Answer-key & Solution

SSC JE (Mechanical)
MOCK -(126)
Date 09/ 12/ 2017

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

SOLUTION SSC JE (Mechanical) MOCK TEST no. 126

1. (C) As Microphone makes sound louder similarly Microscope makes the object magnified.

2. (C) As $Z \xrightarrow{-8} R \xrightarrow{+7} Y \xrightarrow{-8} Q$

   $K \xrightarrow{-8} C \xrightarrow{+7} J \xrightarrow{-8} B$

   Similarly,

   $P \xrightarrow{+7} W \xrightarrow{-8} O \xrightarrow{+7} V$

   $E \xrightarrow{+7} L \xrightarrow{-8} D \xrightarrow{+7} K$

3. (A) As

   $F \xrightarrow{-1} Q$, $R \xrightarrow{-1} E$ (crossed -1)

   $I \xrightarrow{-1} H$

   $N \xrightarrow{-1} M$

   $G \xrightarrow{-1} D$, $E \xrightarrow{-1} F$ (crossed -1)

   Similarly,

   $W \xrightarrow{-1} H$, $I \xrightarrow{-1} V$ (crossed -1)

   $D \xrightarrow{-1} C$

   $E \xrightarrow{-1} D$

   $L \xrightarrow{-1} X$, $Y \xrightarrow{-1} K$ (crossed -1)

4. (C) As on melting, liquid is formed, similarly on freezing **solid** is formed.

5. (B) $24 \rightarrow 2 \times 4 = 8$
   $32 \rightarrow 3 \times 2 = \mathbf{6}$

6. (A) $9 = (3)^2 \Rightarrow 8 = (3 - 1)^3$
   $16 = (4)^2 \Rightarrow ? = (4 - 1)^3 = \mathbf{27}$

7. (A) As Tree is found in Forest similarly Grass is found in **Lawn**.

8. (A) As,

   A E F J : K O P T
   (+4 +1 +4 ... +1 ... +4 +1 +4)

   Similarly,

   G K L P : Q U V Z
   (+4 +1 +4 ... +1 ... +4 +1 +4)

9. (C) As antonym of peace is uproar similarly antonym of creation is **destruction**.

11. (B) Only **Television** is audio-visual.

12. (B) In each number except **383**, the product of first and third digit is the middle one.

13. (A) All except Chicken can go into water.

14. (D) All except **Ayurveda** are the names of Vedas. Ayurveda is a branch of medicine.

15. (A) All except **Potassium** are metals used in semiconductor devices.

16. (B) B must be the odd box as three of the boxes have odd numbers of lines whereas box B contains even number of lines.

17. (D) Position of S = (19) and $19 \times 19 = 361 \neq 351$
    Position of E = (5) and $5 \times 5 = 25$
    Position of I = (9) and $9 \times 9 = 81$
    Position of X = (24) and $24 \times 24 = 576$

18. (C)

    N P O M (+1 , +2 , +2)   F H G E (+1 , +2 , +2)

    Q R S P (+1 , +1 , +3)   T V U S (+1 , +2 , +2)

19. (C)

20. (C)

    C —15 m— D (135°)
    10 m | ... 30 m ...
    B —25 m— A

    Hence he is going in the South-West direction.

21. (B) The sum of three consecutive terms of the series gives the next term.
    So, (?) = 8 + 15 + 27 = 50.

22. (A)
    3   12   27   48   75   128   **147**
    3×1^2 3×2^2 3×3^2 3×4^2 3×5^2 3×6^2 3×7^2

23. (D) 0.5   0.55   0.65   0.80   **1.0**
    +0.05   +0.1   +0.15   +0.2

24. (C) 1   4   27   16   **125**   36   343
    1^3 2^2 3^3 4^2 5^3 6^2 7^3

25. (D) Clearly, while counting the numbers associated to the thumb will be 1, 9, 17, 25, ...
    Here, Numbers are in the from of $(8n + 1)$.
    Since $1994 = 249 \times 8 + 2$, so 1993 shall correspond to the thumb and 1994 is the **index finger** while counting.

26. (C)

Required distance = PT = 4 – 3 = 1 feet.

