SSC CGL (Tier - I) Exam. Practice Set

Answers with Explanation

1. (c) The first belongs to the second. Mango is a fruit. Similarly, Jasmine is a flower.
2. (c) The second develops into the first. Seed germinates to give rise plant. Similarly, Bud develops into flower.
3. (a) Editor edits and supervises the articles of a magazine. Similarly, Director directs the scenes of a drama. অ্যাচিভার্স
4. (c) The first is contained or served in the second. Tea is served in the cup. Similarly, soup is served in the bowl.
5. (a) Saint seeks peace and solace through meditation. Similarly, scientist does research to establish some principles.

(6-7): অ্যাচিভার্স

Member	Gender	Profession	Relationship
P	Female	Lady Teacher	Wife of S ; Mother of Q ; Mother-in-law of R ; Grandmother of T and U.
Q	Male	Doctor	Son of P and S ; Husband of R ; Father of T and U
R	Female	Lawyer	Daughter-in-law of P and S ; Wife of Q ; Mother of T and U
S	Male	Salesman	Husband of P ; Father of Q ; Grandfather of T and U ; Father-in-law of R.
T	Not Given	Engineer	Child of Q and R ; Grandchild of P and S
U	Male	Manager	Son of Q and R ; Grandson of P and S ; Brother of T

6. (b) Married couples are : (Q and R) and (P and S).
7. (d) P is a Lady Teacher.
8. (d) Seema is the daughter-in-law of Sudhir Mohan is the son of Sudhir.
   Seema is the sister-in-law of Mohan's only brother Ramesh.
   Therefore, Seema is the wife of Mohan

9. (a)

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

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$25 \times 5 - 3 \div 2 + 5 = ?$

$\Rightarrow ? = 25 + 5 \div 3 - 2 \times 5$

$\Rightarrow ? = 25 + \dfrac{5}{3} - 10$

$\Rightarrow ? = \dfrac{75 + 5 - 30}{3} = \dfrac{80 - 30}{3} = \dfrac{50}{3} = 16\dfrac{2}{3}$

10. (c)

$a \Rightarrow +$	$b \Rightarrow \times$
$c \Rightarrow \div$	$d \Rightarrow -$

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20 a 10 b 45 c 5 d 12 = ?

$\Rightarrow ? = 20 + 10 \times 45 \div 5 - 12$

$\Rightarrow ? = 20 + 10 \times 9 - 12$

$\Rightarrow ? = 20 + 90 - 12 = 98$

11. (b)

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

$12 - 8 \times 6 - 4 \div 6 + 3 = ?$

$\Rightarrow ? = 12 \times 8 + 6 \times 4 - 6 \div 3$

$\Rightarrow ? = 96 + 24 - 2$

$\Rightarrow ? = 120 - 2 = +118$

12. (c) $27 = 3 \times 3 \times 3$
   $125 = 5 \times 5 \times 5$ অ্যাচিভার্স
   Similarly,
   $64 = 4 \times 4 \times 4$
   $\therefore ? = 6 \times 6 \times 6 = 216$

13. (d) $(5)^2 + 1 = 26$
   $(7)^2 - 1 = 48$
   $(9)^2 + 1 = 82$
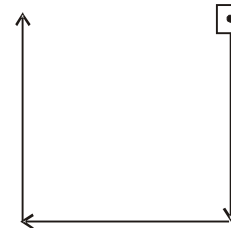   Therefore, $(11)^2 - 1 = 120$

14. (d) $68 + 62 = 130$
   $130 + (62 + 30) = 222$
   $222 + (92 + 36) = 350$

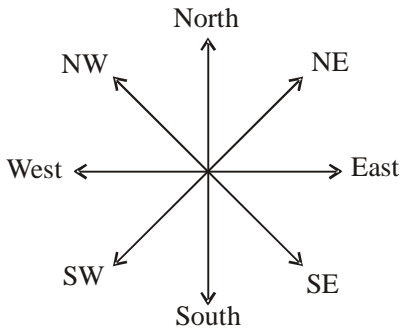15. (d) There is no 'A' letter in the given word. Therefore, the word ROAR cannot be formed.

