

**S1. Ans.(c)**

**Sol.**  $20 = 40 \times t_1$

$t_1 = \frac{1}{2}$  hrs

$45 = 15 \times t_2$

$65 = \frac{7}{2} \times S$

$S = 18.5$  km/hr.

**S2. Ans.(a)**

**Sol.**  $\frac{3(3)-2(2)}{2(3)-2} = \frac{5}{4}$

**S3. Ans.(a)**

**Sol.**  $14.28\% = \frac{1}{7}$

$\frac{7}{49} : \frac{8}{64}$

$\frac{21000}{49} \times 15 = 6428$

**S4. Ans.(C)**

**Sol.**  $x = \frac{x \times t^2}{100}$

$t = 10$

$A + B + C = 10$

$C = -22$

C can never fill a tank

**S5. Ans.(d)**

**Sol.**

A	B	ABC
6	10	12
20	12	10
	120	

$A+B+C=10$

$C=-22$

C can never fill the tank. Because c is the outlet pipe.

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**S6. Ans.(a)**

**Sol.**  $20\% = \frac{1}{5}$

4 - 320

5 - 400

13 - 520

**S7. Ans.(a)**

**Sol.** Sum of 12 numbers = 504

Sum of 12 no. + 13<sup>th</sup> number = 572

13<sup>th</sup> number = 572 - 504

= 68

Alternate method-

$$+2 \left( \begin{array}{r} 44 \\ \overline{12} + 13 \\ 42 \quad | \\ \quad 44 \\ + 24 \\ \hline 68 \end{array} \right)$$

**S8. Ans.(c)**

**Sol.**  $\frac{1}{3}\pi r^2 h = \frac{4}{3}\pi r^3$

H = 4r

**S9. Ans.(a)**

**Sol.**

20 : 17

5 : 4

100 : 68

32

$\frac{32}{100} \times 100 = 32\%$

**S10. Ans.(d)**

**Sol.**

$\frac{SP}{CP} = \frac{7}{6} \Rightarrow 1$

$\frac{1}{6} \times 100 = 16\frac{2}{3}\%$

**S11. Ans.(c)**

**Sol.** L.C.M of 12, 23, 24 = 552

**S12. Ans.(b)**

**Sol.**

$a_1^3 = \frac{343}{572}$

$a_2^3 = \frac{572}{64}$

$a_1 = \frac{7}{8}$

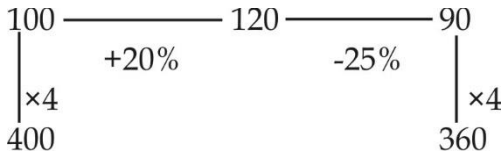
$a_2 = \frac{7}{8}$

$T.S.A(a_1) = \frac{6 \times 49}{64} = \frac{49}{64}$

$T.S.A(a_2) = \frac{6 \times 49}{64} = \frac{49}{64}$

**S13. Ans.(d)**

**Sol.**



**S14. Ans.(c)**

**Sol.**  $x + \frac{1}{x} = 3$

$$\left(x + \frac{1}{x}\right)^3 = x^3 + \frac{1}{x^3} + 3\left(x + \frac{1}{x}\right)$$

$$27 = x^3 + \frac{1}{x^3} + 9$$

$$x^3 + \frac{1}{x^3} = 18$$

**S15. Ans.(b)**

**Sol.**

$$S1 + S3 + S5 + S7 = 137$$

$$S2 + S4 + S6 = 101$$

**S16. Ans.(b)**

**Sol.**  $\frac{29}{38} \times 100 = 76.31\%$

**S17. Ans.(c)**

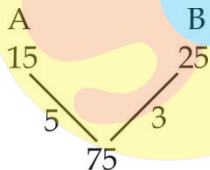
**Sol.** Total = 238

**S18. Ans.(c)**

**Sol.**  $\frac{S1}{S7} = \frac{26}{44} = \frac{13}{22}$

**S19. Ans.(d)**

**Sol.**



1 Cycle { A- 5 -1<sup>st</sup> day  
          B- 3 -2<sup>nd</sup> day

In one cycle work is 3+5=8

It will take 9 cycle to complete 72 work. Next day A will do the 3unit work.