27. (A) 13 + 7 × **2** = 27.

54 + 45 × **2** = 144.

Then, ? + 32 × **2** = 68 ⇒ ? = 68 – 64 = 4.

28. (A) **2** × 9 + **3** × 17 = 18 + 51 = 69.

2 × 13 + **3** × 11 = 26 + 33 = 59.

Then, **2** × **?** + **3** × 13 = 49 ⇒ 2 × ? = 10

⇒ ? = 5.

29. (B) 3 × 100 + 5 × 9 = 345.

4 × 100 + 6 × 10 = 460.

So, 5 × 100 + 7 × 11 = 577

30. (A) Clearly, The number of ways to arrange 5 books = 5! = 5 × 4 × 3 × 2 × 1 = 120.

So, Total time taken = 120 minutes

= 2 hours.

31. (A) The mother warns her child with the expectation that he would stop troubling her. So, I is implicit. The general nature of children cannot be derived from the statement. So, II is not implicit.

32. (B) Since Arun and Suresh interchange places, so Arun's new position (13th from left) is the same as Suresh's earlier position (6th from right).

So, Number of children in the queue

= (12 + 1 + 5) = 18.

Now, Suresh's new position is the same as Arun's earlier position fifth from left.

∴ Suresh's position from the right

= (18 – 4) = 14th

33. (A) P @ Q → P is the wife of Q ...(1)

Q $ T → Q is the brother of T ...(2)

T # U → T is the daughter of U

⇒ Q is the son of U ....(3)

U * W → U is the father of W.

From (1) and (3),

We can conclude that U is the father-in-law of P.

34. (B) The girl is the daughter of the sister of Sandeep's father. Hence, the girl is the cousin of Sandeep.

35. (B) Clearly we can observe that nine days ago, it was Thursday. Therefore today is Saturday.

36. (B)

37. (D)

1. *5*   2. *5*
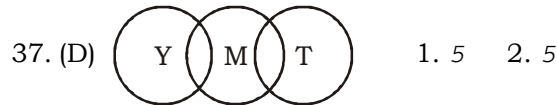
38. (C) Since each pole at the corner of the plot is common to its two sides.

Therefore total number of poles needed = 27 × 4 - 4 = 104.

39. (B) A leap year has 366 days. Now, if we divide 366 by 7 it gives 2 as remainder. Hence, number of odd days in 366 days is 2.

40. (A)

41. (D)
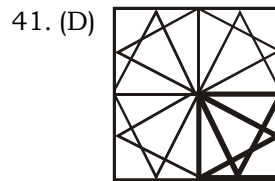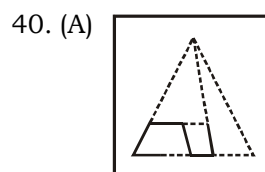
42. (C) From position I and III, considering % as the common face.

we have,

%	×	o
%	+	$

Hence according to rule sign '×' is opposite to sign '+'.

43. (D) $\frac{Always}{5} \rightarrow \frac{Generally}{3} \rightarrow \frac{Sometimes}{2} \rightarrow \frac{Seldom}{4} \rightarrow \frac{Never}{1}$

44. (C)
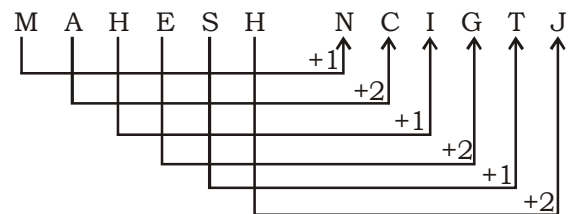
Similarly,
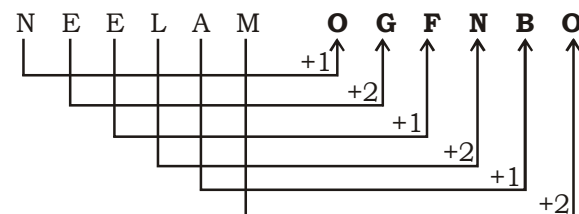
47. (B) In each row, the second figure is obtained from the first figure by adding two mutually perpendicular line segments at the centre.

