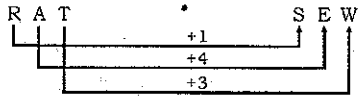


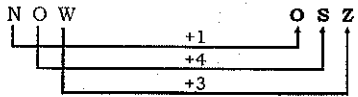
SSC solution (20 Apr - 2017)

1. (D) The tadpole is a young one's of frog and frogs are amphibians. The lamb is a young one's of sheep and sheep are mammals.

2. (C) As,



Similarly,



3. (B) To drizzle is to rain slowly and to jog is to run slowly.

4. (A) All except cycle run on fuel.

5. (C) All except Turkey are countries ruled by kings.

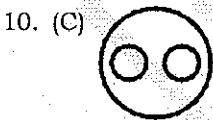
6. (D) Except (241), rest are multiple of 3.

7. (A)
$$\begin{array}{r} 893 \\ -395 \\ \hline 498 \end{array}$$

8. (C) $\frac{216}{11}$ remainder = 7, $\frac{216}{16}$ remainder = 8

$\frac{216}{21}$ remainder = 6, $\frac{216}{7}$ remainder = 6

9. (B) $(8 \times 11) + 12 = 100$
 $(6 \times 11) + 14 = 80$
 $(5 \times 9) + 15 = 60$
 $(12 \times 4) + 22 = 70$



Father and mother are parents but they are two different entity.

11. (D) A \$ B @ A is the brother of B
 B * C @ B is the son of C
 Hence, @ A is the son of C
 C @ D @ C is the wife of D
 Hence, @ C is the mother of A.

12. (A) $1^2 + 1 = 2$
 $2^2 + 2 = 6$
 $6^2 + 6 = 42$
 $42^2 + 42 = 1806$

13. (B) $6 = 2 \times 3$, $15 = 3 \times 5$, $35 = 5 \times 7$, $77 = 7 \times 11$
 $143 = 11 \times 13$, **221** = 13×17 & $323 = 17 \times 19$
 (continuous prime no.'s product)

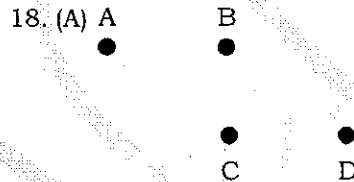
14. (C) 3 @ 2 @ 4 @ 1

15. (C) Let Varun's age today = x years.
 Then, Varun's age after 1 year = $(x + 1)$ years.
 $x + 1 = 2(x - 12)$
 $x + 1 = 2x - 24 \Rightarrow x = 25$
 Varun's present age = 25 years.

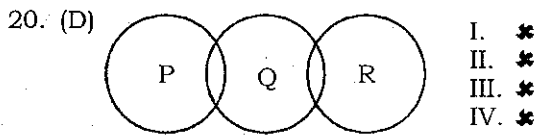
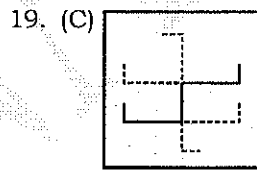
16. (D) We can't find 2 R's and 2 L's in the word SLAVOCRACIES.

17. (A) $1^2 + 3^2 = 10 \Rightarrow \frac{10}{2} = 5$, $2^2 + 4^2 = 20 \Rightarrow \frac{20}{2} = 10$

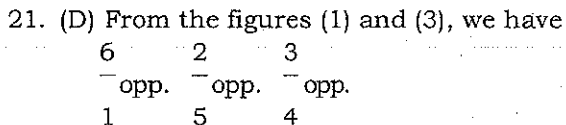
$3^2 + 5^2 = 34 \Rightarrow \frac{34}{2} = 17$, $4^2 + 6^2 = 52 \Rightarrow \frac{52}{2} = 26$



\ D's house is in the South-East direction of A.

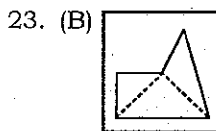


None of the four conclusions follows.



Hence, 4 is opposite to 3.

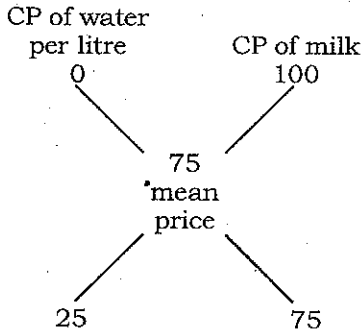
22. (A)



24. (C)

25. (B)

