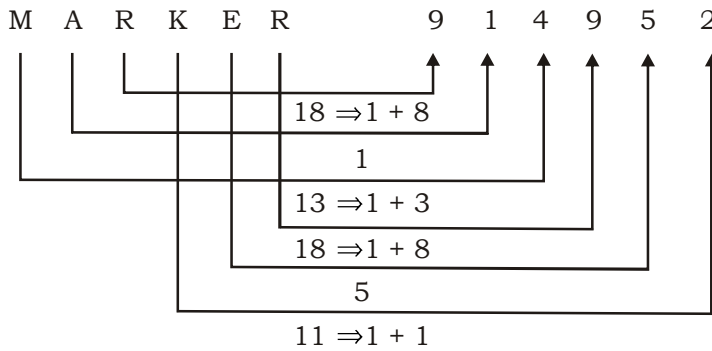
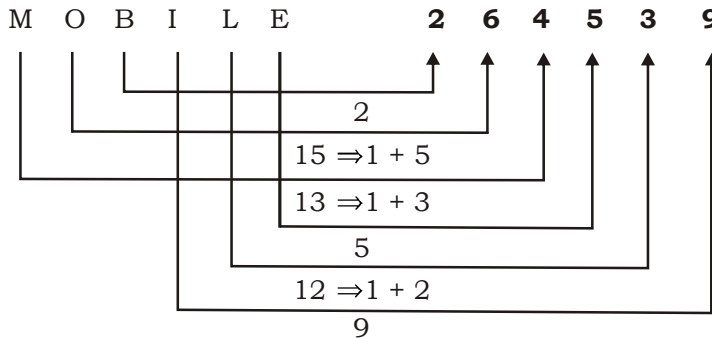


**SSC MOCK TEST - 380 (SOLUTION)**

1. (2) As,  $637 \Rightarrow 6 \times 3 \times 7 = 126$   
Similarly,  $834 \Rightarrow 8 \times 3 \times 4 = 96$
2. (1) Current is measured by Ammeter, while Pressure is measured by Barometer.
3. (4) (1)  $18 \times 5 + 6 = 96$   
(2)  $16 \times 5 + 6 = 86$   
(3)  $22 \times 5 + 6 = 116$   
(4)  $19 \times 5 + 6 = 101 \neq 100$
4. (4) Except Glass, others are stationary items.
5. (3) As,

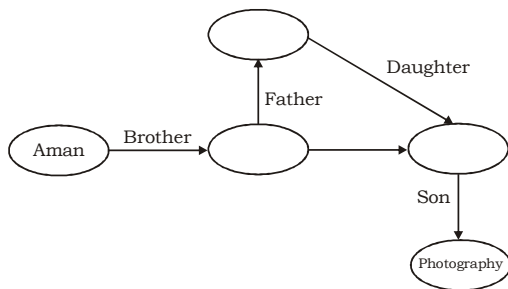


Similarly,



6. (2)  $252 \xrightarrow{+125} 377 \xrightarrow{+100} 477 \xrightarrow{+75} 552 \xrightarrow{+50} 602$
7. (3) D K Q V Z C  
+7 +6 +5 +4 +3

8. (2)



Hence, Aman is the maternal uncle of the man in the photograph.

9. (4) As,  $1 \times 7 \times 7 + 1 \times 8 \times 5 = 89$

Similarly,  $2 \times 8 \times 7 + 3 \times 5 \times 4 = 172$

10. (2) dlrmk/dlrmk/dlrmk

11. (1)

12. (3) **In the first column,**

$$6^2 - 5^2 = 11$$

**In the second coloum,**

$$9^2 - 4^2 = 65$$

**In the third coloum,**

$$12^2 - 9^2 = 63$$

13. (1)  $66 \div 11 + 6 \times 4 + 5 - 2 = 58$

After changing the sign,

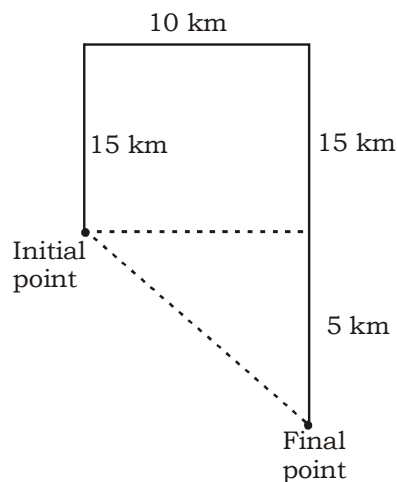
$$66 \div 6 + 11 \times 4 + 5 - 2 = 58$$

$$11 + 44 + 5 - 2 = 58$$

$$60 - 2 = 58$$

$$58 = 58$$

14. (1)



$$\text{Required distance} = \sqrt{10^2 + 5^2} = \sqrt{125} = 5\sqrt{5} \text{ km}$$