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

COMMUNI $\boxed{\text{CATION}}$ $\Rightarrow$ ACTION

COMM $\boxed{\text{UNI}}$ CATI $\boxed{\text{ON}}$ $\Rightarrow$ UNION

COMMU $\boxed{\text{N}}$ IC $\boxed{\text{ATION}}$ $\Rightarrow$ NATION

17. (a)

Starting Point

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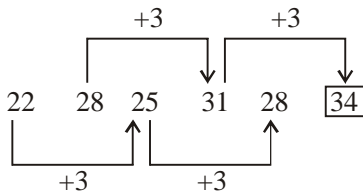
It is clear from the diagram that finally P was going towards North.

18. (a) $5 \times 40 = 200$ minutes
= 3 hours 20 minutes
Now,
10 : 00 – 03 : 20
= 06 : 40 PM

19. (a) The actual time would be 8:10.

20. (b)

22   28   25   31   28   34

(+3 between 22→25, 25→28; +3 between 28→31, 31→34)

21. (c) The given number series is based on the following pattern:
$3 \times 3 = 9$ $4 \times 4 = 16$
$5 \times 5 = 25$ $7 \times 7 = \boxed{49}$

22. (b) E = 5

H	O	T	E	L
↓	↓	↓	↓	↓
8	+ 15	+ 20	+ 5	+ 12

$= 60$ and $\dfrac{60}{5} = 12$

Similarly,

L	A	M	B
↓	↓	↓	↓
12	+ 1	+ 13	+ 2

$= 28$ and $\dfrac{28}{4} = 7$

23. (b) First Premise is Particular Affirmative (I-type).
Second Premise is Universal Negative (E-type).
Some skirts are benches.

No bench is a table.

I + E ⇒ O– type of Conclusion
"Some skirts are not tables."
Conclusion II is Converse of the first Premise.

24. (c) Take the sum of all the four numbers located at the four corners to get the central number.
$3 + 5 + 7 + 9 = 24$
$17 + 13 + 11 + 9 = 50$
Therefore,
$? + 7 + 10 + 21 = 47$
∴ $? = 47 – 38 = \boxed{9}$

25. (c) **First figure :** $6 \times 6 = 4 \times 9$
Second figure : $9 \times 8 = 24 \times 3$
Third figure : $15 \times 6 = 9 \times ?$

∴ $? = \dfrac{90}{9} = \boxed{10}$

26. (d) In 1872–75 Alexander Cunningham published the first Harappan seal (with an erroneous identification as Brahmi letters). It was half a century later, in 1912, that more Harappan seals were discovered by J. Fleet, prompting an excavation campaign under Sir John Hubert Marshall in 1921–22 and resulting in the discovery of the civilization at Harappa by Sir John Marshall, Rai Bahadur Daya Ram Sahni and Madho Sarup Vats, and at Mohenjo-daro by Rakhal Das Banerjee, E. J. H. MacKay, and Sir John Marshall.

27. (d) The festivals of Tamil Nadu are : Pongal, Jallikattu, Chithirai and Adipperukku.

28. (c) A Draft Constitution was prepared by the committee and submitted to the Assembly on 4 November 1947. Draft constitution was debated and over 2000 amendments were moved over a period of two years. Finally on 26 November, 1949, the process was completed and Constituent assembly adopted the constitution. 284 members signed the document and the process of constitution making was complete.

29. (b) A solar eclipse occurs when the moon crosses the path between the sun and the earth. The darkest shadow (where the sun is completely covered) is called the umbra. The umbra is narrow at the distance of the Earth, and a total eclipse is observable only within the narrow strip of land or sea over which the umbra passes. The partial shadow is called the penumbra.