26. (D) It is the Moussoleum of Muhammad Adil Shah Sur of Bijapur. This is the second largest dome in the world.
27. (A) Cellulose is a polysaccharide consisting of a linear chain of several hundred/ thousands of D-Glucose molecules. Cotton fiber contain 90% cellulose, wood contain 40-50% cellulose.
29. (A) The Continent Antarctica has the highest mean elevation in the world. This is because it is covered by a thick layer of ice, about 7,100 feet (2,200 m) thick.
31. (A) Best answer is 1, 2 and 3. Because only Inter State Council is a constitutional body under article 263. So option 4 should not be included.
32. (B) King Kobra is the only snake that not only lives in holes but also builds a nest.
33. (B) In Gujarat and Maharashtra the Chief Ministers come under the ambit of Lok Ayukta Act.
34. (B) According to 73rd Amendment Act 1993, under Article 243D, not less than 1/3rd i.e. 33% seats should be reserved for women in local bodies.
35. (A) An optical fibre is a thin, flexible, transparent fibre that acts as a waveguide or "light pipe" to transmit light between the two ends of the fibre. An optical fibre transmits light along its axis, by the process of total internal reflection. When light traveling in a dense medium hits a boundary at an angle larger than the "critical angle" for the boundary, the light will be completely reflected. This effect is used in optical fibres to confine light in the core.
36. (C) It is a tropical cyclone of north-west Australia. Willy Willy originates in the Timor sea and causes rainfall in different parts of Australia.
37. (B) Arun Goyal, a 1985 batch IAS officer of Union Territory cadre, has been appointed as the Additional Secretary in the Goods and Services Tax (GST) Council. Presently, Goyal is working as Additional Secretary in Project Monitoring Group of Cabinet Secretariat. The GST Council is mandated to decide on tax rate exempted goods and the threshold limit.
38. (D) Non-plan expenditures include non-developmental Expenditure (interest payment, Subsidies, defence expenditure, civil administration), Developmental expenditure and expenditure incurred on projects which remained unfinished in the earlier plans.
40. (C) Velavan Senthilkumar, Indian player from Chennai, has won the Under-19 Asian Junior Individual squash championship title in Kuala Lumpur, Malaysia on September 24th, 2016. He defeated Jordan's Mohammad Al-Sarraj by 12-14, 9-11, 11-6, 11-8, 11-7 to claim the title. With this, he became the 2nd Indian to win the title after Ravi Dixit in 2010.
42. (D) Air bubble in water would act as a diverging lens, because the index of refraction of air is less than that of water.
43. (A) Ergotism is the effect of long term ergot poisoning, due to ingestion of alkaloids produced by fungus *Claviceps purpurea* which is found in infected cereals and ryes.
44. (C) Vijay Kelkar, the former petroleum secretary, has been elected as the new President of the prestigious Indian Statistical Institute (ISI). He succeeded former RBI governor C Rangarajan. The ISI functions under the Ministry of Statistics and Programme Implementation.
46. (B) Urea is the main nitrogenous excretory product of Ureotelic animals, produced by liver cells from de-aminated excess amino-acids via the urea cycle.
47. (C) Abrasives constitute at least 50% of a typical toothpaste these insoluble particles help remove plaque from teeth, example: Aluminium hydroxide $Al(OH)_3$, Calcium Carbonate $CaCO_3$.
48. (B) Venture capital (VC) is a long term financial Capital provided to early-stage, high-potential, Growth startup companies or new companies.
49. (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.
51. (A) Let CP of milk = ₹ 100 per litre
SP of mixture = ₹ 100 per litre
- $$\text{Profit} = 33\frac{1}{3}\%$$
- $$\text{CP of mixture} = \frac{100 \cdot 100}{100 + \frac{100}{3}} = \frac{100 \cdot 100 \cdot 3}{400} = ₹ 75$$



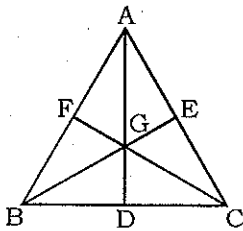
$$\backslash \text{ Required ratio} = \frac{25}{75} = \frac{1}{3} = 1 : 3$$

52. (C) Unit digit of $7^{27} = 3$
Unit digit of $3^{14} = 9$

$$\backslash \text{ Required difference unit digit} = 13 - 9 = 4$$

—
carry

53. (A)



Sum of the length of two medians is always greater than the length of third median
(BE + CF) > AD

$$\frac{2}{3}(BE + CF) > \frac{2}{3}AD$$

$$GB + GC > GA$$

54. (B) Volume of tank = $50 \times 44 \times 0.07$
 $= 154 \text{ m}^3$

Volume of water filled by tap in 1 hr = pr^2h

$$= \frac{22}{7} \times 0.07 \times 0.07 \times 5000 = 77 \text{ m}^3$$

$$\backslash \text{ Required time} = \frac{154}{77} = 2 \text{ hrs} = 120 \text{ min}$$

55. (A) $2u_6 - 3u_6 + 1$
 $= 2(\cos^6 q + \sin^6 q) - 3(\sin^4 q + \cos^4 q) + 1$
 $= 2 - 6 \sin^2 q \times \cos^2 q + 6 \sin^2 q \times \cos^2 q - 3 + 1$
 $= 3 - 3 = 0$

