SSC CGL (Tier - I) Exam. Practice Set

Answers with Explanation

1. (c) The spacecraft landed on moon was named Chandrayan by the Indian space Research Organisation. Similarly, the spacecraft which landed on Mars in 2014 was named Mangalyan.
2. (d) Forest is the habitat of Lion. Similarly, water body is the habitat of fish.
3. (b) The causative organism of polio is virus. Similarly, the causative organism of anthrax is bacteria.
4. (c) Tributary is a part of river. Similarly, branch is a part of tree and is analogus to tributary in the case of river.
5. (c) Cardiologist studies and examine the functions and ailments of heart. Similarly, Nephrologist studies and examines functions and ailments of kidney.
6. (c) G is the daughter of B and D. A is the sister of B.
   Therefore, G is the niece of A.
7. (d) G is the brother of C.
   C is the daughter of A.
   G is the son of A.
   F is the brother of A.
   Therefore, F is the uncle of G.
8. (c) Only daughter of Vijay's mother means sister of Vijay.
   Sister of Vijay is mother of Anand.
   Therefore, Anand is nephew of Vijay.
9. (a)

$\times \Rightarrow -$	$+ \Rightarrow \times$
$\div \Rightarrow +$	$- \Rightarrow \div$

   $175 - 25 \div 5 + 20 \times 3 + 10 = ?$
   $\Rightarrow ?$
   $= 175 \div 25 + 5 \times 20 - 3 \times 10$
   $\Rightarrow ? = 7 + 100 - 30 = 77$
10. (a)

$+ \Rightarrow \div$	$- \Rightarrow \times$
$\times \Rightarrow +$	$\div \Rightarrow -$

   Option (a)
   $5 \times 8 - 5 + 5 \div 1 = 12$
   $\Rightarrow 5 + 8 \times 5 \div 5 - 1 = 12$
   $\Rightarrow 5 + 8 \times 1 - 1 = 12$
   $\Rightarrow 5 + 8 - 1 = 12$
   Option (b)
   $55 - 2 + 10 \div 1 \times 5 = 16$
   $\Rightarrow 55 \times 2 \div 10 - 1 + 5 = 16$
   $\Rightarrow \frac{55 \times 2}{10} - 1 + 5 = 16$
   $\Rightarrow 11 - 1 + 5 \neq 16$
   Option (c)
   $38 \div 10 - 5 + 7 \times 8 = 25$
   $\Rightarrow 38 - 10 \times 5 \div 7 + 8 = 25$
   $\Rightarrow 38 - \frac{10 \times 5}{7} + 8 = 25$
   $\Rightarrow 38 - \frac{50}{7} + 8 \neq 25$
   Option (d)
   $10 - 12 + 2 \div 30 \times 1 = 10$
   $\Rightarrow 10 \times 12 \div 2 - 30 + 1 = 10$
   $\Rightarrow 10 \times 6 - 30 + 1 = 10$
   $\Rightarrow 60 - 30 + 1 \neq 10$
11. (b)

$- \Rightarrow +$	$+ \Rightarrow \times$
$\div \Rightarrow -$	$\times \Rightarrow \div$

   $27 \times 3 \div 6 + 9 - 8 = ?$
   $\Rightarrow ? = 27 \div 3 - 6 \times 9 + 8$
   $\Rightarrow ? = 9 - 54 + 8$
   $\Rightarrow ? = 17 - 54 = -37$
12. (c) A $\leftrightarrow$ Z
   Pairs of opposite Letter
   B $\leftrightarrow$ Y
   Similarly,
   H $\leftrightarrow$ S
   I $\leftrightarrow$ R
   And, K $\leftrightarrow$ P
   L $\leftrightarrow$ O
13. (d)

3	13	23		4	14	24
C	M	W	$\longrightarrow$	D	N	X
		+1		+1		
		+1			+1	
		+1				+1

   Similarly,

1	11	21		2	12	22
A	K	U	$\longrightarrow$	B	L	V
		+1		+1		
		+1			+1	
		+1				+1

14. (a) R E D — E F S
+1 +1 +1

Similalry,

B L U E — F V M C
+1 +1 +1 +1

15. (b) There is only one 'O' in the given word. Therefore, the word POMPOUS cannot be formed.