15. (1) 4. Torque → 2. Torrid → 3. Torso → 1. Tortoise → 5. Tortuous



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31. (1) The process by which heat is transferred from the hotter end to the colder end of an object is known as conduction.
32. (3) Cane sugar (sucrose) is boiled with dilute hydrochloric acid or sulphuric acid. Cane sugar is hydrolysed into equimolar mixture of glucose and fructose.
33. (2) Jupiter recently became the planet with the most moons, after a dozen new moons were discovered around it. The planet has surpassed Saturn with its list of 92 moons in all.
34. (4) A cell wall is a structural layer surrounding some types of cells, just outside the cell membrane. It can be tough, flexible, and sometimes rigid. It provides the cell with both structural support and protection, and also acts as a filtering mechanism.
35. (2) The Indus Waters Treaty is a water-distribution treaty between India and Pakistan, brokered by the World Bank, to use the water available in the Indus River and its tributaries.
37. (3) UNEP (United Nations Environment Programme) was formed in the year 1972. Its headquarters is in 'Nairobi'. Its main purpose is to promote international cooperation regarding matters related to the environment.
39. (4) The highest award for science in India - Shanti Swarup Bhatnagar Award for Science and Technology is awarded annually by Council of Scientific and Industrial Research (CSIR) for outstanding contribution in chemistry, biology, physics, engineering, geology, mathematics and machines. The award aims to recognise outstanding Indian work in science and technology. The award which was first given in 1958 is named after the founder Director of the Council of Scientific and Industrial Research, Shanti Swarup Bhatnagar.
43. (3) A peninsula is a landform surrounded by water on the majority of its border while being connected to a mainland from which it extends.
45. (1) Chakravarti Rajagopalachari, popularly known as Rajaji, was independent India's first Indian Governor General.
46. (3) The Union Ministry of Mines announced that lithium reserves have been found in Jammu and Kashmir, a first in the country.
47. (2) Light year is the distance travelled by light in 1 year. In one second, it travels  $3 \times 10^8$  metres.
50. (1) Cartosat-2B is an Earth observation satellite in a sun-synchronous orbit and the fourth of the Cartosat series. The satellite is the 17th satellite in the Indian Remote Sensing (IRS) satellite series to be built by the Indian Space Research Organisation.

51. (3) Let the income of B = ₹ 100

$$\text{Income of A} = 100 \times \frac{140}{100} = ₹ 140$$

$$\text{Income of C} = (100 + 140) \times \frac{40}{100} = ₹ 96$$

$$\text{Income of D} = 96 \times \frac{125}{100} = ₹ 120$$

ATQ,

$$(120 - 100) \rightarrow ₹ 4200$$

$$20 \rightarrow 4200$$

$$1 \rightarrow \frac{4200}{20} = ₹ 210$$

$$\therefore \text{Income of C} = 210 \times 96 = ₹ 20160$$

52. (1) Let the number A and B be  $5x$  and  $8x$  respectively.

ATQ,

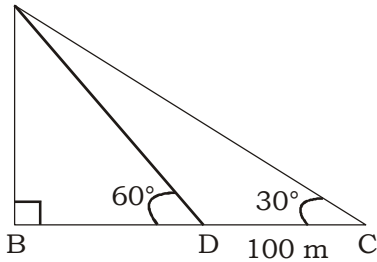
$$\frac{5x + 5}{8x + 5} = \frac{2}{3}$$

$$15x + 15 = 16x + 10$$

$$x = 5$$

$$\therefore \text{Required difference} = (8x - 5x) = 3x = 3 \times 5 = 15$$

53. (2) A



Let AB is the height of tower.

$$CD = 100 \text{ m}$$

$$\text{Let } BD = x \text{ m}$$

In  $\triangle ABD$ ,

$$\tan 60^\circ = \frac{AB}{BD}$$

$$\sqrt{3} = \frac{AB}{x}$$

$$AB = \sqrt{3} x \text{ m} \quad \dots\dots(i)$$

In  $\triangle ABC$ ,

$$\tan 30^\circ = \frac{AB}{BC}$$

$$\frac{1}{\sqrt{3}} = \frac{AB}{x + 100}$$

$$AB = \frac{x + 100}{\sqrt{3}} \text{ m} \quad \dots\dots(ii)$$

Comparing equation (i) and (ii),

$$\sqrt{3} x = \frac{x + 100}{\sqrt{3}}$$

$$3x = 100 + x$$

$$x = \frac{100}{2} = 50 \text{ m}$$

$$\therefore \text{Height of tower} = \sqrt{3} x = \sqrt{3} \times 50 = 50\sqrt{3} \text{ m}$$

