



# KD Campus Pvt. Ltd

PLOT NO.2, SSI INDUSTRIAL AREA, G.T. KARNAL ROAD, JAHANGIRPURI, DELHI-110033

## Answer-key & Solution

SSC JE (Mechanical)  
MOCK -(143)  
Date:- 14.07.2018

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

**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. 143**

1. (A) Magazine is related to editor and drama is related to director.

2. (C) As,  $\underline{\text{ACEG}}$   $\underline{\text{IKMO}}$   
                  +8

Similarly,  $\underline{\text{QS UW}}$   $\underline{\text{YACE}}$   
                                  +8

3. (A)  $12 \Rightarrow (12 + 1) \times 3 = 39$   
 $15 \Rightarrow (15 + 1) \times 3 = 48$

4. (B) Except 'Battery', others are used for lightening purpose.

5. (D)  $\text{CA} \Rightarrow 3 - 1 = 2$   
 $\text{FD} \Rightarrow 6 - 4 = 2$   
 $\text{KI} \Rightarrow 11 - 9 = 2$

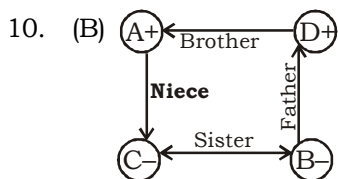
**TQ  $\Rightarrow 20 - 17 = 3$**

6. (D)  $\begin{matrix} 73 & 61 & 57 & 69 & 47 & 59 & 42 & 29 \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ 12 & 12 & 12 & 12 & 12 & 12 & 13 & 13 \end{matrix}$

7. (D) Scarf  $\rightarrow$  Scene  $\rightarrow$  Shell  $\rightarrow$  Stream  $\rightarrow$  Survey.

8. (A)  $\underline{\text{DCB}}$   $\underline{\text{HGF}}$   $\underline{\text{LKJ}}$   $\underline{\text{PON}}$   
                  +4           +4           +4

9. (A)  $\begin{matrix} 4 & 9 & 16 & 25 & 36 & 49 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 2^2 & 3^2 & 4^2 & 5^2 & 6^2 & 7^2 \end{matrix}$



11. (A) N R **O** P M

12. (C) S A L U T E

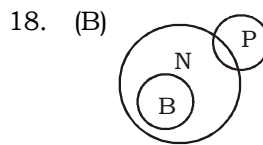
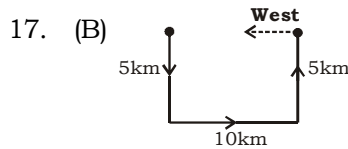
13. (A) SUN =  $19 + 21 + 14 = 54$   
CAKE =  $3 + 1 + 11 + 5 = 20$   
MISTAKE =  $13 + 9 + 19 + 20 + 1 + 11 + 5 = 78$

14. (C)  $128 + 9 - 16 \times 4$   
After changing the signs as per the given details,  
 $128 \times 9 + 16 \div 4 = 128 \times 9 + 4$   
 $= 1152 + 4$   
 $= 1156$

15. (D) As,  $6 \times 2 \times 9 \Rightarrow 269,$   
a b c bac  
 $8 \times 7 \times 1 \Rightarrow 781$   
a b c bac  
Similarly,  $4 \times 1 \times 3 \Rightarrow 143$

a b c bac

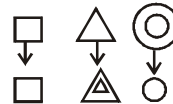
16. (C)  $9 \times 3 \times 3 = 81$   
 $11 \times 4 \times 4 = 176$   
 $13 \times 7 \times 5 = 455$



- I.  $\times$
- II.  $\checkmark$

$\therefore$  Only conclusion II follows.

19. (B) From figure (i) and (iii), we have,



$\therefore$  The face opposite to "O" is

25. (B) S E N T  
22 32 65 78

26. (B) "Five Point Someone" is written by Chetan Bhagat and "Swami and Friends" is written by R.K. Narayan.

27. (C)  $\underline{\text{BFJ}}$  :  $\underline{\text{KOS}}$  ::  $\underline{\text{KOS}}$  :  $\underline{\text{TXB}}$   
                  +9           +9

28. (C) As,  $14 \Rightarrow 14 \times 2 + 2 = 30$   
Similarly,  
 $16 \Rightarrow 16 \times 2 + 2 = 34$

29. (D)  $\begin{matrix} \underline{\text{Z}} & \underline{\text{B}} & \underline{\text{D}} & \underline{\text{J}} & \underline{\text{L}} & \underline{\text{N}} & \underline{\text{O}} & \underline{\text{S}} & \underline{\text{U}} & \underline{\text{N}} & \underline{\text{O}} & \underline{\text{P}} \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 & +1 & +1 & +1 \end{matrix}$

30. (A) Except Body, others are parts of body.