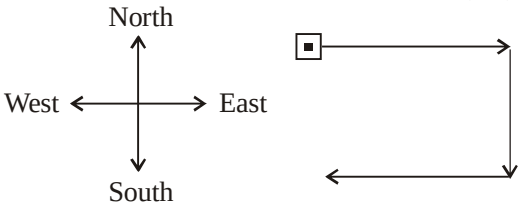
P [RE] S U M P [TI] O N
⇒ TIER

[P] R E S [UMP] T I O N
⇒ PUMP

P [R] E S [U] M P T [I] O [N]
⇒ RUIN

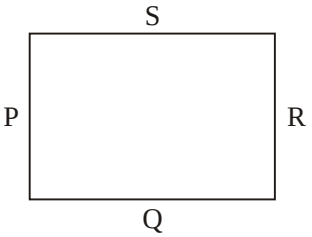
16. (d) There is no 'H' letter in the given word. Therefore, the word MOUTH cannot be formed.

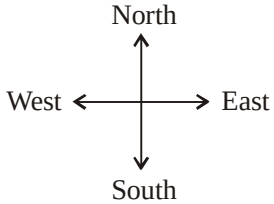
17. (b) During the time of sunset, walking towards the opposite side of sun means, Shama was walking towards east.



Now, Shama is facing west.

18. (a)





Q is facing north.

19. (b) When it appears 6:30 in mirror, the real time would be 5:30.

20. (c) The given number series is based on the following pattern:

5.7 + 2.4 = [8.1]
8.1 + 2.4 = 10.5
10.5 + 2.4 = 12.9
12.9 + 2.4 = 15.3
15.3 + 2.4 = 17.7

21. (d) The given number series is based on the following pattern:

$(1)^2 = 1$
$(1 + 10) \Rightarrow (11)^2 = 121$
$(11 + 10) \Rightarrow (21)^2 = 441$
$(21 + 10) \Rightarrow (31)^2 = 961$
$(31 + 10) \Rightarrow (41)^2 = 1681$
$(41 + 10) \Rightarrow (51)^2 =$ [2601]

22. (c)

9	2	4	0	7	1
↓	↓	↓	↓	↓	↓
B	S	E	U	A	C

23. (c) First Premise is Universal Affirmative (A–type).
Second Premise is Universal Negative (E–type).
All pens are pencils.

No pencil is monkey.
A + E = E-type of Conclusion
"No pen is monkey".
This is Conclusion I.

24. (b) 7 × 4 = 28; 19 + 9 = 28
8 × 5 = 40; 28 + 12 = 40
9 × 3 = 27; 27 – 6 = [21]

25. (b) 12 × 4 = 48
$\sqrt{25} = 5$
16 × 4 = 64
$\sqrt{81} = 9$
Similarly,
15 × 4 = [60]
$\sqrt{49} = 7$

26. (a) The Junagarh rock inscription, found in Junagarh, was carved under the orders of King Rudradaman, who had obtained the title of Mahakshatrapa. He was the grandson of the famous Mahakshatrapa Chastana and was a Saka ruler from the Western Kshatrapa dynasty. The inscription is a chronicle about the rebuilding of a dam named Urjayat around

the lake Sudarshana. The dam lay in the region of Saurashtra and the closest town appears to have been a place called Girinagar. It was fed by the rivers Suvarnasikata and Palasini, along with other smaller streams. The dam was originally built by Vaishya Pushyagupta who was the governor of the region under Chandragupta Maurya. Conduits from the dam were later built under orders of his grandson; Emperor Asoka. অ্যাচিভার্স

27. (b) Jallikattu is typically practised in the Indian state of Tamil Nadu as a part of Pongal celebrations on Mattu Pongal day. It is a traditional spectacle in which a bull is released into a crowd of people and multiple human participants attempt to grab the large hump of the bull with both arms and hang on to it while the bull attempts to escape.