30. (c) A book titled 'A Little Book of India: Celebrating 75 Years of Independence' authored by Ruskin

Bond was launched on January 24, 2022. The first novel of Ruskin Bond is 'The Room on the Roof'. অ্যাচিভার্স

31. (a) Value Added Tax (VAT) is a tax applied on the value that is added to goods and services at each stage in the production and distribution chain. It forms part of the final price the consumer pays for the goods or services. On the domestic market, VAT is collected in stages, by registered manufacturers, wholesalers, retailers and services providers. It is only individuals and firms registered with the VAT Service who can charge VAT on their supplies. However, the collection of the tax at more than one stage does not lead to duplication of the tax. VAT is designed to ensure that most forms of consumer spending are taxed evenly and fairly. VAT is not a tax on the seller for it is the buyer who pays the tax. VAT will not be an additional tax, but a replacement for some existing indirect taxes. It will be a broad-based, comprehensive and simplified system of taxation on transactions. VAT will improve, simplify and modernize tax system. অ্যাচিভার্স

32. (b) Nalanda was an ancient center of higher learning in Bihar, India. It was a Buddhist center of learning from the fifth or sixth century CE to 1197 CE. Nalanda flourished between the reign of the Chakraditya (whose identity is uncertain and who might have been either Kumara Gupta I or Kumara Gupta II) and 1197 CE, supported by patronage from the Hindu Gupta rulers as well as Buddhist emperors like Harsha and later emperors from the Pala Empire. অ্যাচিভার্স

33. (a) The provincial part of the Government of India Act, 1935 basically followed the recommendations of the Simon Commission. Simon Commission had proposed almost fully responsible government in the provinces. Under the 1935 Act, provincial dyarchy was abolished; i.e. all provincial portfolios were to be placed in charge of ministers enjoying the support of the provincial legislatures.

34. (c) Tropical grasslands (Savannas) are located near the equator, between the Tropic of Cancer and the Tropic of Capricorn. They cover much of Africa as well as large areas of Australia, South America, and India. They are found in tropical wet and dry climates. These areas are hot year-round, usually never dropping under 64 degrees Farenheit. Although these areas are overall very dry, they do have a season of heavy rain. Annual rainfall is from 20-50 inches per year. It is crucial that the rainfall is concentrated in six or eight months of the year, followed by a long period of drought when fires can occur. Savannas are associated with several types of biomes. Savannas are frequently in a transitional zone between forest and desert or grassland. Savanna covers approximately 20% of the Earth's land area. অ্যাচিভার্স

35. (b) Pali is the language in which the texts of the Theravada school of Buddhism are preserved. The Pali texts are the oldest collection of Buddhist scriptures preserved in the language in which they were written down.

36. (d) In tennis, World Number 1 Ashleigh Barty of Australia defeated Danielle Collins of the US, 6-3 7-6, to win women's singles final title at the Australian Open 2022 on January 29, 2022.

37. (b) Electron microscopes are used to observe a wide range of biological and inorganic specimens including microorganisms, cells, large molecules, biopsy samples, metals, and crystals. An electron microscope uses a beam of electrons to illuminate a specimen and produce a magnified image. An electron microscope (EM) has greater resolving power than a light-powered optical microscope because electrons have wavelengths about 100,000 times shorter than visible light photons. The electron microscope uses electrostatic and electromagnetic "lenses" to control the electron beam and focus it to form an image. Industrially, the electron microscope is often used for quality control and failure analysis. অ্যাচিভার্স

38. (b) Any person born in India, on or after 26 January, 1950 but prior to the commencement of the 1986 Act on 1 July, 1987, is a citizen of India by birth. The Central Government may, on an application, register as a citizen of India under section 5 of the Citizenship Act 1955 any person (not being an illegal migrant) if he belongs to certain categories. Persons born outside India on or after 26 January, 1950 but before 10 December, 1992 are citizens of India by descent if their father was a citizen of India at the time of their birth.

39. (b) Isa Muhammad Effendi or Ustad Isa was a Persian architect from Iran he and his colleague Ismail Effendi entered the service of the Mughal Emperor Shah Jahan after the Ottoman Sultan Murad IV and the Mughals exchanged ambassadors. Isa Muhammad Effendi is often described as the chief architect of the Taj Mahal. Recent research suggests the Persian architect, Ustad Ahmad Lahauri was the most likely candidate as the chief architect of the Taj, an assertion based on a claim made in writings by Lahauri's son Lutfullah Muhandis.   অ্যাচিভার্স

40. (c) Kullu is a broad open valley formed by the Beas river between Manali and Largi. This valley is famous for its beauty and its majestic hills covered with Pine and Deodar Forest and sprawling Apple Orchards. The economy of Kullu largely depends on tourism, horticulture (apples, plums, pears, and almonds) and handicrafts (shawls, caps, etc.).