56. (B) Let the MP be 100
SP after 25% discount = $100 - 100 \times 0.25 = ₹ 75$

$$\text{CP (as profits 25\%)} = 75 \times \frac{100}{125} = ₹ 60$$

When discount is 20% then SP = $100 - 100 \times 0.2 = ₹ 80$

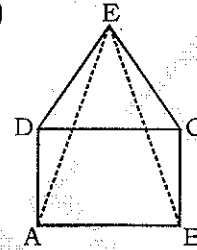
let the gain be $x\%$ then,

let the gain be $x\%$ then,

$$60 + \frac{60x}{100} = 80 \Rightarrow \frac{3x}{5} = 20 \Rightarrow x = 33\frac{1}{3}\%$$

$$\backslash \text{ Required \% gain} = 33\frac{1}{3}\%$$

57. (A)



$$\angle ADE = 90^\circ + 60^\circ = 150^\circ$$

$$\therefore DE = DC = EC \text{ (equilateral } \triangle) \quad \dots(i)$$

$$\text{and } AD = DC = AB = BC \text{ (square)} \quad \dots(ii)$$

In $\triangle ADE$ we have

$$\angle DEA = \angle DAE = x^\circ \quad (\text{as, } AD = DE)$$

$$\backslash x + x + 150^\circ = 180^\circ \Rightarrow \angle DAE = x = 15^\circ$$

58. (B) $2\text{pr} \times 560 = 11000$

$$\Rightarrow 2 \times \frac{22}{7} \times 560 \times r = 11000$$

$$\Rightarrow r = \frac{11000 \times 7}{44 \times 560} = 3.125 \text{ m}$$

$$59. (C) x + y = \frac{\frac{u+v}{1-uv} + \frac{u-v}{1+uv}}{1 - \frac{u+v}{1-uv} \cdot \frac{u-v}{1+uv}} = \frac{2u}{1-u^2}$$

60. (A) $T = (22 + 30 + 21) = 73 \text{ days} = \frac{1}{5} \text{ yrs}$

$$\text{SI} = \frac{\text{PRT}}{100} = \frac{1820 \times 15 \times 1}{2 \times 5 \times 100} = ₹ 27.30$$

61. (A) Here $5 - 4 = 1$, $6 - 5 = 1$ and $7 - 6 = 1$
LCM of (5, 6, 7) = 210

$$\backslash \text{ Required no.} = 210 - 1 = 209$$

62. (B) Let $x < 90^\circ$ and other angle be y

Also, $x + y = 180^\circ$ (Linear pair)

$$\Rightarrow y = 180^\circ - x \Rightarrow y > 90^\circ \text{ (obtuse)} \quad [\because x < 90^\circ]$$

63. (B) Let A : B : C be

$$\begin{array}{ccc} 100 & 300 & 400 \\ \downarrow \times 1.05 & \downarrow \times 1.1 & \downarrow \times 1.15 \end{array}$$

$$\text{New ratio } 105 \quad 330 \quad 460 = 21 : 66 : 92$$

64. (A) Speed downstream = $\frac{15}{3\frac{3}{4}} = 4 \text{ km/hr}$

Speed upstream = $\frac{5000 \text{ m}}{150 \text{ min}} = \frac{5}{2\frac{1}{2}} = 2 \text{ km/hr}$

\ Speed of current = $\frac{1}{2} (4 - 2) = 1 \text{ km/hr}$

65. (A) $\frac{1}{1-a+a^2} - \frac{1}{1+a^2+a} - \frac{2a}{1+a^2+a^4}$
 $= \frac{1+a^2+a-(1+a^2-a)}{(1+a^2+a)(1+a^2-a)} - \frac{2a}{1+a^2+a^4}$
 $= \frac{1+a^2+a-1-a^2+a}{(1+a^2)^2-a^2} - \frac{2a}{1+a^4+a^2}$
 $= \frac{2a}{1+a^4+a^2} - \frac{2a}{1+a^4+a^2} = 0$

66. (B) $6^{12} = 2^{12} \times 3^{12}$, $35^{28} = 5^{28} \times 7^{28}$, $15^{16} = 3^{16} \times 5^{16}$
 $14^{12} = 2^{12} \times 7^{12}$, $21^{11} = 3^{11} \times 7^{11}$

So, $\frac{6^{12} \cdot 35^{28} \cdot 15^{16}}{14^{12} \cdot 21^{11}} = \frac{2^{12} \cdot 3^{12} \cdot 5^{28} \cdot 7^{28} \cdot 3^{16} \cdot 5^{16}}{2^{12} \cdot 7^{12} \cdot 3^{11} \cdot 7^{11}}$
 $= 3^{17} \times 5^{44} \times 7^5$