28. (b) The Constituent Assembly of India was elected to write the Constitution of India. Following India's independence from Great Britain, its members served as the nation's first Parliament. Dr. Sachchidanand Sinha was the first president (temporary chairman) of the Constituent Assembly when it met on December 9, 1946. Dr. Rajendra Prasad then became the President of the Constituent Assembly, and would later become the first President of India. অ্যাচিভার্স

29. (c) Eris is the most massive and second-largest dwarf planet known in the Solar System. It is 27% more massive than dwarf planet Pluto. Eris is the ninthmost-massive known body directly orbiting the Sun, and the largest known body in the Solar System not visited by a spacecraft. অ্যাচিভার্স

30. (a) Olympic silver medallist weightlifter Mirabai Chanu has won the BBC Indian Sportswoman Of The Year (BBC ISWOTY) award for 2022.

31. (b) Open Market Operations (OMOs) are the market operations conducted by the Reserve Bank of India by way of sale/ purchase of Government securities to/from the market with an objective to adjust the rupee liquidity conditions in the market on a durable basis. When the RBI feels there is excess liquidity in the market, it resorts to sale of securities thereby sucking out the rupee liquidity. Similarly, when the liquidity conditions are tight, the RBI will buy securities from the market, thereby releasing liquidity into the market. The two traditional type of OMO's used by RBI are: Outright purchase (PEMO): Is outright buying or selling of government securities; and Repurchase agreement (REPO): Is short term, and are subject to repurchase.

32. (b) In 630 BC, Harshavardhana faced defeat at the hands of Pulakesin II, the Chalukya King of Vatapi, in Northern Karnataka. The defeat resulted in a truce between the two kings, with Harsha accepting River Narmada as the southern boundary for his kingdom. অ্যাচিভার্স

33. (a) The Preamble to the Constitution of India is 'Declaration of Independence' statement & a brief introductory that sets out the guiding principles & purpose of the document as well as Indian democracy. It describes the state as a "sovereign democratic republic". The first part of the preamble "We, the people of India" and, its last part "give to ourselves this Constitution" clearly indicate the democratic spirit.

34. (c) The outer bank (called a cut bank) has the greatest erosion because the water is flowing faster along the outer bank than the inner bank. The slower water allows sediment to be deposited (called a point bar). অ্যাচিভার্স

35. (c) The ruins of Harrappa were first described in 1842 by Charles Masson in his Narrative of Various Journeys in Balochistan, Afghanistan. In 1856, General Alexander Cunningham, later director general of the archeological survey of northern India, visited Harappa. In 1872–75 Alexander Cunningham published the first Harappan seal. The excavation campaign under Sir John Hubert Marshall in 1921–22 resulted in the discovery of the civilization at Harappa by Sir John Marshall, Rai Bahadur Daya Ram Sahni and Madho Sarup Vats, and at Mohenjodaro by Rakhal Das Banerjee, E. J. H. MacKay, and Sir John Marshall. অ্যাচিভার্স

36. (a) Dr S Raju has taken over as the Director-General of the Geological Survey of India (GSI) with effect from April 01, 2022. He succeeds R. S. Garkhal. অ্যাচিভার্স

37. (b) It is just because woolen clothes have fibres and between those fibres air is trapped which reduces heat loss. Air reduces heat loss because it is an insulator or poor conductor of heat. Wool has several qualities that distinguish it from hair or fur: it is crimped, it is elastic, and it grows in staples (clusters).Wool's scaling

and crimp make it easier to spin the fleece by helping the individual fibers attach to each other, so they stay together. Because of the crimp, wool fabrics have a greater bulk than other textiles, and retain air, which causes the product to retain heat. অ্যাচিভার্স

38. (d) The Directive Principles of State Policy are guidelines to the central and state governments of India, to be kept in mind while framing laws and policies. These provisions, contained in Part IV of the Constitution of India, are not enforceable by any court, but the principles laid down therein are considered fundamental in the governance of the country, making it the duty of the State to apply these principles in making laws to establish a just society in the country. অ্যাচিভার্স

39. (b) Ranthambore Fort is a formidable fort and has been a focal point of historical developments of Rajasthan. It is situated near Sawai Madhopur town in Rajasthan. This fort is known for the glory and valor of brave Hammir Dev of Chauhan dynasty. The fortress was captured by the kingdom of Mewar under Rana Hamir Singh (1326–1364) and Rana Kumbha (1433–1468). After the reign of Rana Kumbha's successor Rana Udai Singh I (1468–1473) the fortress passed to the Hada Rajputs of Bundi. Sultan Bahadur Shah of Gujarat captured the fortress from 1532 to 1535. The Mughal Emperor Akbar captured the fortress in 1559.

