Answer-key & Solution

SSC JE Mechanical
MOCK -(72)
Date 12 / 11/ 2016

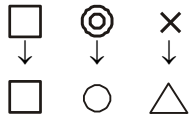
1. B	26. C	51. B	76. C	101. D	126. C	151. C	176. D
2. B	27. C	52. B	77. D	102. A	127. B	152. C	177. D
3. B	28. A	53. B	78. B	103. D	128. C	153. C	178. B
4. D	29. C	54. B	79. A	104. C	129. C	154. D	179. D
5. B	30. A	55. B	80. B	105. C	130. A	155. C	180. C
6. B	31. B	56. B	81. D	106. A	131. C	156. A	181.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

1. (B) After comparing both the dices we have,



As we can observe that ♡ symbol is missing which is opposite to symbol □.

2. (B) As, $\sqrt{144} = 12 \Rightarrow 1^2 + 2^2 = 1 + 4 = 5$

then, $\sqrt{961} = 31 \Rightarrow 3^2 + 1^2 = 9 + 1 = 10$

3. (B) Hawaii is the major producer of Pineapple. Similarly Floride is a major producer of Oranges.

4. (D) 2 : 9 :: 28 : 65 third place

1^3+1 2^3+1 3^3+1 4^3+1

5. (B) K I T CAT → CAT T I K (In reverse order)

Similarly,

P E N TOP → TOP N E P (In reverse order)

6. (B) M A T → N C W (+1, +2, +3)

Similarly, A P E → B R H (+1, +2, +3)

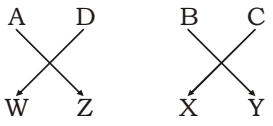
7. (B) As, $7^3 + 6 = 349$

Similarly, $11^3 + 10 = 1341$

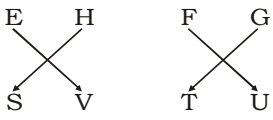
8. (B) 68 $\xrightarrow{\text{Reverse}}$ 86 ; 86 – 68 = 18

72 $\xrightarrow{\text{Reverse}}$ 27 ; 72 – 27 = 45

9. (A)



Similarly, pairs of opposite letters



10. (A) 4 : 18 : 5 : ?

4! – 3! = 24 – 6 ; 5! – 4! = **96**

11. (C) Sleeping is different from the other three. Except sleeping, rest of the activities involves some action.

12. (D) In all the other pairs, second number is 23 more than the first number.

13. (D) All other numbers are perfect squares.

14. (A) A ribbon is used to decorate a present and an icing is used to decorate a cake.

15. (B) Except Bat, rest belongs to the class of Aves (birds), while bat is a mammal.

16. (C) D ↔ W; H ↔ S

Pairs of opposite letters

B ↔ Y; D ↔ W

E ↔ V; J ↔ Q

The opposite letter of C is X and that of F is U.

17. (D) Bivouac is a synonym of camp similarly treaty is a synonym of alliance.

18. (D) B F C G D (+1, +1, +1, +1) ; L P M Q N (+1, +1, +1, +1)

N R O S P (+1, +1, +1, +1) ; **Y C D Z A** (+4, -3, +23)

19. (A) Proposal, Proposition, **Propriety**, Prosecuter.

20. (A) Number of boys in the row = (15 + 4 + 3) = 22

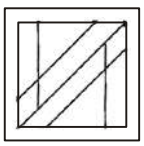
C is just left of A. So, C is 14th from the left end.

Number of boys to the right of C = (22 – 14) = 8

So, C is 9th from the right end of the row.

21. (C) The word SOLACE cannot be formed from the original word due to absence of letter E.

22. (D)



23. (C) There are total 15 squares in the given figure.

24. (B) Sitting arrangements of the members are as follows

Left U R Q P S Right

• • • • •

Hence, Q is sitting in the middle of row.

25. (C) The series is nnmm/nnmm/nnmm/nnmm. Thus, the pattern 'nnmm' is repeated.

26. (C) The given sequence is a combination of two series

First: 11, 20, 40, 74

and Second: 5, 12, 26, 54

The correct pattern in First is

+9, +18, +36, ...

The correct pattern in Second is

+7, +14, +28, ...

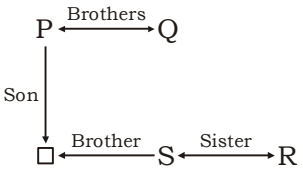
So, 40 is wrong and must be replaced by (20 + 18) i.e., 38.