The third figure is obtained from the first figure by adding four circles outside the main figure.

48. (B) The lines outside the shaded circle are not equally distributed along the circumference in figure (B).

49. (C) The figure is given below :
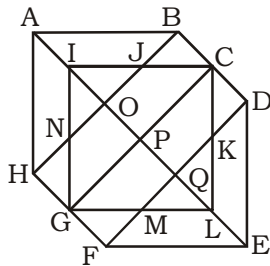
Simple triangles are IJO, BCJ, CDK, KQL, MLQ, GFM, GHN and NIO i.e. 8 in number.

Triangles composed of two components are ABO, AHO, NIJ, IGP, ICP, DEQ, FEQ, KLM, LCP and LGP i.e.10 in number.

Triangles composed of four components are HAB, DEF, LGI, GIC, ICL and GLC i.e. 6 in number.

Total number of triangles in the figure

= 8 + 10 + 6 = 24

52. (C) TRIPS stands for Trade-Related aspects of Intellectual Property Rights. The TRIPS Agreement is the most comprehensive multilateral agreement on intellectual property.

53. (C) The cornea represents the strongest part of the refracting power of the eye which provides about 80% of the power of the system. The index of refraction of the cornea is about 1.376. Rays pass from the cornea into the water fluid known as the aqueous humour which has an index of refraction of about 1.336. The lens provides perhaps 20% of the refracting power of the eye with a refractive index of 1.386 – 1.406 the refractive Index of Vitreous Humour is 1.33.

55. (A) RAM is not a secondary storage device. Storage consists of storage devices and their media not directly accessible by the Central Processing Unit (CPU). Secondary storage is all data storage that is not currently in a computer's primary storage or memory.

56. (A) Duncan Passage is a strait in the Indian Ocean. It is about 48 km wide. It separates Rutland Island (part of Great Andaman) to the north and Little Andaman to the south. West of Duncan Passage is the Bay of Bengal. East is the Andaman Sea. Several small islands and islets lie along the passage.

57. (A) The central government expenditure itself is divided into two parts i.e. planned expenditure and non-planned expenditure. Non Planned Expenditure is money that's spent on sustaining the country like defence, postal deficit, subsidies etc. and Plan Expenditure is the money that is spent on improving the country (the money spent on dams, roads etc.). Interest Payments and Debt Servicing comprise more than 30 percent of this expenditure.

58. (D) Lithium has the highest specific heat capacity of any solid element. Lithium metal is often used in coolants for heat transfer applications. It belongs to the alkali metal group of chemical elements. Under standard conditions it is the lightest metal and the least dense solid element. Like all alkali metals, lithium is highly reactive and flammable. For his reason, it is typically stored in mineral oil.

60. (C) Bragg Spectrometer is an instrument used to analyze crystal structure by using X-rays. Here a beam of collimated X-rays strikes the crystal and a detector measures the angles and intensities of the reflected beam.

64. (B) After joining the Congress Party and taking part in political agitation in the Punjab, Lala Lajpt Rai was deported to Mandalay, Burma (Myanmar) without trial in May 1907. In November, however he was allowed to return when the viceroy Lord Minto decided that there was insufficient evidence to hold him for subversion.

66. (C) Article 15 of the constitution states that no person shall be discriminated on the basis of caste, colour, language etc. Every person shall have equal access to public places like public parks, museums, wells, bathing ghats and temples etc. However, the state may make any special provisions for women and children. Special provisions may be made for the advancements of any socially or educationally backward class or scheduled castes or scheduled tribes.

67. (C) Seasonal employment refers to a situation where a number of persons are not able to find jobs during some months of the year. Example: Agriculture is a seasonal activity. There is an increased demand for labour at the time for sowing, harvesting, weeding and threshing. In between there is little or no demand for labour. Besides this disguised unemployment is also seen in agriculture in India.

68. (A) Article 222 empowers the President to transfer judges from one High Court to another. Clause (2) of this article goes on to provide that when a judge is transferred he shall be entitled to receive a compensatory allowance in addition to his salary. It is felt that there is no real justification for granting such an allowance and it is accordingly proposed to omit clause.