40. (c) Lake Manasarovar is a freshwater lake in the Tibet Autonomous Region of China near Lhasa. Manasarovar is near the source of the Sutlej River which is the easternmost large tributary of the Indus. Nearby are the sources of the Brahmaputra River, the Indus River, and the Karnali River (Ghaghara), an important tributary of the Ganges River. অ্যাচিভার্স

41. (a) Milk contains a sugar called lactose, a disaccharide (compound sugar) made by the glycosidic bonding between glucose and glactose (monosaccharides). When milk is heated to a temperature of 30-40 degrees centigrade and a small amount of old curd added to it, the lactobacillus in that curd sample gets activated and multiplies. These convert the lactose into lactic acid, which imparts the sour taste to curd. অ্যাচিভার্স

42. (c) The theory of Economic problem states that there is scarcity, or that the finite resources available are insufficient to satisfy all human wants and needs. The problem then becomes how to determine what is to be produced and how the factors of production (such as capital and labor) are to be allocated. In short, the economic problem is the choice one must make, arising out of limited means and unlimited wants. অ্যাচিভার্স

43. (c) The World Autism Awareness Day is observed on 02 April every year, to raise awareness about people with Autism Spectrum Disorder (ASD) throughout the world. Theme of the World Autism Awareness Day in 2022 is – **"Inclusive Quality Education for All"**.

44. (b) Carbon monoxide (CO) is a colourless, odorless, and tasteless gas that is slightly lighter than air. It is toxic to humans and animals when encountered in higher concentrations, although it is also produced in normal animal metabolism in low quantities, and is thought to have some normal biological functions. In the atmosphere it is spatially variable, short lived, having a role in the formation of ground-level ozone. Carbon monoxide is colourless, odorless, and tasteless, but highly toxic. It combines with hemoglobin to produce carboxyhemoglobin, which is ineffective for delivering oxygen to bodily tissues. Concentrations as low as 667 ppm may cause up to 50% of the body's hemoglobin to convert to carboxyhemoglobin. A level of 50% carboxyhemoglobin may result in seizure, coma, and fatality. অ্যাচিভার্স

45. (a) Subhash Chandra Bose was President of Indian National Congress (1938), founded Forward Bloc and formed Indian National Army (Azad Hind Fauj). অ্যাচিভার্স

46. (b) Jatin Das is an Indian painter and sculptor who was conferred Padma Bhushan in January 2012. Begum Parveen Sultana is an Assamese Hindustani classical singer of the Patiala Gharana. Pradosh Das Gupta was a famous sculptor who represented India in the International Sculpture Competition held in London in 1953. Ustad Vilayat Khan was one of India's well known sitar maestros. In 1964 and 1968, respectively, he was awarded the Padma Shri and Padma Bhushan awards – India's fourth and third highest civilian honours for service to the nation – but refused to accept them, declaring the committee musically incompetent to judge him. অ্যাচিভার্স

47. (d) Water is transported through the plant in Xylem vessels, these begin in the roots and end in the leaves of the plant, water is translocated through a combination of "Transpirational pull" and capillary action. Xylem is one of two "conductive" tissues responsible for moving water and the products of photosynthesis (glucose) through the plant, the tissue responsible for moving the "food" around is Phloem. অ্যাচিভার্স

48. (a) Polish tennis star Iga Swiatek defeated Naomi Osaka of Japan, 6-4, 6-0. in the final match to claim 2022 Miami Open tennis tournament.

49. (d) The southernmost point of India is Indira Point.