41. (b) Blood is a specialized bodily fluid in animals that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells. Blood pH is regulated to stay within the narrow range of 7.5 to 8. Blood that has a pH below 7.5 is too acidic, whereas blood pH above 7.5 is too alkaline. Blood pH, partial . . . . $_2$), partial pressure of carbon dioxide (pCO_2), and HCO_3 – are carefully regulated by a number of homeostatic mechanisms, which exert their influence principally through the respiratory system and the urinary system in order to control the acid-base balance and respiration.   অ্যাচিভার্স

42. (a) Capitalism generally refers to economic system in which the means of production are largely or entirely privately owned and operated for a profit, structured on the process of capital accumulation. In general, investments, distribution, income, and pricing is determined by markets. In capitalism, prices are decided by the demand-supply scale. For example, higher demand for certain goods and services lead to higher prices and lower demand for certain goods lead to lower prices.

43. (d) Shri Iqbal Singh Kingra who was an Indian socio-spiritual leader of the Sikh community and an educationalist passed away at the age of 95 years.   অ্যাচিভার্স

44. (c) Nickel silver, also known as German silver, Argentan, new silver, nickel brass, albata, alpacca, or electrum, is a copper alloy with nickel and often zinc. The usual formulation is 60% copper, 20% nickel and 20% zinc. Nickel silver is named for its silvery appearance, but it contains no elemental silver unless plated. The name "German silver" refers to its development by 19th-century German metal workers in imitation of the Chinese alloy known as paktong (Cupronickel) All modern, commercially important nickel silvers (such as those standardized under ASTM B122) contain significant amounts of zinc, and are sometimes considered a subset of brass. It is used in zippers, better-quality keys, costume jewellery, for making musical instruments (e.g., cymbals, saxophones), and is preferred for the track in electrically powered model railway layouts, as its oxide is conductive. It is widely used in the production of coins (e.g. Portuguese escudo and the former GDR marks,). Its industrial and technical uses include marine fittings and plumbing fixtures for its corrosion resistance, and heating coils for its high electrical resistance.   অ্যাচিভার্স

45. (c) Zagir was a piece of land held by the mansabdar which was granted by the Sultan. Mansabdars were given control over an area of land, a 'Zagir' whose revenue was to be used for maintaining troops; if not given a 'Zagir' they were paid in cash through a complicated accounting system, with deductions for various things including 'the rising of the moon'; it was a normal practice to pay for only eight or ten months in the year. The Mansabdars were allowed to keep five percent of the income of the 'Zagir' or five per cent of the salaries received. In Mughal period, zagir was the practice giving officer a right to revenue.   অ্যাচিভার্স

46. (a) Kalamkari is a type of hand-painted or blockprinted cotton textile, produced in parts of South India and Iran. It is an ancient style of hand painting done on cotton or silk fabric with a tamarind pen, using natural vegetable dyes. This style of painting originated at Kalahasti near Chennai and at Masulipatnam near Hyderabad.

47. (b) Photosynthesis is a process used by plants and other organisms to convert the light energy

captured from the sun into chemical energy that can be used to fuel the organism's activities. photosynthesis uses carbon dioxide and water, releasing oxygen as a waste product. Photosynthesis is vital for all aerobic life on Earth.

48. (c) Government has appointed Lieutenant General Manoj Pande as the new Vice Chief of Army Staff. He will take over from Lieutenant General Chandi Prasad Mohanty who superannuated on January 31, 2022.

49. (a) Pulicat Lake: the second largest brackish – water lake or lagoon in India which straddles the border of Andhra Pradesh and Tamil Nadu states on the Coromandal Coast in South India; Chilka Lake: a brackish water lagoon, spread over the Puri, Khurda and Ganjam districts of Odisha; Wular Lake: India's largest fresh water lake and one of the largest in Asia, located in Bandipora district in Jammu and Kashmir; and Sambhar Lake: India's largest inland salt lake, south west of Jaipur and north east of Ajmer along National Highway 8 in Rajasthan.