54. (2) Total of 28 numbers =  $28 \times 75 = 2100$   
 Total of first 14 numbers =  $14 \times 72 = 1008$   
 Total of last 15 numbers =  $15 \times 80 = 1200$   
 Now, 14<sup>th</sup> number =  $(1008 + 1200) - 2100 = 108$

$$\therefore \text{Average of remaining 27 numbers} = \frac{2100 - 108}{27} = \frac{1992}{27} = 73\frac{7}{9}$$

55. (3) ATQ,

$$\frac{22}{7} \times (81 - r^2) \times 14 = 748$$

$$(81 - r^2) \times 4 = 68$$

$$81 - r^2 = 17$$

$$r^2 = 81 - 17$$

$$r^2 = 8$$

$$\therefore \text{Thickness} = 9 - 8 = 1 \text{ cm}$$

56. (2) Given;  $a = b$

Rationalising a

$$\frac{c}{1 + \sin x} = \frac{2 \sin x}{1 + \sin x + \cos x} \times \frac{1 + \sin x - \cos x}{1 + \sin x - \cos x}$$

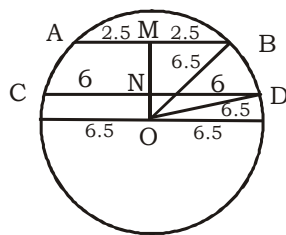
$$\frac{c}{1 + \sin x} = \frac{2 \sin x + 2 \sin^2 x - 2 \sin x \cos x}{1 + \sin^2 x + 2 \sin x - \cos^2 x}$$

$$\frac{c}{1 + \sin x} = \frac{2 \sin x + 2 \sin^2 x - 2 \sin x \cos x}{2 \sin x (1 + \sin x)}$$

$$\frac{c}{1 + \sin x} = \frac{1 + \sin x - \cos x}{1 + \sin x}$$

$$\therefore c = 1 + \sin x - \cos x$$

57. (3)



$AB = 5 \text{ cm}$  and  $CD = 12 \text{ cm}$

Required distance;  $MN = MO - NO$

$$= \sqrt{\{(OB)^2 - (MB)^2\}} - \sqrt{\{(OD)^2 - (ND)^2\}}$$

$$= \sqrt{\{(6.5)^2 - (2.5)^2\}} - \sqrt{\{(6.5)^2 - 6^2\}}$$

$$= \sqrt{(42.25 - 6.25)} - \sqrt{(42.25 - 36)}$$

$$= \sqrt{36} - \sqrt{6.25} = 6 - 2.5 = 3.5 \text{ cm}$$

58. (1) Required ratio =  $\frac{3}{2} : \frac{4}{1} : \frac{2}{8} = 12 : 32 : 2 = 6 : 16 : 1$

59. (3) Required average speed

$$= \frac{1}{\frac{1}{4 \times 10} + \frac{9}{20 \times 5} + \frac{3}{10 \times 15}}$$

$$= \frac{1}{\frac{1}{40} + \frac{9}{100} + \frac{3}{150}} = \frac{200}{5 + 18 + 4}$$

$$= \frac{200}{27} \text{ km/hr}$$

60. (2) Mean proportion of  $\frac{a-b}{a+b}$  and  $\frac{a^2b^2}{a^2-b^2} = \sqrt{\frac{a-b}{a+b} \times \frac{a^2b^2}{a^2-b^2}}$

$$= \sqrt{\frac{(a-b)a^2b^2}{a+b(a+b)(a-b)}} = \frac{ab}{a+b}$$

61. (1) Downstream speed (u) =  $\frac{D}{T} = \frac{7}{35} \times 60 = 12 \text{ km/h}$

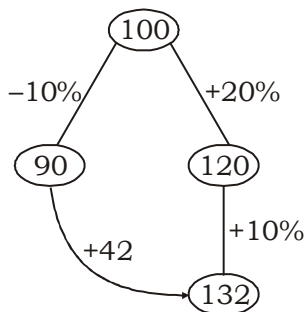
Upstream speed (v) =  $\frac{D}{T} = \frac{2}{30} \times 60 = 4 \text{ km/h}$

Speed of boat in still water =  $\frac{1}{2}(u + v) = \frac{1}{2}(12 + 4) = 8 \text{ km/h}$