50. (c) The subjects defined and enlisted under the List-III of the Seventh Schedule of the Constitution of India, form the joint domain of both the State Governments and the Union territories of India as well as the Central Government of India under these subjects. This is known as Concurrent List. The practical importance of the Concurrent list, (when adopted in any federation) lies in the fact, that the vesting of the same type of power in two parallel agencies carries, within it, the seeds of a possible conflict. This implies, that the Constitution (of the country concerned) should provide, in advance, a mechanism for resolving such conflict. In India, article 254 of the Constitution primarily seeks to incorporate such a mechanism.

51. (b) $\frac{2}{7} = 0.286;\ \frac{1}{3} = 0.33$ অ্যাচিভার্স

$\frac{5}{6} = 0.833;\ \frac{3}{4} = 0.75$

52. (c) The least number X in this case will be determined as follows:

4	X
5	Y – 1
	1 – 4

$Y = 5 \times 1 + 4 = 9$

$X = 4 \times Y + 1 = 4 \times 9 + 1 = 37$

Now,

5	37
4	7 – 2
	1 – 3

অ্যাচিভার্স

Hence, the respective remainders are 2, 3.

53. (a) Let the fraction be x.

$\therefore \frac{4x}{7} + \frac{4}{7} = \frac{15}{14}$

$\Rightarrow \frac{4x}{7} = \frac{15}{14} - \frac{4}{7} = \frac{15-8}{14} = \frac{1}{2}$

$\Rightarrow x = \frac{1}{2} \times \frac{7}{4} = \frac{7}{8}$

54. (d) Let the numbers be 6x and 6y where x and y are prime to each other.

$\therefore$ 6x × 6y = 216 অ্যাচিভার্স

$\Rightarrow xy = \frac{216}{6 \times 6} = 6$

$\therefore$ LCM = 6xy = 6 × 6 = 36

55. (b) Here, 12 – 5 = 7,

16 – 9 = 7

$\therefore$ Required number

= (L.C.M. of 12 and 16) – 7

= 48 – 7 = 41

56. (d) Expression $= 1 - \frac{a}{1 - \frac{1}{1 + \frac{a}{1-a}}}$ অ্যাচিভার্স

$= 1 - \frac{a}{1 - \frac{1}{\frac{1-a+a}{1-a}}} = 1 - \frac{a}{1 - \frac{1}{\frac{1}{1-a}}}$

$= 1 - \frac{a}{1-(1-a)} = 1 - \frac{a}{1-1+a}$

= 1 – 1 = 0

57. (b) 0.008 × 0.01 × 0.072 ÷ (0.12 × 0.0004)

= 0.008 × 0.01 × 0.072 ÷ (0.000048)

$= 0.008 \times 0.01 \times \frac{0.072}{0.000048}$

$= \frac{0.00000576}{0.000048} = 0.12$ অ্যাচিভার্স

58. (d) $\frac{1}{5\times6} + \frac{1}{6\times7} + \frac{1}{7\times8} + \frac{1}{8\times9} + \frac{1}{9\times10} + \frac{1}{10\times11}$

$= \frac{1}{5}\ \frac{1}{6} \mid \frac{1}{6}\ \frac{1}{7} \mid \frac{1}{7}\ \frac{1}{8} \mid \frac{1}{8}\ \frac{1}{9} \mid \frac{1}{9}\ \frac{1}{10} \mid \frac{1}{10}\ \frac{1}{11}$

$= \frac{1}{5} - \frac{1}{11} = \frac{11-5}{55} = \frac{6}{55}$

59. (a) Average of all numbers

$= \frac{30 \times 40 + 40 \times 30}{70} = \frac{240}{7} = 34\frac{2}{7}$ অ্যাচিভার্স

60. (a) Numbers are : 10, 15, 20, 25, 30, 35, 40, 45

Sum = 220

Average $= \frac{220}{8} = 27.5$

61. (c) a : b : c = 2 : 3 : 4

$\therefore \frac{a}{2}=\frac{b}{3}=\frac{c}{4}=k$ (let)