50. (d) The Parliament of India is the supreme legislative body in India. Founded in 1919, the Parliament alone possesses legislative supremacy and thereby ultimate power over all political bodies in India. The Parliament comprises the President of India and the two Houses—Lok Sabha (House of the People) and Rajya Sabha (Council of States).

51. (b) Decimal equivalents :

$$\frac{4}{9} = 0.\dot{4}; \sqrt{\frac{9}{49}} = \frac{3}{7} = 0.43$$

$$0.\dot{4}\dot{5}; (0.8)^2 = 0.64$$

$$\therefore \text{Least number} = 0.43 = \sqrt{\frac{9}{49}}$$

52. (d) $\dfrac{13}{4} \times \dfrac{2}{3} - \left(\dfrac{9}{4} - \dfrac{5}{3}\right) \times \dfrac{3}{4}$

$$= \frac{13}{6} - \left(\frac{27-20}{12}\right) \times \frac{3}{4}$$

$$= \frac{13}{6} - \frac{7}{12} \times \frac{3}{4} = \frac{13}{6} - \frac{7}{16}$$

$$= \frac{104-21}{48} = \frac{83}{48}$$

53. (a) Suppose required number is x Then,

$$3x - \frac{3x}{5} = 60 \Rightarrow \frac{12x}{5} = 60$$

$$\Rightarrow x = \frac{60 \times 5}{12} = 25$$

54. (d) First number × second number = HCF × LCM
$\Rightarrow$ 24 × second number = 8 × 48

$$\therefore \text{Second number} = \frac{8 \times 48}{24} = 16$$

55. (b) HCF = 12
Numbers = 12x and 12y
where x and y are prime to each other.
$\therefore$ 12x × 12y = 2160

$$\Rightarrow xy = \frac{2160}{12 \times 12}$$

$= 15 = 3 \times 5, 1 \times 15$
Possible pairs = (36, 60) and (12, 180)

56. (d) Expression $= 1 + \dfrac{1}{1 + \dfrac{1}{2}}$

$$= 1 + \frac{1}{\frac{2+1}{2}} = 1 + \frac{2}{3} = \frac{3+2}{3} = \frac{5}{3}$$

57. (a) Expression $= 1 + \dfrac{1}{1 + \dfrac{1}{5}}$

$$= 1 + \frac{1}{\frac{5+1}{5}} = 1 + \frac{5}{6} = \frac{6+5}{6} = \frac{11}{6}$$

58. (c) $\dfrac{\dfrac{13}{4} - \dfrac{5}{6} \times \dfrac{4}{5}}{\dfrac{13}{3} \div \dfrac{1}{5} - \left(\dfrac{3}{10} + \dfrac{106}{5}\right)} - \left(\dfrac{3}{2} \times \dfrac{5}{3}\right)$

$$= \frac{\dfrac{13}{4} - \dfrac{2}{3}}{\dfrac{13 \times 5}{3} - \left(\dfrac{3+212}{10}\right)} - \frac{5}{2}$$

$$= \frac{\dfrac{39-8}{12}}{\dfrac{65}{3} - \dfrac{215}{10}} - \frac{5}{2} = \frac{\dfrac{31}{12}}{\dfrac{650-645}{30}} - \frac{5}{2}$$

$$= \frac{31}{12} \times \frac{30}{5} - \frac{5}{2} = \frac{31}{2} - \frac{5}{2} = \frac{31-5}{2} = \frac{26}{2} = 13$$

59. (b) Total sum of x numbers = xy^2

Total sum of y numbers = yx^2

$\therefore$ Required average

$$= \frac{xy^2 + yx^2}{x+y} = \frac{xy(y+x)}{x+y} = xy$$

60. (a) That month will have 5 sundays.