27. (C) Net ascent of the monkey in 1 hour = (30 – 20) feet = 10 feet

So, the monkey ascends 90 feet in 9 hours i.e., till 5 : 00 pm

Clearly, in the next 1 hour i.e., till 6 : 00 pm the monkey ascends remaining 30 feet to touch the flag.

28. (A)



Clearly, brother of S is also brother of R.

Hence, Q is uncle of R.

29. (C)

Word	Vowels	Consonants	
ASSISTANT	3	6	⇒ 36
MANAGER	3	4	⇒ 34
STAFF	1	4	⇒ 14
DIRECTOR	3	5	⇒ **35**

30. (A) S K C O **R** S U P M A C D K

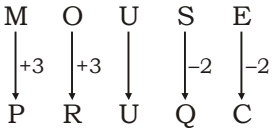
3rd letter to left of 6th letter from right — 6th letter from the right

31. (B) $X = 3^2 - 1^2 = 8$

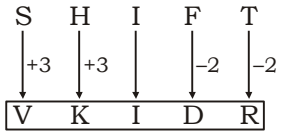
$Y = 5^2 - 3^2 = 16$

$Z = 7^2 - 6^2 =$ **13**

32. (B)



Similarly,



33. (A) The given sequence is a combination of two series.

First: M, O, R, V and Second: N, L, I, ?

The pattern in First is

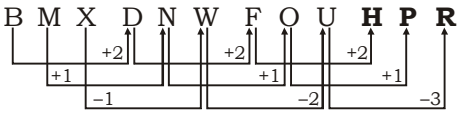
M $\xrightarrow{+2}$ O $\xrightarrow{+3}$ R $\xrightarrow{+4}$ V $\xrightarrow{+5}$ A

The pattern in Second is

N $\xrightarrow{-2}$ L $\xrightarrow{-3}$ I $\xrightarrow{-4}$ E

So, the missing letter is A.

34. (C)



35. (C) The given sequence is a combination of two series

I. 13, 24, 35, 46, 57

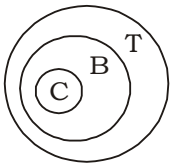
and II. 32, 43, ?, 65, 76

The pattern in both I and II is +11.

So, missing term = 43 + 11 = **54**

36. (D) A $\xrightarrow{+8}$ I $\xrightarrow{+7}$ P $\xrightarrow{+6}$ V $\xrightarrow{+5}$ A $\xrightarrow{+4}$ E $\xrightarrow{+3}$ **H**

37. (A) All follows



I. ✓
II. ✓
III. ✓

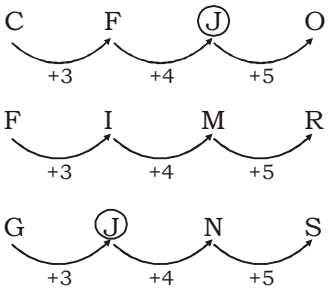
38. (C) Clearly, we have

$$\frac{5\times6\times4}{10} = 12, \quad \frac{6\times7\times5}{10} = 21$$

So, missing number

$$= \frac{5\times8\times10}{10} = \mathbf{32}$$

39. (C)



40. (C) Clearly, moving clockwise, we observe the following pattern
$4 \times 1 = 4$, $4 \times 2 = 8$, $8 \times 3 = 24$,
$24 \times 4 = 96$, $96 \times 5 = 480$, $480 \times 6 = 2880$ and $2880 \times 7 = 20160$
So, required number
= (480 × 6) = 2880

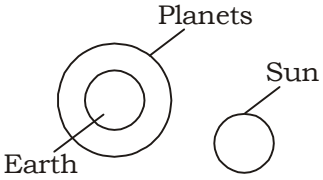
41. (B)

42. (B) $16 \div 2 = 14 \Rightarrow \div = -$
$18 - 3 = 54 \Rightarrow - = \times$
$14 \times 2 = 16 \Rightarrow \times = +$
$96 + 4 = 24 \Rightarrow + = \div$
then, $18 - 5 + 3 \times 2 \div 24 = ?$
After interchanging the signs we have,
$? = 18 \times 5 \div 3 + 2 - 24$
$= 18 \times \frac{5}{3} + 2 - 24$
$= 32 - 24$
$= 8$

43. (D)

44. (A) $(16 \times 2) + (5 \times 6) = 32 + 30 = 62$
$(2 \times 19) + (21 \times 5) = 38 + 105 = 143$
$(17 \times 4) + (51 \times 3) = 68 + 153 =$ **221**

45. (C)



Earth is a planet. But, Sun is entirely different.