$\Rightarrow$ a = 2k, b = 3k, and c = 4k

Given 2a – 3b + 4c = 33

$\Rightarrow 2\times 2k - 3\times 3k + 4\times 4k = 33$

$\Rightarrow 4k - 9k + 16k = 33$

$\Rightarrow 11k = 33 \Rightarrow k = \frac{33}{11} = 3$

$\therefore$ c = 4k = 4×3 = 12

62. (b) $\frac{x}{y}=\frac{3}{4}$ (Given)

$$\therefore \frac{4x+5y}{5x-2y}=\frac{4\frac{x}{y}+5}{5\frac{x}{y}-2}$$

$$=\frac{4\times\frac{3}{4}+5}{5\times\frac{3}{4}-2}=\frac{8}{\frac{15-8}{4}}$$

$$=\frac{8\times 4}{7}=\frac{32}{7}$$

63. (d) $\frac{A\times 90}{100}=\frac{B\times 30}{100}$

$\Rightarrow 3A = B$

$\Rightarrow 3A = A\times\frac{2x}{100}$

$\Rightarrow 300 = 2x \Rightarrow x = 150$

64. (a) Let the number be x.

$\therefore \frac{3}{5}\times\frac{60}{100}\times x = 36$

$\Rightarrow x=\frac{36\times 5\times 5}{3\times 3}=100$

65 (a) $\sqrt{1+\frac{x}{961}}=\frac{32}{31}$

Squaring both sides,

$1+\frac{x}{961}=\left(\frac{32}{31}\right)^2=\frac{1024}{961}$

$\Rightarrow \frac{x}{961}=\frac{1024}{961}-1=\frac{1024-961}{961}=\frac{63}{961}$

$\Rightarrow$ x = 63

66. (b) Given $x=\frac{\sqrt{3}}{2}$

Given expression

$$=\frac{\sqrt{1+x}}{1+\sqrt{1+x}}+\frac{\sqrt{1-x}}{1-\sqrt{1-x}}$$

$$-\frac{\sqrt{1+x}}{1+\sqrt{1-x}}\times\frac{1-\sqrt{1+x}}{1-\sqrt{1+x}}-\frac{\sqrt{1-x}}{1-\sqrt{1-x}}\times\frac{1+\sqrt{1-x}}{1+\sqrt{1-x}}$$

$$=\frac{\sqrt{1+x}-1-x}{1-1-x}+\frac{\sqrt{1-x}+1-x}{1-1+x}$$

$$=\frac{\sqrt{1-x}+1-x}{x}-\frac{\sqrt{1+x}-1-x}{x}$$

$$=\frac{\sqrt{1-x}+1-x-\sqrt{1+x}+1+x}{x}$$

$$=\frac{2+\sqrt{1-x}-\sqrt{1+x}}{x}$$

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

$$=\frac{2+\sqrt{\frac{2-\sqrt{3}}{2}}-\sqrt{\frac{2+\sqrt{3}}{2}}}{\frac{\sqrt{3}}{2}}$$

$$=\frac{2+\frac{\sqrt{4-2\sqrt{3}}}{2}-\frac{\sqrt{4+2\sqrt{3}}}{2}}{\frac{\sqrt{3}}{2}}$$

$$\left[\because \sqrt{4-2\sqrt{3}}=\sqrt{3+1-2\sqrt{3}}=\sqrt{(\sqrt{3}-1)^2}=\sqrt{3}-1\right]$$

and

$$\left[\sqrt{4+2\sqrt{3}}=\sqrt{3+1+2\sqrt{3}}=\sqrt{(3+1)^2}=\sqrt{3}-1\right]$$

$$=\frac{4+\sqrt{3}-1-\sqrt{3}-1}{\sqrt{3}}=\frac{2}{\sqrt{3}}$$

67. (b) $\tan\theta=\frac{\sin\alpha-\cos\alpha}{\sin\alpha+\cos\alpha}$

$\therefore$ 1 + $\tan^2\theta$

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

$\Rightarrow \sec^2\theta$

$$= \frac{(\sin\alpha+\cos\alpha)^2+(\sin\alpha-\cos\alpha)^2}{(\sin\alpha+\cos\alpha)^2}$$

$$\Rightarrow \sec^2\theta = \frac{2(\sin^2\alpha+\cos^2\alpha)}{(\sin\alpha+\cos\alpha)^2}$$ অ্যাচিভার্স