$\therefore$ Required average $= \dfrac{5 \times 510 + 25 \times 240}{30}$

$$= \frac{2550 + 6000}{30} = \frac{8550}{30} = 285$$

61. (b) $a:b = \dfrac{2}{9} : \dfrac{1}{3} = 2:3$

$b:c = \dfrac{2}{7} : \dfrac{5}{14} = 4:5$

$d:c = \dfrac{7}{10} : \dfrac{3}{5} = 7:6$

$\Rightarrow c:d = 6:7$

Thus,

$$
\begin{array}{llll}
a : b & = 2 : 3 & & \\
& b : c & = \quad 4 : 5 & \\
& & c : d & = \quad 6 : 7 \\
\hline
\end{array}
$$

$a:b:c:d = 2 \times 4 \times 6 : 3 \times 4 \times 6 :$

$\qquad\qquad\qquad 3 \times 5 \times 6 : 3 \times 5 \times 7$

$= 16 : 24 : 30 : 35$

62. (a) Here, $\dfrac{x}{y} = \dfrac{2}{1} \Rightarrow \dfrac{x^2}{y^2} = \dfrac{4}{1}$

$\therefore \dfrac{x^2 - y^2}{x^2 + y^2} = \dfrac{\dfrac{x^2}{y^2} - 1}{\dfrac{x^2}{y^2} + 1} = \dfrac{4-1}{4+1} = \dfrac{3}{5} = 3:5$

63. (b) x% of $\dfrac{25}{2} = 150$

$\Rightarrow \dfrac{x}{100} \times \dfrac{25}{2} = 150$

$\Rightarrow \dfrac{x}{8} = 150$

$\Rightarrow x = 150 \times 8 = 1200$

64. (d) $A \times \dfrac{30}{100} + \dfrac{B \times 40}{100} = \dfrac{B \times 80}{100}$

$\Rightarrow A \times 30 = B \times 40$

$\Rightarrow \dfrac{A}{B} = \dfrac{40}{30} = \dfrac{4}{3} \Rightarrow \dfrac{B}{A} = \dfrac{3}{4}$

$\Rightarrow \dfrac{B}{A} \times 100 = \dfrac{3}{4} \times 100 = 75\%$

65. (d) L.H.S. $= \dfrac{4\sqrt{3} + 5\sqrt{2}}{\sqrt{48} + \sqrt{18}} = \dfrac{4\sqrt{3} + 5\sqrt{2}}{4\sqrt{3} + 3\sqrt{2}}$

$= \dfrac{4\sqrt{3} + 5\sqrt{2}}{4\sqrt{3} + 3\sqrt{2}} \times \dfrac{4\sqrt{3} - 3\sqrt{2}}{4\sqrt{3} - 3\sqrt{2}}$

(Rationalising the denominator)

$= \dfrac{16 \times 3 - 12\sqrt{6} + 20\sqrt{6} - 15 \times 2}{\left(4\sqrt{3}\right)^2 - \left(3\sqrt{2}\right)^2}$

$= \dfrac{48 + 8\sqrt{6} - 30}{48 - 18}$

$= \dfrac{18 + 8\sqrt{6}}{30} = \dfrac{9}{15} + \dfrac{4\sqrt{6}}{15} = \dfrac{3}{5} + \dfrac{4\sqrt{6}}{15}$

Now, $\dfrac{3}{5} + \dfrac{4\sqrt{6}}{15} = a + b\sqrt{6}$

$\therefore a = \dfrac{3}{5}$ and $b = \dfrac{4}{15}$

66. (d) $2x + \dfrac{1}{3x} = 5$

$\Rightarrow 6x^2 + 1 = 15x$

$\Rightarrow 6x^2 + 20x + 1 = 15x + 20x = 35x$

$\Rightarrow \dfrac{5x}{6x^2 + 20x + 1} = \dfrac{5x}{35x} = \dfrac{1}{7}$

67. (b) $\sin^2 7\dfrac{1}{2}^\circ + \sin^2 82\dfrac{1}{2}^\circ + \tan^2 2^\circ . \tan^2 88^\circ$

$= \sin^2 7\dfrac{1}{2}^\circ + \sin^2 \left(90^\circ - 7\dfrac{1}{2}^\circ\right) +$

$\tan^2 2^\circ . \tan 2 (90^\circ - 2^\circ)$

$= \sin^2 7\dfrac{1}{2}^\circ + \cos^2 7\dfrac{1}{2}^\circ + \tan^2 2^\circ . \cot^2 2^\circ$