Work done by A - 5unit in 1 day

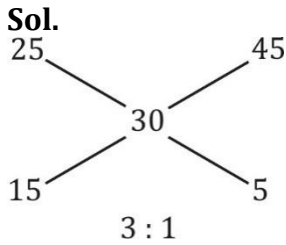
3unit in  $\frac{3}{5}$  day

Total number of days =  $18\frac{3}{5}$

**S20. Ans.(c)**

**Sol.**  $\angle AOB = 180^\circ - 35^\circ$   
 $= 145^\circ$

**S21. Ans.(c)**



**S22. Ans.(b)**

**Sol.**  $x \times 1 \times \frac{\sqrt{3}}{2} = \frac{1}{2} \times \frac{1}{\sqrt{2}}$   
 $x = \frac{1}{\sqrt{6}}$

**S23. Ans.(a)**

**Sol.**  $2r + \frac{2\pi r}{2} = 144$

$r = 28 \text{ m}$

Area =  $\frac{\pi r^2}{2} = \frac{22}{14} \times (28)^2 = 1232 \text{ m}^2$

**S24. Ans.(c)**

**Sol.**

CP	MP	SP
(5	(10	9) × 2
15	20	18
CP	15	3
MP	20	4

$\frac{CP}{MP} = \frac{15}{20} = \frac{3}{4}$

**S25. Ans.(b)**

**Sol.**

A	B	C
20	30	50
+10%	+30%	+15%
21	33	57.5

A : B : C = 42 : 66 : 115

**S26. Ans.(d)**

**Sol.**  $2\pi r - 2r = 210$

$2r\left(\frac{22}{7} - 1\right) = 210$

$2r\left(\frac{15}{7}\right) = 210$

$r = \frac{210 \times 7}{15 \times 2} = 49 \text{ cm}$

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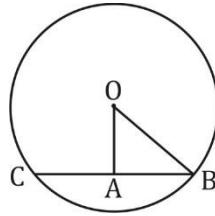
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**S27. Ans.(b)**

**Sol.**



$$OB = 25 \text{ cm}$$

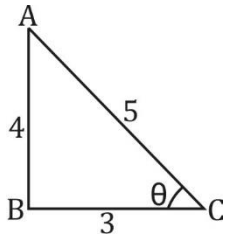
$$OA = 7 \text{ cm}$$

$$AB = \sqrt{OB^2 - OA^2} = \sqrt{(25)^2 - (7)^2} = 24 \text{ cm}$$

$$BC = 48 \text{ cm}$$

**S28. Ans.(c)**

**Sol.**



$$\cos\theta = \frac{3}{5}$$

$$\operatorname{cosec}\theta + \cot\theta$$

$$\frac{5}{4} + \frac{3}{4} = 2$$

**S29. Ans.(d)**

**Sol.**  $\angle BAD = \angle BCD = 60^\circ$  (opposite angles are equal in rhombus)

Since  $CD = CB$ ,  $\angle CDB = \angle CBD = x$

$$x + x + 60^\circ = 180^\circ$$

$$x = 60^\circ$$

**S30. Ans.(b)**

**Sol.**

$$\begin{array}{l} P \quad : \quad A \\ 3000 \quad : \quad 3993 \\ \sqrt[3]{1000} \quad : \quad \sqrt[3]{1331} \\ 10 \quad : \quad 11 \end{array}$$

$$\frac{1}{10} \times 100 = 10\%$$

**S31. Ans.(c)**

**Sol.** All except Eagle are flightless birds

S32. Ans.(c)

Sol.

$$\begin{array}{cccc} 4, & 12, & 28, & 60 \\ \underbrace{\hspace{1.5em}}_{+8} & \underbrace{\hspace{1.5em}}_{+16} & \underbrace{\hspace{1.5em}}_{+32} & \end{array}$$

$$\begin{array}{ccc} 6, & 14, & 30 \\ \underbrace{\hspace{1.5em}}_{+8} & \underbrace{\hspace{1.5em}}_{+16} & \end{array}$$

S33. Ans.(b)

Sol. The series is ab/ ab/ ab/ ab/ ab/ ab

S34. Ans.(b)

Sol.

$$\begin{array}{cccccc} G & A & M & B & L & E \\ | & | & | & | & | & | \\ -1 & +1 & -1 & +1 & -1 & +1 \\ F & B & L & C & K & F \\ \\ F & L & O & W & E & R \\ | & | & | & | & | & | \\ -1 & +1 & -1 & +1 & -1 & +1 \\ E & M & N & X & D & S \end{array}$$

S35. Ans.(c)

Sol.

$$\begin{array}{cccc} G & I & V & E \\ 5 & 1 & 4 & 7 \\ \\ G & A & T & E \\ 5 & 2 & 4 & 7 \end{array}$$

S36. Ans.(a)

Sol. Nib is fitted in pen and it is called needle in the statement.