$$\Rightarrow \frac{1}{\cos^2\theta} = \frac{2}{(\sin\alpha+\cos\alpha)^2}$$

$$\Rightarrow \frac{1}{\cos\theta} = \frac{\pm\sqrt{2}}{\sin\alpha+\cos\alpha}$$

$$\Rightarrow \sin\alpha+\cos\alpha = \pm\sqrt{2}\cos\theta$$

68. (b) $\tan\theta + \cot\theta = 2$ অ্যাচিভার্স

$$\Rightarrow \tan\theta + \frac{1}{\tan\theta} = 2$$

$$\Rightarrow \frac{\tan^2\theta+1}{\tan\theta} = 2$$

$\Rightarrow \tan^2\theta + 1 = 2\tan\theta$

$\Rightarrow \tan^2\theta - 2\tan\theta + 1 = 0$

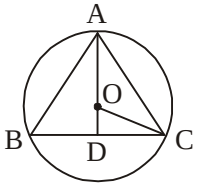
$\Rightarrow (\tan\theta - 1)^2 = 0$

$\Rightarrow \tan\theta - 1 = 0 \Rightarrow \tan\theta = 1$

$$\therefore \cot\theta = \frac{1}{\tan\theta} = 1$$

$\therefore \tan^5\theta + \cot^5\theta = 1 + 1 = 2$ অ্যাচিভার্স

69. (b)



AD ⊥ BC

BD = DC = 12 cm.

OC = OA = Circum-radius = r cm.

$$AD = \sqrt{AB^2 - BD^2}$$

$$= \sqrt{\left(12\sqrt{5}\right)^2 - (12)^2}$$

$$= \sqrt{144\times5-144}$$

$$= \sqrt{144(5-1)} = \sqrt{144\times4}$$ অ্যাচিভার্স

= 24 cm.

In ΔOCD,

OD = (24 – r) cm.

$\therefore OC^2 = OD^2 + CD^2$

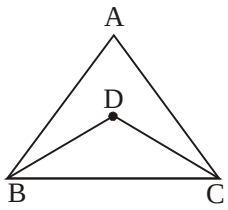
$\Rightarrow r^2 = (24 - r)^2 + 12^2$

$\Rightarrow r^2 = 576 - 48r + r^2 + 144$

$\Rightarrow 48r = 720$

$$\Rightarrow r = \frac{720}{48} = 15 \text{ cm.}$$

70. (c)



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AB = AC

$\therefore \angle ABC = \angle ACB$

$\angle A = 80°$

$\therefore \angle B + \angle C = 180° - 80° = 100°$

$$\therefore \angle B = \frac{100}{2} = 50^\circ = \angle C$$

$$\therefore \angle DBC = \angle DCB = \frac{50}{2} = 25^\circ$$

$\therefore \angle BDC = 180° - (\angle DBC + \angle DCB)$

$= 180° - 50° = 130°$

71. (b) Let d_1, d_2 be the diagonals of a rhombus, Area $= \frac{1}{2}d_1.d_2$ অ্যাচিভার্স

$$\Rightarrow 150 = \frac{1}{2}\times10\times d_2$$

$$\Rightarrow d_2 = \frac{150}{5} = 30 \text{ cm.}$$

72. (c) Perimeter of regular hexagon = Perimeter of equilateral triangle.

i.e. If a side of the regular hexagon be x units, then side of triangle = 2x units.

$$\therefore \text{Required ratio } = 6\frac{\sqrt{3}}{4}x^2 : \frac{\sqrt{3}}{4}(2x)^2$$