31. (A) **1356**  $\Rightarrow 1 + 3 + 5 + 6 = 25$   
 $5497 \Rightarrow 5 + 4 + 9 + 7 = 25$   
 $7864 \Rightarrow 8 + 7 + 6 + 4 = 25$   
 $9943 \Rightarrow 9 + 9 + 4 + 3 = 25$

32. (D) Pemmafrost  $\rightarrow$  Permanence  
 $\rightarrow$ Permanent  $\rightarrow$  Permeability.

33. (A) As,  $\begin{matrix} \underline{\text{D}} & \underline{\text{I}} & \underline{\text{S}} & \underline{\text{O}} & \underline{\text{R}} & \underline{\text{D}} & \underline{\text{E}} & \underline{\text{R}} \\ \swarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ \underline{\text{O}} & \underline{\text{S}} & \underline{\text{I}} & \underline{\text{D}} & \underline{\text{R}} & \underline{\text{E}} & \underline{\text{D}} & \underline{\text{R}} \end{matrix}$

Similarly,  $\begin{matrix} \underline{\text{P}} & \underline{\text{R}} & \underline{\text{A}} & \underline{\text{C}} & \underline{\text{T}} & \underline{\text{I}} & \underline{\text{C}} & \underline{\text{E}} \\ \swarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ \underline{\text{C}} & \underline{\text{A}} & \underline{\text{R}} & \underline{\text{P}} & \underline{\text{E}} & \underline{\text{C}} & \underline{\text{I}} & \underline{\text{T}} \end{matrix}$

34. (B)  $14 \times 6 \div 3 \times 5 \div 4 \times 20$   
From option (B),  
 $14 + 6 \div 3 \times 5 - 4 = 20$   
 $\Rightarrow 14 + 2 \times 5 - 4 = 20$   
 $\Rightarrow 14 + 10 - 4 = 20$   
 $\Rightarrow 20 = 20$   
 $\therefore$  Option (B) is the right answer.
35. (C) Mohit > Kamal > Amit > Ramesh > **Rohit**  
Hence, Rohit is the shortest.

36. (B)  $\frac{DJO}{+1} \frac{EKP}{+1} \frac{FLQ}{+1} \frac{GMR}{+1} \frac{HNS}{+1}$

37. (C)  $\frac{PR}{+6} \frac{VX}{+6} \frac{BD}{+6} \frac{HJ}{+6}$

38. (C)  $\frac{4}{\times 3+1} \frac{13}{\times 3+1} \frac{40}{\times 3+1} \frac{121}{\times 3+1} \frac{364}{\times 3+1}$

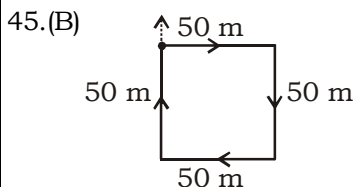
39. (C) Neither I nor II follow.
40. (D) **Prem** > Raju > Sunder > Hari > Ompal  
Hence, Prem owns the highest share of land.

41. (D)  $3^2 + 4^2 = 5^2$   
 $12^2 + 5^2 = 13^2$   
 $24^2 + 7^2 = 625$   
 $= 25^2$

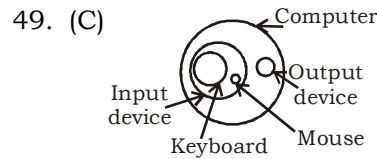
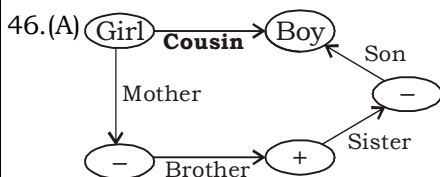
42. (B)  $6 \times 7 = 42$   
 $8 \times 4 = 32$   
 $9 \times 5 = 45$

43. (B)  $81 \times 9 + 10 - 6 \div 5$   
After changing the signs as per the given detail,  
 $81 \div 9 - 10 \times 6 + 5$   
 $= 9 - 60 + 5$   
 $= -46$

44. (D) abc / aabbcc / aaabbb



He is present at his original position.

