus, Bindu is the Grand daughter of Mahipal.
20. (B) The position as per the given instruction is mentioned below :-

N O P **Q** R S T
↓
Middle

21. (D)
22. (C)
23. (B) 1 2 3 6 9 18 **27** 54

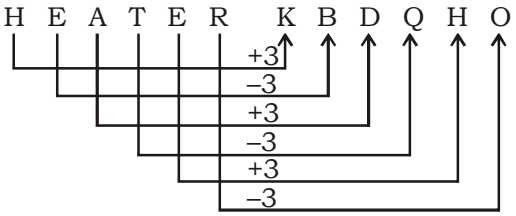


24. (D) 4 5 9 18 34 **59**

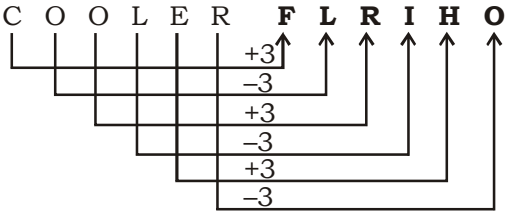


25. (B) e j o t y d i n s x c h **m r w**

26. (A) The series is aababcabcd/dcbacbabaa.
(Original) (Reverse)
27. (B) As,



Similarly,



28. (C) Given : D is the son of B, B is the brother of C and A is the father of C.
This means that B is the father of D and A is the father of B. So, A is the grandfather of D.
Now, F is the spouse of A. So, F is the grandmother of D.

29. (C) The new alphabet series is :
A B C D E F G H I J K L M
Z Y X W V U T S R Q P O N
The twelfth letter from the left is L.
The seventh letter to the right of L is U.

30. (B) Clearly, number of boys in the line
= (11 + 1 + 3) = 15.
∴ Number of boys to be added = 28 – 15 = 13.

31. (B) Ashish leaves his house at 6:40 a.m.
He reaches Kunal's house in another 25 minutes i.e. 7:05 a.m.
Both leave for office in 15 minutes after 7:05 a.m. i.e. at 7:20 a.m.

32. (C) After using the correct symbols, we have expression = (3 × 15 + 19) ÷ 8 – 6
= (45 + 19) ÷ 8 – 6 = 64 ÷ 8 – 6 = 8 – 6 = 2

33. (D) From (ii) and (iii) we have

Sign on front face	×	◆	◁
Sign on opposite face	×	○	→

Here, (•) is missing as it is opposite to (×).

34. (A) The alphabets are coded as shown :

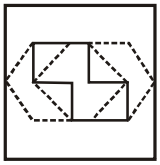
T	W	E	N	Y	L	V
8	6	3	9	5	2	0

So, in TWELVE,
T is coded as 8,
W as 6, E as 3, L as 2, V as 0.
Thus, the code for TWELVE is 863203.

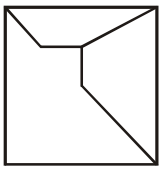
35. (D) A is the daughter of B means A is the sister of the son (say D) of B i.e. A/D × B.

36. (D)

37. (B)

38. (C) 

39. (B) The aeroplanes fly in the 'sky' and the 'sky' is called 'sea'. So, the aeroplanes fly in the 'sea.

40. (A) 

41. (C)

42. (D) From (i) and (iii)
Common word is 'peru' which means 'fine'
From (ii) and (iii)
Common word is 'lisa' which means 'clear'
So, **dona** means weather.

43. (B) Above information can be analysed as below :

	English	Hindi	Mathematics	Geography	History	French
A	×	×	×			
B	×	×			×	×
C	×			×		
D	×	×	×	×		
E					×	×

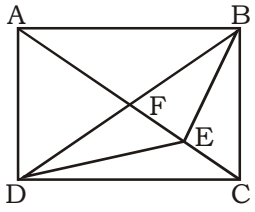
Hence, B teaches maximum number of subjects, i.e 5

44. (D) The number in the second column is three times the difference between the numbers in the third and first columns.
So, missing number = 3 × (16 – 7) = 3 × 9 = 27.

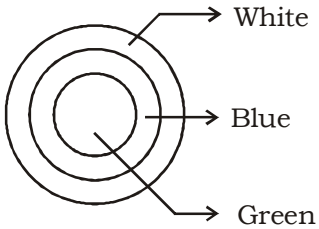
45. (B) $2^2 + 1^3 + 3^3 = 8 + 1 + 27 = 36$.
$0^3 + 4^3 + 3^3 = 0 + 64 + 27 = 91$.
So, missing number = $4^3 + 2^3 + 1^3$
= 64 + 8 + 1 = 73.