= 6 : 4 = 3 : 2

73. (c) . . . . . ^{2} + 5x + 6 = 0 অ্যাচিভার্স

$$\therefore \text{Expression } = \frac{2x}{x^2-7x+6}$$

$$= \frac{2x}{x^2+5x+6-12x} = \frac{2}{-12} = -\frac{1}{6}$$

74. (b) $a + \frac{1}{a} = 1$

$$\Rightarrow a = 1 - \frac{1}{b} = \frac{b-1}{b}$$ অ্যাচিভার্স

Again,

$$b + \frac{1}{c} = 1$$

$$\Rightarrow b = 1 - \frac{1}{c} = \frac{c-1}{c}$$

$$\therefore a = \frac{b-1}{b} = \frac{\frac{c-1}{c}-1}{\frac{c-1}{c}}$$

$= \frac{c-1-c}{c-1} = \frac{-1}{c-1}$

$\therefore abc = \frac{-1}{c-1} \times \frac{c-1}{c} \times c = -1$ অ্যাচিভার্স

75. (c) $p^2 + \frac{1}{p^2} = 47$

$\Rightarrow \left(p + \frac{1}{p}\right)^2 - 2 = 47$

$\Rightarrow \left(p + \frac{1}{p}\right)^2 = 47 + 2 = 49$

$\Rightarrow p + \frac{1}{p} = \sqrt{49} = 7$

76. (c) **creep up on somebody :** to begin to affect somebody.
creep in/into something : to begin to happen or affect something. অ্যাচিভার্স
Look at the examples given below
Tiredness can easily **creep up on** you while you are driving.
As she became more tired, errors began to **creep into** her work.
Hence, **crept into my spine** is the right usage

77. (b) **overflow (past = overflowed) :** to be so full that the contents go over the sides.
Hence, **has overflowed** is the right usage

78. (c) **one of** is followed by a **Plural Noun/Pronoun**
Hence, **bad habits is the use of tobacco** is the right usage.

79. (a) Here, **notice of** is the right usage. অ্যাচিভার্স
take notice of: paying attention to somebody/ something

80. (d) **ability (Noun)** agrees with **Prep.-in.**
Here, **in** is the right usage.

81. (c) The sentence is in **Present Perfect Tense.**
Hence, **hasn't been** is the right usage.

82. (b) **advice (Uncountable Noun) :** suggestion
some is used with an **Uncountable Noun**
Here, **some** is the right usage.

83. (d) **Point of time** is evident.
Hence, **since** is the right usage. অ্যাচিভার্স

84. (a) satisfied
complacent (Adjective) : too satisfied with yourself or with a situation; a feeling of satisfaction.

85. (b) **enterprising (Adjective) :** having or showing the ability to think of new projects or new ways of doing things and make them successful.

86. (b) bodily
visceral (Adjective) : resulting from strong feelings rather than careful thought.

87. (a) **to strain every nerve :** to try as hard as you can to do something
- I was **straining every nerve** to catch what they were saying. অ্যাচিভার্স

The best option is **to make utmost efforts.**

88. (b) **to flog a dead horse :** to waste your effort by trying to do something that is no longer possible
- He was warned again and again, but now I think there is no use **flogging a dead horse**.

The best option is **to attempt to do the impossible.**

89. (c) **to die in harness :** to die while in service (job/ work)
- My friend, Rashi, **died in harness**.

The best option is **to die while in service.**

90. (c) **to feather one's nest :** to make oneself rich, especially in a way that is wrong and dishonest
- Ravish **feathered his nest** through his connection with big business houses.

The best option is **to profit in a dishonest way.**

91. (a) **defiant (Adjective) :** openly refusing to obey somebody/something. অ্যাচিভার্স
servile (Adjective) : Wanting too much to please somebody and obey them, fawning.

92. (b) **inept (Adjective) :** acting or done with no skill.
adept (Adjective) : good at doing something that is quite difficult; skilful.

93. (b) unknown
famous (Adjective) : known about by many people.

94. (b) **sinecure** অ্যাচিভার্স
sinecure (Adj.) : a job you are paid for even though it involves little or no work.
honorary (Adj.) : given as an honour; not paid.
insolvent (Adj.) : not having enough money to pay what you owe.
sinuous (Adj.) : turning while moving, in an elegant way; having many curves.

95. (b) **maiden speech**
maiden speech (N.) : the first speech made by a person.
introductory speech (N.) : said at the beginning of something as an introduction to what follows.
concluding speech (N.) : said at the end of something as a conclusion to what happend.
initial speech (N.) : said at the beginning.

96. (d) **common (Adj.)** অ্যাচিভার্স
97. (b) **glass (Noun)**
98. (d) **bore (Noun)**
99. (a) **tube (Noun)**
100. (b) **a (Ind. Art.)**

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