$\qquad\qquad [\because \sin (90^\circ - \theta) = \cos \theta;$

$\qquad\qquad\quad \tan (90^\circ - \theta) = \cot \theta]$

$= 1 + 1 = 2$

68. (d) $\tan 9^\circ = \dfrac{p}{q}$

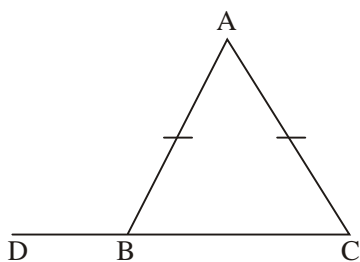$\therefore \dfrac{\sec^2 81^\circ}{1 + \cot^2 81^\circ} = \dfrac{\sec^2 81^\circ}{\csc^2 81^\circ}$

$= \dfrac{1}{\cos^2 81°} \times \sin^2 81°$

$= \tan^2 81° = \tan^2(90° - 9°)$

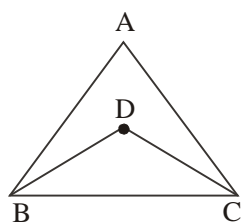$= \cot^2 9° = \dfrac{q^2}{p^2}$

69. (c)

$\angle ABC = \angle ACB \ [\because AB = AC]$

$\angle BAC = 40°$

$\Rightarrow \angle ABC + \angle ACB = 140°$

$\Rightarrow \angle ABC = 70°$

$\therefore \angle ABD = 180° - 70° = 110°$

70 (c)

$AB = AC$

$\therefore \angle ABC = \angle ACB$

$\angle A = 80°$

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

$\therefore \angle B = \dfrac{100}{2} = 50° = \angle C$

$\therefore \angle DBC = \angle DCB = \dfrac{50}{2} = 25°$

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

$= 180° - 50° = 130°$

71. (a) Let the sides of triangle be a, b and c respectively.

$\therefore 2s = a + b + c = 32$

$\Rightarrow 11 + b + c = 32$

$\Rightarrow b + c = 32 - 11 = 21 \ .....(i)$

and $b - c = 5 \ ......(ii)$

By adding equations (i) and (ii)

$2b = 26 \Rightarrow b = 13$

$\Rightarrow c = 13 - 5 = 8$

Now, $2s = 32 \Rightarrow s = 16$

$a = 11, b = 13, c = 8$

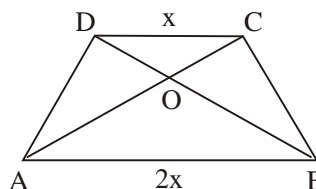$\therefore$ Area of triangle

$= \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{16(16-11)(16-13)(16-8)}$

$= \sqrt{16 \times 5 \times 3 \times 8}$

$= 8\sqrt{30}$ sq. cm.

72. (a)

Let $CD = x$

$\Rightarrow AB = 2x.\ \Delta COD \sim D\ AOB$

because $CD\|\ AB$ and take BD and AC as transversals.

$\therefore \dfrac{ar(COD)}{ar(AOB)} = \dfrac{CD^2}{AB^2} = \dfrac{x^2}{4x^2} = \dfrac{1}{4}.$

$\Rightarrow \Delta ABD - \Delta AOD$

$= \Delta ACB - \Delta BOC$

$\Rightarrow \Delta AOB = \Delta AOB$

$\Rightarrow \dfrac{\Delta AOB}{\Delta COD} = \dfrac{1}{1}$ or $1:1$

73. (c) $x = \dfrac{6pq}{p+q} = \dfrac{3p \times 2q}{p+q}$

$\Rightarrow \dfrac{x}{3p} = \dfrac{2q}{p+q}$

$\Rightarrow \dfrac{x+3p}{x-3p} = \dfrac{2q+p+q}{2q-p-q}$

(By componendo and dividendo)