S37. Ans.(d)

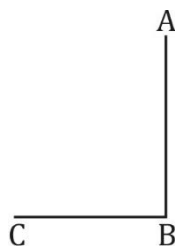
Sol. By 2<sup>nd</sup> & 3<sup>rd</sup> statement, 'wop' means gives

S38. Ans.(b)

Sol. Since the narrator has no brother, his father, his father's son is he himself. So, the man who is talking is the father of the man in the photograph or the men in the paragraph is his son.

S39. Ans.(c)

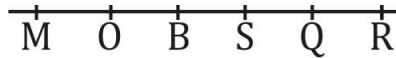
Sol.



S40. Ans.(b)

S41. Ans.(d)

Sol.



S42. Ans.(a)

Sol.  $16 + 9 \div 4 \times 8 = 34$

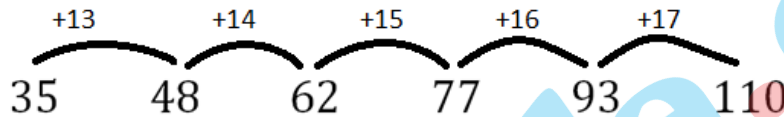
$34 = 34$

S43. Ans. (b)

Sol.

S44. Ans.(a)

Sol.

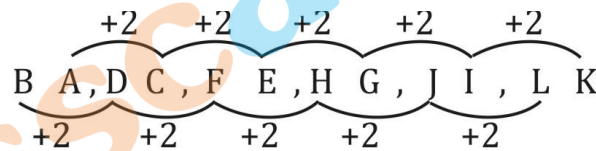


S45. Ans. (d)

S46. Ans.(a)

S47. Ans.(b)

Sol.



S48. Ans.(c)

Sol. Second represents the shape formed by number of sides by first.

S49. Ans.(a)

Sol.  $(9 + 2 + 3) \times 3 = 42$

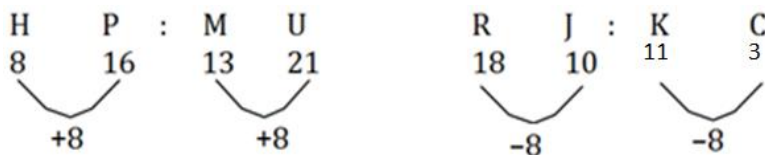
Similarly  $(8 + 9 + 7) \times 3 = 72$

S50. Ans.(b)

S51. Ans (a)

S52. Ans.(a)

Sol.



**S53. Ans.(a)**

**Sol.**

$$5^3 : 125$$

$$9^3 : 729$$

**S54. Ans.(b)**

**Sol.**

$$\begin{array}{ccc} 3 & 1 & 2 \\ \downarrow & \downarrow & \downarrow \\ 4 & 5 & 6 \end{array}$$

**S55. Ans.(d)**

**Sol.** First works for second

**S56. Ans.(c)**

**Sol.** All except (c) grow underground

**S57. Ans.(c)**

**Sol.** Except (c), second is the capital of first

**S58. Ans.(c)**

**Sol.** Except (c), first number is eight more than second.

**S59. Ans.(b)**

**Sol.**

$$\begin{array}{ccccccccc} 3 & & 6 & & 18 & & 72 & & 360 \\ \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow & \\ & \times 2 & & \times 3 & & \times 4 & & \times 5 & \end{array}$$

**S60. Ans.(d)**

**Sol.** All are vowels.

**S61. Ans.(c)**

**Sol.** Akbar II sent Ram Mohan Roy as an ambassador to Britain and gave him the title of Mughal envoy to the Court of St. James, conferring on him the title of Raja.

**S62. Ans.(a)**

**Sol.** Erode Venkatappa Ramasamy commonly known as Periyar, also referred to as Thanthai Periyar, was an Indian social activist, and politician who started the Self-Respect Movement and Dravidar Kazhagam. He is known as the 'Father of modern Tamil Nadu'. He has done exemplary works against Brahminical dominance, caste prevalence and women oppression in Tamil Nadu.