46. (C) After interchaning the digits 8 and 3 we have,
$24 \div 3 \times 2 - 4 + 8$
$= 8 \times 2 - 4 + 8$
$= 16 + 8 - 4$
$= 24 - 4$
$= 20$

47. (C) By making the interchanges given in (C), we get the equation as
5 – 3 + 2 = 4 or 4 = 4, which is true.

48. (B) Deepti's new position is 17th from the left and 13th from the right.
So, number of children in the row
$= (16 + 1 + 12) = 29$
Now, Kashish's new position is
Deepti's earlier position which is 9th from the left.
Number of children to the right of Kashish
$= (29 - 9) = 20$
Hence, Kashish's new position from the right is 21st.

49. (C) Angle traced by hour hand in 12 hrs = 360°
Angle traced by hour hand in $\frac{25}{4}$ hrs
$= \left(\frac{360}{12} \times \frac{25}{4}\right)^\circ = 187.5°$
Angle traced by minute hand in 60 min = 360°
Angle traced by it in 15 min
$= \left(\frac{360}{60} \times 15\right)^\circ = 90°$
$\therefore$ Required angle = (187.5° – 90°) = 97.5°

50. (C)

51. (B) Neelam Sanjiv Reddy was the sixth President of India who served from 1977 to 1982. He is the only person to be elected to the office unopposed.

53. (B) The Northern Fertile Plain which is also called the Gangetic Plain lies to the south of Himalayan Region. The soil of this plain is built of the sediments and brought down by the rivers from Himalayas. Such plain is called an alluvial plain and it is very fertile. This plain is one of the largest and most fertile plains of the World. Aggradation is the term used in geology for the increase in land elevation due to the deposition of sediment which include lowland alluvial rivers, river deltas and alluvial fans.

55. (B) The scheduled banks are required to maintain an average daily balance with the Reserve Bank of India, the amount of which should not be less than 5 percent of their net demand and time liabilities in India in terms of Section 42 of the Reserve Bank of India Act, 1934.

56. (B) The man who is suffering from myopia has a vision condition where he can see close objects very clearly, but objects farther away appear blurred. Nearsightedness occurs if the eyeball is too long.

57. (C) An amphoteric species is a molecule or ion that can react as an acid as well as a base. Many metals such as zinc, tin, lead, aluminium, beryllium and most metalloids form amphoteric oxides or hydroxides.

58. (A) An accessory fruit which is sometimes called false fruit, is a fruit in which some of the flesh is derived not from the ovary.

Some examples are strawberries, figs, or mulberries. Pomes, such as apples and pears, are also accessory fruits, with much of the fruit flesh derived from a hypanthium.

61. (B) NAFTA : North American Free Trade Agreement

NATO : North Atlantic Treaty Organisation

EEC : European Economic Community

ASEAN : Association of South East Asian Nations. NATO is military alliance.

62. (D) The Ryder Cup is a biennial men's golf competition between teams from Europe and the United State. Jointly administered by the PGA of America and the PGA European Tour, it is contested every two years with the venue alternating between courses in the USA and Europe.

63. (A) The renal arteries normally arise off the side of the abdominal aorta, immediately below the superior mesenteric artery and supply blood to the kidneys.

65. (D) The separation of fat from milk is based on the fact that when liquids of different specific gravities revolve around the same centre at the same distance with the same angular velocity, a greater centrifugal force is exerted on the heavier liquid than on the lighter one.

66. (B) Inventory refers to raw materials, work-in-process goods and completely finished goods that are considered to be the portion of a business's assets that are ready or will be ready for sale. Inventory are also represented as one of the most important assets that most businesses possess because the turnover of inventory represents one of the primary sources of revenue generation and subsequent earnings for the company's shareholders/ owners.

69. (D)

- Member of Parliaments are directly elected by citizens of India on the basis of Universal Adult franchise, except two who are appointed by the President of India.
- The President of India is elected, from an Electoral College comprising a group of nominees, by the elected members of the Parliament of India (Lok Sabha and Rajya Sabha) as well as of the state legislatures (Vidhan Sabhas).
- The Vice President is elected indirectly by an electoral college consisting members of both houses of the Parliament.
- Members of the Lok Sabha elect their Speaker in the first meeting of the House after a general election.