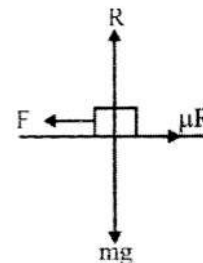


50. (C) **H A I R Y**  
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$   
**03, 33, 57, 78, 99**

51. (C) A **geographic information system (GIS)** is a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data.
52. (C) **Swami Niranjanananda Saraswati** was born in 1960 in Rajnandgaon in the state of **Chhattisgarh**. He was given the third-highest civilian award of the country, **Padma Bhushan**, in 2017 for distinguished service of high order.
53. (C) Mars is the **fourth planet** from the Sun and the second-smallest planet in the Solar System after Mercury. The terrestrial planets, Mars, Earth, Venus, and Mercury only have three moons between them (**Mars has two**, Phobos and Deimos, and the **Earth has one**).
54. (C) **Leila Seth** (20 October 1930 – 5 May 2017) was the first woman judge on the Delhi High Court and she became the **first woman** to become Chief Justice of a state High Court on 5 August 1991.
55. (D) **Napoleon Bonaparte** is also known as the "**The Little Corporal**". 1769–1821, Emperor of the French (1804–15). He came to power as the result of a coup in 1799 and established an extensive European empire.
57. (D) **Aravalli Range**, also spelled Aravali Range is a hill system of northern India, running northeasterly for 350 miles through Rajasthan state. Isolated rocky offshoots continue to just south of Delhi. It gives rise to several rivers, including the **Banas, Luni, Sakhi, and Sabarmati**.
- The origin of Tapti River is at the **Satpura range** of Betul district in the central Indian state of **Madhya Pradesh**.
60. (D) Major problems faced by the small scale industries are:
- Lack of marketing support: Small Scale Industries lack market knowledge with regard to competitors, consumer preferences, market trends. Since their production volume is small and cannot meet demand for large quantities their market is very restricted.

- Raw material shortages: Raw materials are not available at the required quantity and quality. Since demand for raw materials is more than the supply, the prices of raw materials are quite high which pushes up the cost. Scarcity of raw materials results in idle capacity, low production, inability to meet demand and loss of customers.
  - Problems of the market: Products of these enterprises in spite of their originality are not often standardized and therefore, are not exposed to advertisement. There is a gap of information between the producer and the prospective buyers.
61. (D) Five rivers are part of the "Punjab Rivers". The state of Punjab, situated in the northwest part of India, is at once recognized as the land of five rivers. They are the Jhelum, Chenab, Ravi, Beas, and Sutlej.
63. (C) Angel Falls in Venezuela is the highest waterfall in the world. The falls are 3230 feet in height, with an uninterrupted drop of 2647 feet. Angel Falls is located on a tributary of the Rio Caroni.
64. (A) Metal rings expand when heated. Length, surface area and volume will increase with temperature. The degree of thermal expansion varies with different types of metal. Thermal expansion occurs because heat increases the vibrations of the atoms in the metal.
67. (D) • Jellyfish are animals of the phylum Cnidaria.  
• The starfish (commonly as a sea star) is generally found with 5 arms that are attached to a central disc.  
• Cuttlefish, any of several marine cephalopods of the order Sepioidea, related to the octopus and squid and characterized by a thick internal calcified shell called the cuttlebone.
69. (B) A binary digit, or bit, is the smallest unit of information in a computer. It is used for storing information and has a value of true/false, or on/off.
70. (D) A run batted in (RBI), plural runs batted in, is a statistic in baseball and softball that credits a batter for making a play that allows a run to be scored.
71. (D) The Moti Masjid in Agra was built by Shah Jahan. During the rule of Shah Jahan the Mughal emperor, numerous architectural wonders were built. Most famous of them being the Taj Mahal.
72. (D) This phenomenon is called genetic linkage. When genes are linked, genetic crosses involving those genes will lead to ratios of gametes (egg and sperm) and offspring types that are not what we'd predict from Mendel's law of independent assortment.
73. (D) Food chain refers to the sequence of events in an ecosystem, where one organism eats another and then is eaten by another organism. It starts with the primary source like the sun or hydrothermal vents where producers make food, continues with consumers or animals who eat the food, and ends with the top predator.
76. (D) A Gurburab in Sikh tradition is a celebration of an anniversary related to the lives of the Sikh gurus. Observance of these anniversaries is an important feature of the Sikh way of life. This is one of the most sacred festivals in Sikh.
77. (C) Prime Minister Narendra Modi inaugurated the 60 MW (megawatt) Tuirial Hydroelectric Power Project in Aizawl, Mizoram. It is first large hydropower central government project to be commissioned in Mizoram.
79. (A) Jagat Prakash Nadda is an Indian politician. He is currently the Union Minister of Health and Family Welfare and member of Rajya Sabha from Himachal Pradesh and Parliamentary Board Secretary of Bharatiya Janata Party.
- Ravi Shankar Prasad: Minister of Electronics and Information Technology
  - Ram Vilas Paswan: Minister of Consumer Affairs, Food and Public Distribution
80. (D) Mammals have adapted in many ways to survive the cold winter months. One way to survive the winter is by hibernation. Hibernation is when an animal goes into a deep sleep. The heart beat and breathing slows down. The body cools down. They don't eat food or drink water. Some Animals that Turn White for winter:
- Arctic Foxes
  - Siberian Hamsters
  - Ptarmigans
  - Collared Lemmings
  - Peary Caribou
  - Hares
  - Weasels