46. (B) We have, 3 + 4 = number below 4 = 7
3 + 4 + 5 = number below 5 = 12.
3 + 7 + 12 = number below 12 = 22.
∴ Missing number = 3 + 7 = 10.

47. (C) The figure may be labeled as shown.



The simplest triangles are AFB, FEB, EBC, DEC, DFE and AFD i.e. 6 in number.
Triangles composed of two components each are AEB, FBC, DFC, ADE, DBE and ABD i.e. 6 in number.
Triangles composed of three components each are ADC and ABC i.e. 2 in number.
There is only one triangle i.e. DBC which is composed of four components.
Thus, there are 6 + 6 + 2 + 1 = 15 triangles in the figure.

48. (A) 

1. *3* 2. *3* 3. *5*
Only (1) and (2) follows.

49. (B)

50. (B)

51. (A) "Regulating Act of 1773" :
Governance of East India Company was put under British parliamentary control to setup a Supreme Court in Calcutta. The Governor of Bengal was nominated as Governor General for Calcutta, Bombay and Madras.
In March 1942, Sir Stafford Cripps came with a draft declaration on the proposals of the British Government.

52. (C) Area of Pacific Ocean is 465.2 million sq.km.
Area of Atlantic Ocean is 106.4 million sq.km.
Area of Indian Ocean is 73.56 million sq.km.
Area of Indian Ocean is 14.06 million sq.km.

57. (B) Six fundamental rights provided by our Constitution are :
1. Right to equality
2. Right to liberty
3. Right against exploitation
4. Right to freedom of religion
5. Cultural and Educational rights
6. Right to constitutional remedy

63. (A) Field Marshal Kodandera Madappa Cariappa (28 January 1899 - 15 May 1993) was the first Indian Chief of Army Staff of the Indian Army and led the Indian forces on the Western Front during the Indo-Pakistan War of 1947.

67. (C) Harry Brearley of England invented Stainless Steel in 1913.
Electric Iron was invented by H.W. Seeley of USA in 1882.
Electromagent was invented by W.Sturgeon of England in 1824.
Gramophone was invented by T.A. Edison of USA in 1878.

70. (C) Surface temperature of Sun is about 6000° C and temperature at the centre is around 15,000,000° C.

71. (C) The "Operation flood" was the largest integrated dairy development programme of the world. It was started by National dairy development board in 1970.

73. (B) Nazi Party, by the name of National Socialist German Workers' Party was a political party of the mass movement known as National Socialism. Under the leadership of Adolf Hitler, the party came to power in Germany in 1933 and governed it by totalitarian methods until 1945. It was founded as the German Worker's Party by Anton Drexler, a Munich locksmith, in 1919. Hitler attended one of its meetings that year, and his energy and oratorical skills soon enabled him to take over the party.

74. (D) Diameter of moon is 3475 km and its circumference is 10864 km.

76. (C) Mahapadma was also known as "Ugrasena" means 'Owner of huge army'.

78. (A) Mountains of Asia are : Pamir knot, Himalayas, Karakoram, Altai, Tien Shan, Kunlun, Hindu Kush, Stanovio, Yablonovoi, Urals, Taurus, Elbruz, Pontic, Zagros, Sulaiman.

79. (C) Ammeter - Measures strength of electric current.
Audiometer - Measures intensity of sound.
Anemometer - Measures force and velocity of wind and direction.

82. (B) Wilson Jones (2nd May, 1922 - 5th October, 2003) was a professional player of English billiards from India. Jones, a dominant national amateur was a champion for more than a decade and won the amateur world championship twice, in 1958 and 1964.

83. (A) A Uniform Resource Locator (URL) is commonly informally referred to as a web address, although the term is not defined identically. It is a reference to a web resource that specifies its location on a computer network and a mechanism for retrieving it. URLs occur most commonly to reference web pages (http), and is also used for file transfer (ftp), email (mailto), database access (JDBC), and many other applications.

86. (B) Burma was separated from India in the year 1937 by the British Government. Burma was formed as an independent country and then was named as Myanmar. The country was an independent Buddhist kingdom during 11th century. Then Mongols attacked the country and grabbed the power and ruled for 100 years. Then it was undertaken by China. Later in the year 1800, France and Britain competed with each other for overtaking Burma. Britain gained power gradually and thus Burma was maintained under British Government of India.

90. (D) DSL means Digital Subscriber Line.