**S63. Ans.(c)**

**Sol.** Womesh Chandra Banerjee presided over the first session of the Indian National Congress in 1885.



**S64. Ans.(d)**

**Sol.** The All India Forward Bloc (AIFB) or Forward Bloc is a left-wing nationalist political party in India. It emerged as a faction within the Indian National Congress in 1939, led by Subhash Chandra Bose. Abhinav Bharat was founded by V.D Savarkar.

**S65. Ans.(b)**

**Sol.** Anandamath is a Bengali novel, written by Bankim Chandra Chatterjee and published in 1882. Set in the background of the Sanyasi Rebellion in the late 18th century.

**S66. Ans.(b)**

**Sol.** The Swadeshi Boycott Movement is related to Partition of Bengal in 1905. The Indian National Congress began the Swadeshi movement that included boycotting British goods and public institutions.

**S67. Ans.(d)**

**Sol.** Mutiny of 1857 was described as the First Indian War of Independence by V D Savarkar. It began on May 10, 1857.

**S68. Ans.(c)**

**Sol.** Part VIII of Indian Constitution deals with the administration of Union Territories.

**S69. Ans.(b)**

**Sol.** The President appoints Chief Election Commissioner and Election Commissioners. They have tenure of six years, or up to the age of 65 years, whichever is earlier.

**S70. Ans.(c)**

**Sol.** In India, the Panchayati Raj Institutions (PRIs) now functions as a system of governance in which gram panchayats are the basic units of local administration. The Election Commission of India is an autonomous constitutional authority responsible for administering election processes in India. The Central Information Commission has been constituted with effect from 12-10-2005 under the Right to Information Act, 2005.

**S71. Ans.(d)**

**Sol.** The Anti-Defection Law was passed in 1985 through the 52nd Amendment to the Constitution, which added the Tenth Schedule to the Indian Constitution.

**S72. Ans.(c)**

**Sol.** Article 32 provides a fundamental right to each person in India to approach Supreme Court of India for enforcement of the fundamental rights enshrined in Part III of the Constitution. Basically, one can seek an order from Supreme Court which shall be binding on everyone to protect their fundamental right.

**S73. Ans.(a)**

**Sol.** In Indian parliamentary system, the leader of the largest opposition party having not less than 1/10th seats of total strength of the house is recognized as the leader of the opposition in that House.

**S74.Ans.(b)**

**Sol.** The Parliament has a sanctioned strength of 545 in Lok Sabha including the 2 nominees from the Anglo-Indian Community by the President, and 245 in Rajya Sabha including the 12 nominees from the expertise of different fields of science, culture, art and history.

**S75. Ans.(c)**

**Sol.** The Union Public Service Commission is India's premier central recruiting agency. According to Article -316, the Chairman and other members of Union Public Service Commission shall be appointed by the President.

**S76.Ans.(c)**

**Sol.** Article 356, commonly known as President's rule deals with "Failure of constitutional machinery in the State".

**S77. Ans.(a)**

**Sol.** The 'Question Hour' is the first hour of a sitting session of India's Lok Sabha devoted to question that Members of Parliament rise with respect to any administrative activity.

**S78. Ans.(b)**

**Sol.** President of India has summoned the joint sitting of both the houses of the Indian Parliament.

**S79. Ans. (c)**

**Sol.** The Directive Principles of State Policy (DPSP) are the guidelines or principles given to the federal institutes governing the state of India, to be kept in citation while framing laws and policies. These provisions, contained in Part IV (Article 36-51) of the Constitution of India.

**S80. Ans.(d)**

**Sol.** Salary and Allowances of the President, Speaker / Deputy speaker of Lok Sabha, Chairman/ Deputy chairman of Rajya Sabha, Salaries and Allowances of Supreme Court judges, Pensions of Supreme Court as well as High Court Judges, Salaries and Allowances of CAG, Lok Pal are withdrawal from Consolidated Fund of India.