81. (B) Collateral is a property or other asset that a borrower offers as a way for a lender to secure the loan. If the borrower stops making the promised loan payments, the lender can seize the collateral to recoup its losses.
82. (B) Harisena was the court poet of Samudragupta, who mentioned the achievements of Samudragupta in the Prayag-Prasasti inscription. He was an important figure in the court of the Gupta emperor, Samudragupta.
83. (C) The Moon appears to move completely around the celestial sphere once in about 27.3 days as observed from the Earth. This is called a sidereal month. It represents the orbital period of the Moon around the Earth.
84. (D) The months of October and November are known for retreating monsoons. During this season, the monsoon trough of low pressure turns weaker and is progressively replaced by high pressure. This results in the withdrawal of monsoon.
85. (D) Frogs aren't restricted to breathing only through their lungs. Frogs that spend the coldest times of the year inside of the mud or within rotten heaps of leaves receive their necessary oxygen through their skin. When frogs hibernate, they utilize the skin for breathing.
86. (C) In an average healthy adult, the volume of blood is about one-eleventh of the body weight. An average adult body with a weight of 150 to 180 pounds will contain approximately 4.7 to 5.5 liters (1.2 to 1.5 gallons) of blood. An average child with a body weight of 80 pounds will have approximately half the amount of blood as an adult.
88. (A) Cold Start is a military doctrine that was developed by the Indian Armed Forces for use in a possible war with Pakistan. Its objective is to foster initiative and creative thinking and links theory, history, experimentation and practice.
89. (B) The loan obtained from money lenders, relatives and friends, etc. constitutes to the 'informal sector' of credit. They can lend money at any rate of interest and adopt any means to recover back their money. They charge a much higher rate of interest than the lenders in the formal sector.
93. (B) Convex mirror is used as rear view in cars. Convex mirror is used in the form of erect and diminished image of vehicles coming from side/behind. Thus, it provides a wider field of view to the driver.
95. (C) Bombay High is an offshore oilfield 176 kilometers off the coast of Mumbai, India, in about 75 m of water. The oil operations are run by India's Oil and Natural Gas Corporation (ONGC).
96. (B) Jawaharlal Nehru proudly proclaimed the dams as the 'temples of modern India' as it was felt at that time that the construction of large dams would solve many problems of India. It would result in the generation of electricity, would provide water for irrigation to the farmers, supply water to household and industries.
99. (A) The frequency of sound waves is measured in hertz (Hz). Human beings can normally hear sounds with a frequency between about 30 Hz and 30,000 Hz. Sounds with frequencies above than 30,000 hertz are called Ultrasound. Ultrasound is too high-pitched for humans to hear.
100. (B) Graphite is soft and slippery because there are only weak intermolecular forces between its layers. Graphite is a good conductor of heat and electricity. This is because, like metals, graphite contains delocalised electrons. These electrons are free to move through the structure of the graphite.
- 104.(B)