97. (D) Gun powder is the mixture of Potassium Nitrate, powdered Charcoal and Sulphur.

111. (B) For the given system Q = 0 and work done is equivalent to simulataneous working of bulb, fan and electric iron.

$$W = 3[100 \times 60] \times \frac{1}{1000} = 180\ kJ$$

116. (C) $\delta Q = \delta W + du$
$-400 = -1000 + du$; $du = 600$ J
$\therefore$ Change in specific internal energy

$$du = \frac{600}{2} = 300\ J/kg$$

119. (B) $Q_1 - Q_2 = w = \frac{Q_2}{4}$

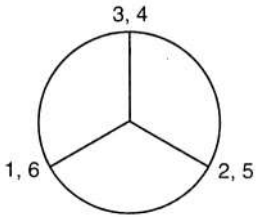
$$Q_1 = \frac{5}{4}Q_2$$

$$\frac{Q_2}{Q_1} = \frac{4}{5}$$

$$\eta = 1 - \frac{4}{5}$$

$= 0.2$
or $\eta = 20\%$

120. (B) In a six cylinder engine, the firing interval is $720/6 = 120^0$ and the corresponding spacing of cranks is shown in the adjoining figure.



124. (C) In a reciprocating compressor, one should aim at compressing the air isothermally with exponent n in the compression process pv^n = constant equal to unity. With this, work input to the compressor will be least. However, then the engine operation will be at slow speeds.

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

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

$\rho = 7.2\ g/cm^3$

132. (A) Unit power of the turbine

$$P_u = \frac{P}{H^{3/2}} = \frac{640}{(16)^{3/4}} = 10\ kW$$

168. (C) From the conservation of momentum
$M_1U_1 + M_2U_2 = M_1V_1 + M_2V_2$
$1 \times 2 + 2 \times 0 = 1 \times 0 + 2 \times V_2$
$2 = 2V_2$
So $V_2 = 1m/s$

171. (B) $\Delta P = 1.962\ Kg/cm^2$
$= 1.962 \times 9.81 \times 10^4 Pa$

$$\text{Pressre Head} = \frac{\Delta P}{\rho g} = 1.962 \times 10$$

Pressure head = Velocity head

$$1.962 \times 10 = \frac{V^2}{2g}$$

or $V = \sqrt{384.944}$

or $V = 19.62 m/s$

172. (D) In UDL $\delta_1 = \frac{5wL^4}{384EI}$

or $\delta_1 = \frac{5WL^3}{384EI}$ ...(*i*) $\{W = wL\}$

In point load $\delta_2 = \frac{WL^3}{48EI}$ ...(*ii*)

Dividing equation (i) and (ii)

$$\frac{\delta_1}{\delta_2} = \frac{\frac{5}{384}\frac{WL^3}{EI}}{\frac{WL^3}{48EI}} = \frac{5}{8}$$

188. (A) Given data;
L = D/2 (in facing operation).

$$L = \frac{7}{2} = 36\,mm.$$

$$T = \frac{L}{F \times N} = \frac{36}{0.3 \times 80} = \frac{36}{24} = 1.5$$

T = 1.5 minute

190. (B) $P_C \propto D^4$

$$\frac{P_{C_2}}{P_{C_1}} = \left[\frac{D_2}{D_1}\right]^4$$

$$= \left[\frac{0.9D_1}{D_1}\right]^4$$

$$\frac{P_{C_2}}{P_{C_1}} = 0.6561$$

$$\% \text{ Reduction in load} = \left[1 - \frac{P_{C_2}}{P_{C_1}}\right] \times 100$$

$$= (1 - 0.6561) \times 100$$

$$= 34.39\%$$

$$\simeq 35\%$$

195.(D) D = 0.2m
L = 0.25 m
N = 600 rpm
V_{act} = 4m^3/min

$$V_{swept} = \left(\frac{\pi}{4} D^2 L\right) \times N$$

$$= \frac{\pi}{4} \times 0.2^2 \times 0.25 \times 600$$

$$= 4.712 m^3 \text{ / min}$$

$$\eta_{vol} = \frac{V_{act}}{V_{swept}}$$

$$\eta_{vol} = \frac{4}{4.712}$$

$$= 0.848$$

or $\eta_{vol} = 84.8\%$

$$\simeq +85\%$$

196. (B) a = 0.002 m^2
V = 15 m/s
u = 6 m/s
F = ρ.aV (V-u)
= 1000 × 0.002 × 15 × (15-6)
F = 270 N