69. (A) Robert Edwin Peary was an American explorer who claimed to have led the first expedition, on April 6,1909, to reach the geographic North Pole. Peary's claim was widely credited for most of the 20th century, though it was criticized even in its own days.

73. (A) Somdev Kishore Dev Varman, is a professional Indian tennis player. Three of Dev Varman's college conquests, John Isner, Kevin Anderson, and Jesse Levine have successful pro careers. He hit the headlines for being the only collegiate player to have made three consecutive finals at the NCAA and winning back-to-back finals in his junior and senior years.

74. (A) Microsoft Outlook is a personal information manager from Microsoft, available as a part of the Microsoft Office suite. Although often used mainly as an email application. It also includes a calendar, task manager, contact manager, note taking, a journal and web browsing.

75. (D) Vitamin B_6 is a member of the B complex family of vitamins. It is known as pyridoxine. Its deficiency may lead to microcytic anaemia, depression, dermatitis, high blood pressure (hypertension), water retention, and elevated levels of homo cysteine. Vitamin B6 is found in a wide range of foods, including meat, poultry, legumes, bananas and foods that are fortified with a supplemental form. Adults need 1.3 to 1.7 milligrams (mg) daily to meet their requirements.

77. (A) The Planck's constant has dimensions of physical action. These are the same as those of angular momentum, i.e., energy multiplied by time, or momentum multiplied by distance. In SI units, the Planck constant is expressed in joule seconds (J.s) or (N.m.s).

79. (D) The Battle of Rajasthan is a battle (or series of battles) where the Hindu alliance defeated the Arab invaders in 738 AD and removed the Arab invaders from the area east of the Indus River and protected the whole of India. The main Indian kings who contributed to the victory over the Arabs were the north Indian ruler Nagabhata of the Partihara Dynasty and the south Indian Emperor Vikramaditya-II of the Chalukya Dynasty in the 8th century.

81. (B) Ratna is a resistant variety of rice. This paddy variety takes about 130-135 days to grow. The main states growing this variety are Bihar, Madhya Pradesh, Assam, West Bengal, Orissa, Terai region of UP, Punjab, Haryana and Tamil Nadu.

82. (B) The consumption function is a mathematical formula laid out by famed economist John Maynard Keynes. The formula was designed to show the relationship between real disposable income and consumer spending. The latter variable is considered the most important determinant of short-term demand in an economy.

83. (C) Colour-blindness is the inability to distinguish the differences between certain colours. This condition results from the absence of colour-sensitive pigment in the cells of the retina, the nerve layer at the back of the eye. A person with colour-blindness has trouble seeing red, green, blue or mixtures of these colors. The most common type is red-green colour-blindness, where red and green are seen as the same colour.

85. (D) Curzon introduced some reforms in agriculture. He passed the Punjab Land alienation Act of 1902. Under this act Curzon declared that the land of agriculture will not be transferred to non-agriculturist. In this way he protected the farmers from money lender class.

87. (A) Proportional representation (PR) is a concept in voting systems used to elect an assembly or council. PR means that the number of seats won by a party or group of candidates is proportionate to the number of votes received. It is a voting system whereby successful parties gain seats or majority in a country's legislature and thus are eligible for government formation.

88. (A) Jim Yong Kim, a Korean-American physician and anthropologist has been the 12th President of the World Bank since July 1, 2012. He was President of Dartmouth College from 2009 to 2012.

91. (D) The freezing point of water is the temperature at which water changes from liquid to solid. Under normal conditions, ordinary water freezes at 0°C or 32°F. The temperature may be lower if super cooling occurs or if there are impurities present in the water which could cause freezing point depression to occur.

92. (C) Sabarimala is a famous pilgrim centre situated on a hilltop amid sylvan surroundings in Kerala. About 50 million devotees visit this shrine (the abode of Lord Dharmasastha) during November-January every year.

93. (C) In view of the large number of figurines found in the Indus valley, some scholars believe that the Harappan people worshipped a Mother goddess symbolizing fertility (a common practice among rural Hindus even today).