76. (C) Humming birds are birds that comprise the family Trochilidae. They are among the smallest of birds, most species measuring in the 7.5-13 cm (3-5 in) range. Indeed, the smallest extant bird species is a humming bird, the 5 cm Bee Humming bird. They are known as hummingbirds because of the humming sound created by their beating wings which sometimes sound like bees or other insects.

77. (D) In chemistry, pH is a measure of the activity of the solvated hydrogen ion. Pure water has a pH very close to 7 at 25 °C. Solutions with a pH less than 7 are said to be acidic and solutions with a pH greater than 7 are basic or alkaline. A pH of 7 is treated as neutral.

78. (B) Normal speech is about 60 dB (decibels). A dangerous sound is anything that is 80 dB or higher which can lead to hearing loss. At 70 dB or lower, the risk of harm to healthy ears is negligible. Listening to sound above 80 decibels can cause deafness.

80. (C) The Manufacturing Belt was called the Rust Belt in the latter decades of the 20th century because the word that describes the deterioration of iron into rust was an appropriate name to give to a region where the iron and steel and related industries were in great decline.

81. (D) The specific heat of water is 1 calorie/ gram °C = 4.186 joule/gram °C which is higher than any other common substance. So, we can say that water plays a very important role in temperature regulation.

84. (C) Eratosthenes of Cyrene, 276 BC- 195 BC, was a Greek mathematician, geographer, poet, athlete, astronomer, and music theorist. He was the first person to calculate the circumference of the earth by using a measuring system using stades,

or the length of stadiums during that time period.

85. (C) As India is following a parliamentary system of government in which the Prime Minister is generally the leader of a party (or coalition of parties) that has a majority in the Lok Sabha, the lower house of the Parliament of India. He remains in office till he enjoys the confidence of the House.

86. (C) Trusteeship is a socio-economic philosophy that was propounded by Mahatma Gandhi. It provides a means by which the wealthy people would be the trustees of trusts that looked after the welfare of the people in general. This concept was condemned by socialists as being in favour of the landlords, feudal princes and the capitalists.

87. (D) The Parliament enacted the "President Act, 1969" (Discharge of Functions) which provides that in the event of occurrence of vacancy in the office of both the President and the Vice-President, the Chief Justice of India or in his absence the senior-most judge of the Supreme Court available shall discharge the functions until a new President is elected.

88. (A) As in most other contemporary civilizations, agriculture was the backbone of the Indus economy also. The people made extensive use of the wooden plows. Barley and wheat were the main food crops.

89. (B) Weather is the state of the atmosphere, to the degree that it is hot or cold, wet or dry, calm or stormy, clear or cloudy. Most weather phenomena occur in the troposphere, just below the stratosphere. Weather refers, generally, to day-to-day temperature and precipitation activity.

Weather is different from climate as it is the term for the average atmospheric conditions over longer periods of time.

90. (B) The Battle of Chausa took place between Mughal Emperor Humayun and Sher Shah Suri on June 26, 1539. The whole of the Mughal army was defeated in this battle. Humayun himself fled.

92. (A) Some goods are known as inferior goods. There is an inverse relationship between real income and the demand for the good. If real income rises, the demand for an inferior good will fall. If real income falls (in a recession, for instance), the demand for an inferior good will rises.

For example- As people get richer, they are more likely to buy themselves a car, or use a taxi, rather than rely on the more inferior bus, so the demand for bus travel falls as real income rise.

93. (C) The angle of deviation by which the light of a particular wavelength gets deviated on passing through a medium depends upon the refractive index of the medium. As while light passes through a prism, the violet component, having the minimum wavelength also observes the maximum refractive index for the prism and deviates the most.

94. (C) Global Warming refers to average increase in the earth's temperature due to increase in pollution which results in greenhouse effect which in turn leads to climate change. The greenhouse gases such as carbon dioxide accumulate into the atmosphere and trap heat that would normally exit into the outer space.

95. (D) A common first sign of tetanus is muscular stiffness in the jaw (lockjaw) which is followed by stiffness of the neck, difficulty in swallowing, rigidity of abdominal muscles and spasms.