\ Req. no. of prime factors = $17 + 44 + 5 = 66$

67. (A) As we know that,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = k$$

then, $a = k \sin A$, $b = k \sin B$, $c = k \sin C$

$$(b^2 - c^2) \frac{\cos A}{\sin A} + (c^2 - a^2) \frac{\cos B}{\sin B} + (a^2 - b^2) \frac{\cos C}{\sin C}$$

$$= (b^2 - c^2) \frac{ab^2 + c^2 - a^2}{2bc} + (c^2 - a^2) \frac{ac^2 + b^2 - a^2}{2ab} + (a^2 - b^2) \frac{ab^2 + c^2 - a^2}{2bc}$$

$$\frac{a^2 + a^2 - b^2}{2ac} + (a^2 - b^2) \frac{a^2 + b^2 - c^2}{2ab} + \frac{a^2 + b^2 - c^2}{2ab}$$

$$= \frac{k}{2abc} \times 0 = 0$$

68. (D) Let the initial fraction be x .

$$\frac{5}{2} = \frac{x \cdot 1.20}{0.95} \Rightarrow x = \frac{5}{2} \times \frac{19}{24} = \frac{95}{48}$$

\ Initial fraction = $\frac{95}{48}$

69. (B) Put $x = 1$

$$P^2 (P^2 + 1) = P (P^3 + P) = P^4 + P^2 = P^4 + P^2$$

Now, put $x = -1$

$$P^{-2} (P^2 + 1) = (P^{-3} + P^{-1}) P$$

$$\Rightarrow P^0 + P^{-2} = P^{-2} + P^0$$

Hence, $x = \pm 1$

70. (B) No. of turns required, if both P and Q are

$$\text{used} = \frac{60}{1 + \frac{1}{3}} = 60 \times \frac{3}{4} = 45 \text{ turns}$$

71. (C) Prime numbers between 1 to 100 are
 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41,
 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
 Their sum = 1060

$$\text{\ Avg.} = \frac{1060}{25} = 42.4$$

72. (C) Required ratio = $\frac{\text{Volume of hemisphere}}{\text{Volume of cylinder}}$

$$= \frac{2}{3} \pi r^3 : \pi r^2 h = \frac{2}{3} \pi r^3 : \pi r^3 = 2 : 3$$

73. (C) Required percentage

$$= \frac{81}{872 + 79 + 248 + 210 + 404} \times 100\%$$

$$= \frac{81}{1013} \times 100\% = 7.99\% = 8\% \text{ approx}$$

74. (C) **Vehicles** **% Increment**

Two wheeler $\frac{7}{404} \times 100\% = 1.73\%$

Jeep $\frac{31}{210} \times 100\% = 14.76\%$

Light comm. vehicle $\frac{14}{79} \times 100\% = 17.72\%$

Cars $\frac{32}{248} \times 100 = 12.90\%$

75. (A) In this question, by referring the table chart, first we need to calculate the increase (in percentage) in sale of Heavy Vehicle in 1994 over 1993.

Heavy Vehicle sold in 1993 = 81

Heavy Vehicle sold in 1994 = 107

Increase = $107 - 81 = 26$

Now, we need to find 26 is what percent of 81?

$$\frac{26}{81} \times 100\% = 32.09\%$$

$$\frac{132.09}{100} \times 107 = 141.33 = 141 \text{ (approx)}$$

MEANINGS IN ALPHABETICAL ORDER

Word	Meaning in English	Meaning in Hindi
Inveterate	having a particular habit long-established and unlikely to change.	अभ्यस्त, आदी
Garish	obtrusively bright and showy	भडकीला
Desultory	lacking a plan, purpose, or enthusiasm.	अनियमित
Duplicity	deceitfulness; double-dealing.	कपट, छल
Putrid	decaying or rotting and emitting a fetid smell.	सड़ा हुआ, बदबूदार
Mischievous	Naughty; misbehaving	शरारतपूर्ण
Voluptuous	of or relating to luxury or sensual pleasure	कामुक
Perceptible	able to be seen or noticed	प्रत्यक्ष, दिखने योग्य
Fatalist	one who believes in fate and inevitable	वह जो भाग्य में भरोसा करता है
Fanatic	a person who is extremely enthusiastic about something	कट्टर
Philogymist	one who shows fondness to women.	स्त्रीप्रेमी
Genuine	truly what something is said to be; authentic.	विशुद्ध, सच्चा
Absenteeism	the practice of regularly staying away from work without good reason	कार्य से अनुपस्थित होना
Retaliation	the action of doing something in return	प्रतिकार
Grip	to grasp or to take hold of	नियंत्रण में लेना
Intractable	hard to control or deal with	कठिन, सख्त

Answers key on 20 Apr - 17

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