94. (C) The Constituent Assembly of India was elected to write the Constitution of India. Some of its prominent members were Pandit Jawaharlal Nehru, Maulana Abul Kalam Azad, Sardar Vallabhbhai Patel, Acharya J.B. Kriplani, Dr. Rajendra Prasad, Smt. Sarojini Naidu, Shri Hari-Krishna Mahtab, Pandit Govind Ballabh Pant, Dr. B.R. Ambedkar, Shri Sarat Chandra Bose, Shri C. Rajagopalachari and Shri M. Asaf Ali. Mahatma Gandhi was not a member of constituent assembly.

96. (B) Sirimavo Bandaranaike was a Sri Lankan Politician and the modern world's first female head of government. She served as the Prime Minister of Ceylon and Sri Lanka three times, 1960-65, 1970-77 and 1994-2000 and was a long-time leader of the Sri Lanka Freedom Party.

97. (C) The ozone layer is a layer in Earth's atmosphere containing relatively high concentrations of ozone (O_3). The layer absorbs 97-99% of the Sun's medium-frequency ultraviolet light (from about 200 nm to 315 nm wavelength) which potentially damages exposed life forms on Earth.

119. (C)
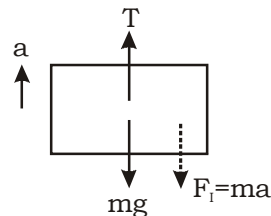
$\because \quad v = u + at$

$\quad 4 = 0 + a \times 2$

$\quad a = 2 \, m/sec^2$

Using D' Alemberf principle
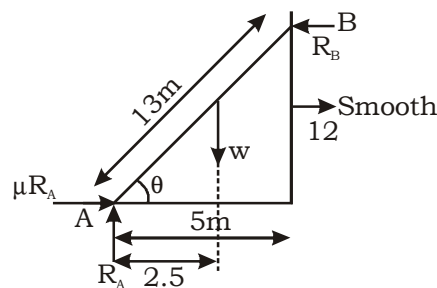
$m = 100kg$

$T = mg + ma$

$T = 1000 (10+2) = 12000$

$T = 12000 \, N$

120. (D)

For Equilibrium :

$\quad \Sigma F_x = 0$

$R_B - \mu R_A = 0$

$\quad R_B = \mu R_A \qquad \ldots(i)$

$\quad \Sigma F_y = 0$

$\quad R_A = W \qquad \ldots(ii)$

and Taking moment about A

i.e. $\quad \Sigma \dfrac{M}{A} = 0$

$R_B \times 12 - W \times 2.5 = 0$
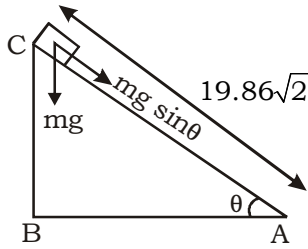
$\quad R_B = \dfrac{2.5}{12} W = 0.208 W$

$\quad R_B = 0.208 \, W \qquad \ldots(iii)$

From equation (i) & (ii)

$\quad R_B = \mu w \qquad \ldots(iv)$

$\quad \mu = 0.208$

121. (B)

Given, v = 19.86 m/sec²

$S = 19.86\sqrt{2}$

Since component of weight mgsinθ is responsible for motion of block on an inclined plane.

So, mg sinθ = m a ....(i)

And since v² = u² + 2as

u = 0

$(19.18)^2 = 0 + 2 \times a \times 19.86\sqrt{2}$

$a = \dfrac{19.86}{2\sqrt{2}}$

Put the value of a in equation (i)

$g \sin\theta = a$

$g \sin\theta = a$

$9.81 \times \sin\theta = \dfrac{19.86}{2\sqrt{2}}$

or $\sin\theta \simeq \dfrac{1}{\sqrt{2}}$

θ = 45°

175. (B) P_{air} = – 0.25 × 13.6 = – 3.4 m of water

Now, P_{air} + 4 × 0.8 = P_A

∴ P_A = – 3.4 + 3.2

= –0.2 m of water

P_A = – 1.962 KPa

179. (C)

$T = 2\pi\sqrt{\dfrac{K_G^2}{g.GM}}$

$= 2\pi\sqrt{\dfrac{(9)^2}{9.81 \times 0.750}}$

= 20.85 sec.