117. (B) $1\text{torr} = \frac{1}{760}\text{atom} = 1$ mm Hg

119. (D) For adiabatic expansion process we can write

$$T_3V_3^{\gamma-1} = T_4V_4^{\gamma-1}$$

$$\Rightarrow \quad \frac{T_2}{T_4} = \left(\frac{V_3}{V_4}\right)^{\gamma-1}$$

Figure

$$\Rightarrow \quad \frac{T_3}{T_4} = \left(\frac{16}{1}\right)^{0.4}$$

$\Rightarrow$ $T_3 = T_4 \times 3.03$

Pulting value of

$T_4 = 295$ K $\qquad [\because T_1 = T_4]$

$T_3 = 295 \times 3.03$

$T_2 = 894.2$

Now as $\frac{Q_1}{T_2} = \frac{Q_2}{T_2}$

So, $Q_2 = \frac{Q_1}{T_1} \times T_2 \qquad [\because T_2 = T_3]$

$$= \frac{53}{295} \times 894.2$$

$\Rightarrow$ $Q_2 = 17.48 \approx 17.49$ kJ

122. (A) Boyal's law

at constant temperature PV = C

$\Rightarrow$ $P_1V_1 = P_2V_2$

Let first $P_1 = 100$ unit

$V_1 = 1$ unit

So, $100 \times 1 = P_2V_2$

Now $P_2 = (100 + 1)$ unit

So, $100 = 101V_2$

$$\Rightarrow \quad V_2 = \frac{100}{101}$$

123. (B) Air required for complete combustion of carbon as belows

(i) Carbon to carbon dioxide

$C + O_2F \rightarrow CO_2$

(ii) Carbon to carbon monoxide

$C + O \rightarrow CO$

From above oxygen atom's required ratio for carbon-di-oxide to carbon-mono-oxide

$$= \frac{2}{1} = 2.0$$

128. (C) Maximum efficiency of a heat engine is equal to carnot engine

as $\eta_{max} = 1 - \frac{T_1}{T_2}$

$$\eta_{max} = 1 - \frac{273 + 27}{(273 + 327)}$$

$$\eta_{max} = 1 - \frac{300}{600} = 1 - \frac{1}{2}$$

$$h_{max} = \frac{1}{2}$$

131. (C) As we known than

$$\frac{\tau}{R} = \frac{T}{J} = \frac{G\theta}{l}$$

$$\frac{T}{J} = \frac{G\theta}{l}$$

$$\Rightarrow \quad \theta = \frac{Tl}{GJ}$$

$$\Rightarrow \quad \frac{\theta}{\theta'} = \frac{\frac{\pi}{32}\left(\frac{d}{2}\right)^4}{2\frac{\pi}{32}d^4}$$

$$\Rightarrow \quad \frac{\theta}{\theta'} = \frac{\left(\frac{1}{2}\right)^4}{\frac{2}{1}}$$

$\Rightarrow$ $\theta' = 2^5\theta$

$\Rightarrow$ $\theta' = 32\theta$

132. (D) Rankine formula for crippling load

$$P_c = \frac{\pi^2 E\left(AK^2\right)}{L_e^2}$$

L_e = effective length

$$\Rightarrow \quad P_c = \frac{\pi^2 EA}{\left(\frac{L_e}{K}\right)^2} \quad \Rightarrow \quad P_c \propto \frac{1}{\left(\frac{L_e}{K}\right)^2}$$

Here, $\frac{L_e}{K}$ is slendernes ratio

134. (C) As we know that

$$\frac{T}{J}=\frac{\tau}{R}=\frac{G\theta}{l}$$

from first & last

$$\frac{T}{J}=\frac{G\theta}{l}$$

Given $\theta = 1$ Radian

$\theta = 1$ unit

So, $\frac{T}{J}=G$

$\Rightarrow$ T = GJ = Torsional Rigidity

135. (C) Deflection in this beam

$$(\Delta)=\frac{Pl^3}{3EI}$$

Strain energy $=\frac{1}{2}P\Delta$

$$=\frac{1}{2}\times P\times\frac{Pl^3}{2EI}$$

$$=\frac{P^2l^3}{6EI}$$

149. (C) Total pressure drop head

$$=\frac{12\times\text{viscosity}\times\text{average velocity}\times\text{length}}{\text{density}\times g\times\text{distance between plates}}$$