$\Rightarrow \dfrac{x+3p}{x-3p} = \dfrac{3q \times p}{q-p} \qquad .....(i)$

Again, $x = \dfrac{6pq}{p+q} = \dfrac{2p \times 3q}{p+q}$

$\Rightarrow \dfrac{x}{3q} = \dfrac{2p}{p+q}$

$\Rightarrow \dfrac{x+3q}{x-3q} = \dfrac{2p+p+q}{2p-p-q}$

(By componendo and dividendo)

$\Rightarrow \dfrac{x+3q}{x-3q} = \dfrac{3p+q}{p-q} \qquad .... (ii)$

$$\therefore \frac{x+3p}{x-3p}+\frac{x+3q}{x-3q}=\frac{3q+p}{q-p}+\frac{3p+q}{p-q}$$

$$=\frac{3q+p}{q-p}-\frac{3p+q}{q-p}$$

$$=\frac{3q+p-3p-q}{q-p}=\frac{2q-2p}{q-p}$$

$$=\frac{2(q-p)}{q-p}=2$$

74. (c) $a+\dfrac{1}{a}=1$

$$\Rightarrow a^2+1=a \Rightarrow a^2-a+1=0$$

$$\therefore \frac{a^2-a+1}{a^2+1+1}=\frac{0}{a^2+a+1}=0$$

75. (b) $a+b=2c$

$$\Rightarrow a-c=c-b$$

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

76. (a) Here, **e** is **vowel** in **earthquake**. Hence, article **an** i.e. **In 1906 an earthquake** is the right usage.

77. (a) **Do (Aux. V.)** is used with **Plural Sub.** **Look at the sentences:** He **does** not like ice cream. **(Singular Sub.)** They **do** not like ice cream. **(Plural Sub.)** Hence, **His parents do not** is the right usage.

78. (b) When we use **Correlative Conjunctions**, both the should be parallel. Hence, **equipped not only with** is the right usage.

79. (c) Here, **pets are allowed** is the right usage.

80. (b) **chef (Noun) :** a professional cook in a restaurant. Here, **what to prepare for the important dinner** is the right usage.

81. (b) **Prep.-for** is the right usage.

82. (a) **stress (Verb)** : to emphasize a fact, an idea, etc. Here, **stressing** is the right usage.

83. (b) **usher (Noun) :** a person who shows people where to sit in a church, public hall, etc. Here, **where to sit** is the right usage.

84. (d) Insist **persist (Verb) :** to continue to exist; to continue to do something despite difficulties or opposition.

85. (c) finally **eventually (Adverb) :** at the end of a period of time or series of events.

86. (c) flawless **impeccable (Adjective) :** without mistakes or faults; perfect.

87. (c) **a close shave :** a narrow escape
● The car passed so close to us; it was really a **close shave**. The best option is **a narrow escape.**

88. (c) **bad blood :** feelings of hatred/strong dislike
● There is no **bad blood** between us. The best option is **active enmity.**

89. (c) **at sixes and sevens :** in confusion; not well organised
● Roger is always at **sixes and sevens** when at home by himself. The best option is **in disorder or confusion.**

90. (b) **brought about :** to make something happen; cause
● His speech **brought about** a great change in my life. The best option is **caused.**

91. (c) **crude (Adjective) :** offensive or rude; vulgar. **urbane (Adjective) :** good at knowing what to say and how to behave in social situations.

92. (a) **timid (Adjective) :** brave; shy and nervous. **bold (Adjective) :** brave and confident; not afraid

93. (b) false **authentic (Adjective) :** genuine; known to be real and not a copy.

94. (a) **bankrupt** **bankrupt (N.) :** without enough money to pay what you own; insolvent **bank roll (V.) :** to support by giving money; finance **extravagant :** to spending more than is needed **borrower (N.) :** a person/ organisation that borrows money from a bank

95. (c) **aquatic** **aquatic (Adj.) :** animals living in water **wild (Adj.) :** plants/animal living in natural conditions **domestic (Adj.) :** animals kept on farms or as pets **barren (Adj.) :** infertile; land not good enough to grow plants on it.

96. (a) **to (Prep.)**
97. (b) **next (Adj.)**
98. (d) **in (Prep.)**
99. (a) **the (Def. Art.)**
100. (b) **day (Noun)**

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