Speed of stream =  $\frac{1}{2}(u - v) = \frac{1}{2}(12 - 4) = 4 \text{ km/h}$

62. (3) Let the cost price of the article = ₹ 100

ATQ,



Original Profit = 20%

New Profit =  $\frac{42}{90} \times 100 = 46.66\%$

Change in profit percentage =  $\frac{(46.66 - 20)}{20} \times 100 = 133.33\%$

63. (4) Let the rate of interest per annum be  $r\%$

According to the question,

$$\frac{10000 \times 2 \times r}{100} + \frac{6000 \times 4 \times r}{100} = 4400$$

$$200r + 240r = 4400$$

$$440r = 4400$$

$$r = \frac{4400}{440} = 10\%$$

64. (2) Total age of 40 old students =  $40 \times 15 = 600$  years

Total age of 40 old and 10 new students =  $50 \times 15.2 = 760$  years

Total age of 10 new students =  $760 - 600 = 160$  years

$$\therefore \text{Required average age} = \frac{160}{10} = 16 \text{ years}$$

65. (4) According to question,

$$200 \times 31 = 27 \times 200 + 80 \times D$$

$$4 \times 200 = 80 \times D$$

$$D = 10 \text{ days}$$

$$\text{Extra days} = (10 - 4) = 6 \text{ days}$$

66. (1) Given

$$a - b = 6$$

$$b - c = -2$$

$$c - a = -4$$

We know that

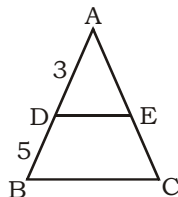
$$a^3 + b^3 + c^3 - 3abc = \frac{1}{2} (a + b + c) [(a - b)^2 + (b - c)^2 + (c - a)^2]$$

$$\frac{a^3 + b^3 + c^3 - 3abc}{a + b + c} = \frac{1}{2} ((a - b)^2 + (b - c)^2 + (c - a)^2)$$

$$\frac{a^3 + b^3 + c^3 - 3abc}{a + b + c} = \frac{1}{2} (6^2 + (-2)^2 + (-4)^2)$$

$$\frac{a^3 + b^3 + c^3 - 3abc}{a + b + c} = \frac{1}{2} (36 + 4 + 16) = 28$$

67. (1)



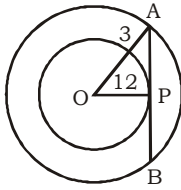
$$\text{Area of trapezium} = \text{Area of } \triangle ABC - \text{Area of } \triangle ADE = 8^2 - 3^2$$

$$= 64 - 9 = 55$$

$$\text{Required ratio} = 64 : 55$$



68. (2)



$$AP = \sqrt{13^2 - 12^2} = \sqrt{25} = 5 \text{ cm}$$

$$\text{Chord } AB = 2 \times 5 = 10 \text{ cm}$$

$$\text{Length of } \frac{4}{5}^{\text{th}} \text{ of chord} = \frac{4}{5} \times 10 = 8 \text{ cm}$$

$$69. (4) \text{ Number of cones} = \frac{\text{Volume of sphere}}{\text{Volume of cone}} = \frac{\frac{4}{3} \pi (10.5)^3}{\frac{1}{3} \pi (3.5)^2 \times 3}$$

$$= \frac{4 \times 10.5 \times 10.5 \times 10.5}{3.5 \times 3.5 \times 3} = 126$$

$$70. (3) a = 3 + 2\sqrt{3}$$

$$ab = 1$$

$$b = \frac{1}{3 + 2\sqrt{2}} = 3 - 2\sqrt{2} = \frac{1}{a}$$

$$a + b = a + \frac{1}{a} = 6$$

$$a^2 + \frac{1}{a^2} = 6^2 - 2 = 34$$

$$\text{Now, } \frac{a^2 + b^2 + 3ab}{a^2 + b^2 - 3ab} = \frac{a^2 + \frac{1}{a^2} + 3}{a^2 + \frac{1}{a^2} - 3}$$

$$= \frac{34 + 3}{34 - 3} = \frac{37}{31}$$

$$71. (1) \frac{1}{2} \times \pi r^2 = \pi (r - n)^2$$

$$\frac{1}{2} r^2 = (r - n)^2$$

$$r = \sqrt{2} (r - n)$$

$$r = \sqrt{2} r - \sqrt{2} n$$

$$r(\sqrt{2} - 1) = \sqrt{2} n$$

$$r = \frac{\sqrt{2} n}{\sqrt{2} - 1}$$

72. (3) Total number of students in:

$$\mathbf{B. A} = 42 + 50 + 40 + 45 + 48 + 52 = 277$$

$$\mathbf{MBA} = 50 + 45 + 42 + 52 + 60 = 301$$

$$\mathbf{BSC} = 38 + 46 + 54 + 50 + 48 + 54 = 290$$

$$\mathbf{M.Com} = 58 + 45 + 46 + 40 + 55 + 42 = 286$$

∴ Required answer is B.A

73. (3) Total number of students in MCA department =  $48 + 58 + 58 + 46 + 44 + 54 = 308$