$$\frac{\text{pressure drop}}{\text{unit length}}$$

$$=\frac{\text{pressure drop head}\times\text{density}\times g}{\text{Length}}$$

$$=\frac{12\mu\overline{u}L}{\rho gD^2}\times\frac{\rho g}{L}$$

$$=\frac{12\mu\overline{u}L}{D^2}$$

153. (C) hydrostatic force on any vertical wall

$=\rho gA_1\overline{h}$

$$=\frac{\rho ghA_1}{2}$$

hydrostatic force on bottom surface

$= \rho ghA$

$$\text{required ratio} = \frac{pg\times 2\times A\times\frac{h}{2}}{\rho g\times A\times h}=1$$

155. (C) Dynamic viscocity

$$=\frac{N-sec}{m^2}=\text{Pa.sec}$$

167. (B) $\because$ $C + O_2 \rightarrow CO_2$

$\Rightarrow$ $12 + 2 + 16 \rightarrow (12 + 2\times16)$

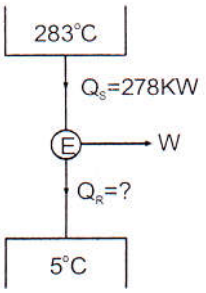
means 12 kg carbon reguires 32 kg of oxygen to burn completely

So, O_2 required/ kg of carbon

$$=\frac{32}{12}=2.67\,\text{kg}$$

168. (A) When wet steam flows through a throttle value, it gets converted into dry steam, as through a small cross section, steam evaporates and get converted into dry steam.

169. (A) For Reversible heat engine



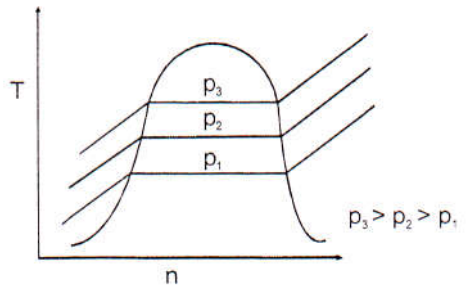
$$\eta=1-\frac{T_L}{T_H}=1-\frac{278}{556}=0.5$$

$$\eta=\frac{\text{work done}}{\text{Heat Input}}$$

$$0.5=\frac{\text{work done}}{278}$$

$$\text{work done} = \frac{1}{2}\times 278 = 139$$

173. (A)



As we increase the pressure enthalpy of vapourization is going to decreas example in pressure cooker at High pressure food cook easily.

183. (C) (Twisting torque)^2 + (Bending moment)^2 = Const.

$\because$ Twisting torque and bending moment are always perpendicular to each other

So, $= (12)^2 = (M)^2$

$= (12)^2 + 0 = 169$

$$M = \sqrt{169 - 144} = \sqrt{25}$$

$\Rightarrow$ 5 KN – m

186. (D) Shearing = $l \times b$

Crushing are = $l \times \frac{t}{2}$

& Crushin stress (σ) = 2 τ shear stress

shear strength = crushing strength

$$lb\tau = l\frac{t}{2}2\tau$$

$lb\tau = lt\tau \Rightarrow$ b = t

187. (D) As $L = 2P - 4$

$\Rightarrow 4 = 2P - 4$

$\Rightarrow 8 = 2P$

$\Rightarrow P = 4$

188. (D) $h = \frac{g}{\omega^2}$

$$\Rightarrow \omega = \sqrt{\frac{g}{h}}$$

$$\Rightarrow \omega = \sqrt{\frac{9.8}{0.2}}$$

$\Rightarrow \omega = 7$ rad/sec

190. (B) $\text{Stiffness} = \frac{\text{change in force}}{\text{Displacement}}$

By putting values

$$\text{Stiffness} = \frac{(1200 - 800)\text{N}}{20\text{mm}}$$

$$= \frac{400\,\text{N}}{200\,\text{mm}} = 20\text{N/mm}$$

192. (C) $\because$ Effort more for one revolution

$= \pi D$

and load move

$$= \frac{\pi d_1 - \pi d_2}{2}$$

hence velocity Ratio

$$= \frac{\pi D \times 2}{\pi d_1 - \pi d_2}$$

194. (C) $\tan\alpha = \frac{lead}{\pi D} = \frac{L}{\pi D}$

199. (B) Swells $\rightarrow$ it is the casting defect which occure becouse of non-uniform ramming of casting sand