**S81.Ans.(c)**

**Sol.** At present, there are 25 high courts in the country. Out of them, three are common high courts. Delhi is the only union territory that has a high court of its own. The other union territories fall under the jurisdiction of different state high courts.  
Andaman Nicobar- Under Calcutta high court  
Daman and Diu - Under Mumbai high court.  
Dadar nagar haweli- Under Mumbai high court.  
Lakshadweep-kerala high court

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**S82. Ans.(a)**

**Sol.** The salaries, allowances, privileges, leave and pension of the judges of a high court are determined from time to time by the Parliament and charged upon consolidated fund of states

**S83. Ans.(b)**

**Sol.** The equator passes through 13 countries: Ecuador, Colombia, Brazil, Sao Tome & Principe, Gabon, Republic of the Congo, Democratic Republic of the Congo, Uganda, Kenya, Somalia, Maldives, Indonesia and Kiribati.

**S84. Ans.(d)**

**Sol.** Cyclones is called Typhoons in Japan and Philippines. A typhoon is a tropical cyclone that develops between 180° and 100°E in the Northern Hemisphere. This region is referred to as the Northwestern Pacific Basin.

**S85. Ans.(d)**

**Sol.** Crater is the bowl-shaped opening at the top or side of a volcano or top of a geyser through which lava and gases are emitted.

**S86. Ans.(d)**

**Sol.** The ozone layer acts as a filter for the shorter wavelength and highly hazardous ultraviolet radiation (UVR) from the sun, protecting life on Earth from its potentially harmful effects.

**S87. Ans.(d)**

**Sol.** Japan's Mt. Fujiyama is an active volcano about 100 kilometers southwest of Tokyo. Mount Etna is an active strato volcano on the east coast of Sicily, Italy. Mount Popa is a volcano 1518 metres above sea level, and located in central Myanmar in the region of Mandalay in the Pegu Range. Krakatoa, or Krakatau is a volcanic island situated in the Sunda Strait between the islands of Java and Sumatra in the Indonesian province of Lampung.

**S88. Ans.(c)**

**Sol.** The residual eroded mounds sporadically located in Karst Plains are called Hum.

**S89. Ans.(d)**

**Sol.** The organic component of soil is formed by the decomposition of leaves and other plant material by soil microorganisms.

**S90. Ans.(b)**

**Sol.** Hot and dry winds are called Foehn winds in the Alps and Chinook ("snow-eaters") in North America.. In the Alps, they most commonly occur at night when cool air sinks down mountain slopes and valleys.

**S91. Ans.(a)**

**Sol.** During the day, land gets heated by the Sun much quicker than does water. As the land becomes warmer, it heats the air in the atmosphere above it. This causes the air to expand, becoming less dense, and thus creating a low pressure. Wind blows from the sea towards the land along the pressure gradient in an attempt to equalize pressure. This is known as a sea breeze.

**S92. Ans.(b)**

**Sol.** Chinook winds are föhn winds in the interior West of North America, where the Canadian Prairies and Great Plains meet various mountain ranges, although the original usage is in reference to wet, warm coastal winds in the Pacific Northwest.

**S93. Ans.(c)**

**Sol.** The Peninsular Plateau is the oldest landmass of India. The peninsular plateau was one of the parts of the Gondwana landmass.

**S94. Ans.(c)**

**Sol.** Lakshadweep Islands are coral islands. Andaman and Nicobar Islands were formed due to collision between Indian Plate and Burma Minor Plate.

**S95. Ans.(d)**

**Sol.** The river Ganga has its origin in the Western Himalayan Ranges in the state of Uttarakhand. The Brahmaputra River, also called Yarlung Tsangpo in Tibetan language, originates on the Angsi Glacier located on the northern side of the Himalayas in Burang County of Tibet.

**S96. Ans.(c)**

**Sol.** The Pulitzer Prize is an award for achievements in newspaper, magazine and online journalism, literature, and musical composition in the United States.

**S97. Ans. (d)**

**Sol.** Ottawa is the capital city of Canada. It stands on the south bank of the Ottawa River in the eastern portion of southern Ontario.

**S98. Ans. (b)**

**Sol.** Lokpriya Gopinath Bordoloi International Airport, also known as Guwahati International Airport and formerly as 'Borjhar Airport', is the primary international airport of the North-Eastern States of India.

**S99. Ans. (a)**

**Sol.** Konark is a medium town in the Puri district in the state of Odisha, India. It lies on the coast by the Bay of Bengal, 60 kilometers from the capital of the state, Bhubaneswar. It is the site of the 7th-century Sun Temple, also known as the Black Pagoda, built in black granite during the reign of Narasimhadeva-I.

**S100. Ans. (c)**

**Sol.** The Indian Space Research Organisation is the space agency of the Government of India headquartered in the city of Bengaluru.

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