Total number of students in BSC department =  $38 + 46 + 54 + 50 + 48 + 54 = 290$

$$\therefore \text{Required \%} = \left( \frac{308}{290} \times 100 \right) \% = 106.20\% \approx 106\%$$

74. (4) Required ratio =  $(48 + 58) : (46 + 40)$

$$= 106 : 96 = 53 : 48$$

75. (4) Required \% =  $\left( \frac{55}{40} \times 100 \right) \% = 137.5\%$

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## MEANINGS IN ALPHABETICAL ORDER

Adorn	make more beautiful or attractive	सजाना
Exhibit	publicly display (a work of art or item of interest) in an art gallery or museum or at a trade fair	प्रदर्शन
Extract	remove or take out, especially by effort or force	निचोड़
Fastidious	very attentive to and concerned about accuracy and detail	दुराराध्य
Fussy	(of a person) fastidious about one's needs or requirements; hard to please	उधम
Gruelling	extremely tiring and demanding	भीषण
Irrevocable	not able to be changed, reversed, or recovered; final	स्थिर
Linguist	relating to language or linguistics	भाषाई
Monolingual	(of a person or society) speaking only one language	एकल
Philanthropist	a person who seeks to promote the welfare of others, especially by the generous donation of money to good causes	लोकोपकारक
Sarcasm	the use of irony to mock or convey contempt	कटाक्ष
Shallow	of little depth	उथला
Suspect have	an idea or impression of the existence, presence, or truth of (something) without certain proof	संदिग्ध व्यक्ति
Tedious	too long, slow, or dull; tiresome or monotonous	थकाऊ
Unalterable	not able to be changed	निरंतर

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## SSC MOCK TEST - 380 (ANSWER KEY)

- |         |         |         |          |
|---------|---------|---------|----------|
| 1. (2)  | 26. (3) | 51. (3) | 76. (1)  |
| 2. (1)  | 27. (4) | 52. (1) | 77. (2)  |
| 3. (4)  | 28. (2) | 53. (2) | 78. (3)  |
| 4. (4)  | 29. (3) | 54. (2) | 79. (4)  |
| 5. (3)  | 30. (4) | 55. (3) | 80. (3)  |
| 6. (2)  | 31. (1) | 56. (2) | 81. (4)  |
| 7. (3)  | 32. (3) | 57. (3) | 82. (4)  |
| 8. (2)  | 33. (2) | 58. (1) | 83. (4)  |
| 9. (4)  | 34. (4) | 59. (3) | 84. (2)  |
| 10. (2) | 35. (2) | 60. (2) | 85. (3)  |
| 11. (1) | 36. (2) | 61. (1) | 86. (3)  |
| 12. (3) | 37. (3) | 62. (3) | 87. (2)  |
| 13. (1) | 38. (4) | 63. (4) | 88. (4)  |
| 14. (1) | 39. (4) | 64. (2) | 89. (3)  |
| 15. (1) | 40. (1) | 65. (4) | 90. (1)  |
| 16. (4) | 41. (1) | 66. (1) | 91. (3)  |
| 17. (3) | 42. (1) | 67. (1) | 92. (1)  |
| 18. (3) | 43. (3) | 68. (2) | 93. (2)  |
| 19. (1) | 44. (4) | 69. (4) | 94. (4)  |
| 20. (2) | 45. (1) | 70. (3) | 95. (1)  |
| 21. (2) | 46. (3) | 71. (1) | 96. (2)  |
| 22. (4) | 47. (2) | 72. (3) | 97. (1)  |
| 23. (1) | 48. (4) | 73. (3) | 98. (4)  |
| 24. (2) | 49. (3) | 74. (4) | 99. (3)  |
| 25. (4) | 50. (1) | 75. (4) | 100. (1) |

76. (2) If the second event occurs immediately after the first, we can express that idea using the structure – hardly or scarcely...when. replace where with when.
77. (1) Do not use negative word in the clause starting with conjunctions until and unless.
90. (1) The correct spelling of 'Humilliation' is 'Humiliation', 'Bouquette' is 'Bouquets' and 'Retalaite' is 'Retaliate'.
91. (3) The correct spelling of 'exhail' is 'exhale', 'exhoust' is 'exhaust' and 'exteract' is 'extract'.