$$R = mg = 35 \times 9.81$$

$$F = \mu R.$$

$$\mu = \frac{F}{R}$$

$$\mu = \frac{30}{35 \times 9.81}$$

$$\mu = 0.087$$

106.(C)  $h = \frac{(r_1 - r_2)y}{x}$

$$S = \frac{S_1 - S_2}{h}$$

110.(D)  $P_c = \frac{\pi D}{T} = \pi m = \pi \times 4.25 = 13.357 \text{ mm}$

111.(B) Shearing strength (S)  $\propto$  Area

$$\text{Shearing strength (S)} \propto \frac{\pi}{4} d^2$$

$$S \propto d^2$$

$$\frac{S_1}{S_2} = \left( \frac{d_1}{d_2} \right)^2$$

$$\text{If } 2d_1 = d_2$$

$$S_2 = 4S_1$$

$$S_2 = 4 \times 50$$

$$S_2 = 200 \text{ N/mm}^2$$

116.(C)  $Q = 0.013 \text{ m}^3/\text{sec}$

$$H_m = 32 \text{ m}$$

$$\text{SP} = 6 \text{ kw}$$

$$\rho = 1000 \text{ kg/m}^3$$

$$\eta_0 = \frac{WH}{1000 \times \text{SP}}, W = \rho g Q$$

$$\eta_0 = \frac{1000 \times 9.81 \times 0.013 \times 32}{1000 \times 6}$$

$$\eta_0 = 69\%$$

121.(B)  $\Delta P = 1.962 \text{ kg/cm}^2$

$$v = \sqrt{2gh}$$

$$= \sqrt{2 \cdot \frac{\Delta P}{\rho}}$$

$$= \sqrt{2 \cdot \frac{1.962 \times 9.81}{10^3 \times 10^{-4}}}$$

$$v = \sqrt{384.944} = 19.61 \frac{\text{m}}{\text{s}}$$

147.(B) As because due to upward sleeve movement distance of centre of balls from governor axis increases.

149.(C) Because position of links changes in every mechanism.

155.(B) Compressibility  $[\alpha] = \frac{1}{\text{Bulk modulus (k)}}$

$$\alpha = \frac{\partial V}{V(-\partial P)}$$

$$\alpha = -\frac{1}{V} \left[ \frac{\partial V}{\partial P} \right]$$

165.(B) Surface tension is also the phenomenon which is seen in ballpen.

167.(B) Given  $E = 125 \text{ Gpa}$  (Young modulus)  
 $\mu = 0.25$  (Poisson Ratio)

Knows that  $E = 2G(1+\mu)$

$$125 = 2 \times G(1 + 0.25)$$

$$125 = 2G(1.25)$$

$$\frac{125}{2.5} = G$$

$$G = 50 \text{ GPa}$$

Where, G = Modulus of rigidity

176.(D) Drilling, Milling and Turning is three dimensional and is normally termed oblique cutting.

187.(C)  $\sum W = \sum Q$

$$9000 - w = 3000$$

$$w = 6000 \text{ kJ}$$

188.(D) Heat loss = Heat gain  
by heater by water

$$4 \times 20 \times 60 = 20 \times 4 \times \Delta T$$

$$\Delta T = 60$$

189.(C)  $W = \int_{v_1}^{v_2} P \cdot dv$

$$= \int_2^6 (-3v + 16) dv$$

$$= \left[ -\frac{3}{2}v^2 + 16v \right]_2^6$$

$$= -48 + 64$$

$$= 16 \times 10^5 \text{ J}$$

190.(C)  $T_1 = 879 \text{ K}$

$$T_2 = 293 \text{ K}$$

$$\eta = 1 - \frac{T_2}{T_1}$$

$$= 1 - \frac{293}{879} = 0.66$$

$$\eta = \frac{W}{Q_{\text{Supp}}} = \frac{1}{Q_{\text{Supp}}} = 0.66$$

$$Q_{\text{Supp}} = 1.5 \text{ kw}$$

$$Q_{\text{Rej}} = 1.5 - 1 = 0.5 \text{ kw}$$

196.(A)  $T_2 = 200 \text{ K}$   $T_1 = 400 \text{ K}$

$$Q_2 = 1.75 \text{ kw}$$

$$\frac{Q_1}{Q_2} = \frac{T_1}{T_2}$$

$$Q_1 = 1.75 \times \frac{400}{200} = 3.5$$

$$W = 3.5 - 1.75 = 1.75 \text{ kw}$$

$$197.(A) \quad P_3.V_3^{1.3} = P_2.V_2^{1.3}$$

$$P_3 = 50.\left(\frac{0.4}{4}\right)^{1.3}$$

$$P_3 = 2.506$$

$$W = W_{1-2} + W_{2-3}$$

$$= 50 \times (0.4 - 0.2) + \left[ \frac{50 \times 0.4 - 2.506 \times 4}{0.3} \right]$$

$$= [10 + 33.253] \times 10^5 \text{ J}$$

$$W = 4325 \text{ kJ}$$

$$198.(B) \quad \eta_1 = 1 - \frac{400}{800} = 0.5$$

$$\eta_2 = 1 - \left( \frac{400 + 50}{800 + 50} \right)$$

$$= 1 - \frac{450}{850}$$

$$= 0.47$$

$$\Delta\eta = \eta_1 - \eta_2 = 0.03$$