SSC CGL (Prelims) Exam. Practice Set 2024

Answer with Explanation

1. (a) Calorie and Joule are units of heat. Similarly, decibel is unit of sound.

2. (c) Brain is the organ of the body inside the head that controls thought, memory and feeling. It is found naturally.

   Computer is a device which performs a variety of functions and it is an example of artificial intelligence.

3. (b) The second term is a type of the first. Red is a colour. Similarly, English is a language.

4. (d) Grain is stored in warehouse. Similarly, water is stored by constructing dam.

5. (b) A well arranged order of words makes a meaningful sentence. Similarly, several paragraphs together constitute an essay.

6. (c) C is the father B.

   A is the wife of C.

   B, E and F are sons of A and C.

   D is a girl.

   Male members ⇒ A, B, E and F.

7. (c) Ravi is brother of Govind and Prabhu. Prabhu is Brother-in-law of Kusuma.

8. (a) E N T R Y
   ↓ ↓ ↓ ↓ ↓
   1 2 3 4 5

   And,

   S T E A D Y
   ↓ ↓ ↓ ↓ ↓ ↓
   9 3 1 7 8 5

   Therefore,

   A R R E S T
   ↓ ↓ ↓ ↓ ↓ ↓
   7 4 4 1 9 3

9. (a) G → 8 → 7 + 1
   E → 6 → 5 + 1
   C → 4 → 3 + 1
   A → 2 → 1 + 1

   Similarly,

   H → 8 + 1 = 9
   F → 6 + 1 = 7
   B → 2 + 1 = 3
   D → 4 + 1 = 5

10. (b)

+ ⇒ ÷	÷ ⇒ −
− ⇒ ×	× ⇒ +

Give expression

12 + 6 ÷ 3 – 2 × 8 = ?

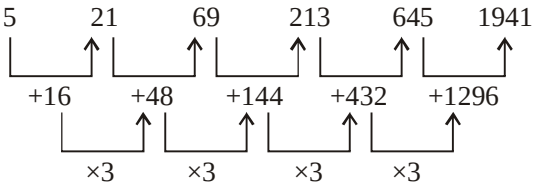
After changing the signs

? = 12 ÷ 6 – 3 × 2 + 8

or, ? = 2 – 6 + 8

or, ? = 10 – 6 = 4

11. (b)



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

    98 - (13 × 2) = 72

    72 - (11 × 2) = 50

    50 - (9 × 2) = 32

    32 - (7 × 2) = 18

    18 - (5 × 2) = 8

13. (b) Today is Friday + 2, i.e., Sunday. Tomorrow will be Monday. The Day after tomorrow will be Tuesday and two days after Tuesday will be Thursday.

14. (a) The numbers 1, 3, 4 and 5 are on the adjacent faces of number 6. Therefore, 2 lies oppsite 6.

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

    EN V I R O N M E N T

    ⇒ E N T E R

    E NVI R ON ME N T

    ⇒ M E T R E

    E N V IRON M E N T

    ⇒ I R O N

16. (c) There is no 'I' letter in the given word. Therefore, the word SUMMIT cannot be formed.

    MEAS U R E M E N T

⇒ TEAMS

M E AS U RE M E N T

⇒ MASTER

ME A SUR E M ENT

⇒ SUMMER

17. (d) Suppose the present age of son = x years
Age of father = 2x years
According to question
x + 5 + 2x + 5 = 85
⇒ 3x + 10 = 85
⇒ 3x = 85 – 10 = 75
⇒ Present age of son
$= x = \frac{75}{3} = 25$ years and Father's present age
= 2x = 50 years

18. (b) Suppose the age of son is x years
Therefore, age of father = 10x years
According to question
$\frac{10x + x}{2} = 22$
⇒ 11x = 44
$\therefore x = \frac{44}{11} = 4$ years
Age of father = 10 × 4 = 40 years

19. (b) Suppose the present age of Arun = 4x years
Present age of Deepak = 3x years
After 6 years
Arun's age = 4x + 6 = 26
= 4x = 26 – 6
$\therefore x = \frac{20}{4} = 5$
Therefore, the present age of Deepak = 3x years
= 3 × 5 = 15 years

20. (a) 1001 1004 1012 1027 1051
+3 +8 +15 +24
+5 +7 +9

21. (a) 8 + 5 = 13
13 + 5 = 18
18 + 5 = 23
23 + 5 = 28
28 + 5 = 33
33 + 5 = 38

22. (a) C O M M U N I C A T I O N S
1 2 3 4 5 6 7 8 9 10 11 12 13 14
After rearrangement
O C M M N U C I T A O I S N
10th from right

23. (a) Both the Premises are Universal Affirmative (A-type).
All deers are cows.
All cows are animals.
A + A ⇒ A-type of Conclusion
"All deers are animals"
This is Conclusion I.

24. (c) First Column
= 4 × 7 – 1 = 28 – 1 = 27
Second Column
= 5 × 8 – 2 = 40 – 2 = 38
Third Column
= 6 × 9 – 3 = 54 – 3 = 51

25. (b) **First column**
$4 = (2)^2$
$9 = (2 + 1)^3 = (3)^3$
$16 = (3 + 1)^2 = (4)^2$
$25 = (4 + 1)^2 = (5)^2$
Second column
$1 = (1)^2$
$4 = (1 + 1)^2 = (2)^2$
$9 = (2 + 1)^2 = (3)^2$
$16 = (3 + 1)^2 = (4)^2$
Third column
$25 = (5)^2$
$36 = (5 + 1)^2 = (6)^2$
$49 = (6 + 1)^2 = (7)^2$
$64 = (7 + 1)^2 = (8)^2$

26. (c) Halebidu (literally "ruined city"), also known as Dwarasamudra, was the regal capital of the Hoysala Empire in the 12th century. It is home to one of the best examples of Hoysala architecture in the ornate Hoysaleswara and Kedareswara temples. This name is given because this city was ruined two times by Bahmani Sultanate.

27. (b) Guru Gopinath was an Indian classical dancer, Kathakali master and mentor of a relatively new creative modern dancing style called Kerala Natanam. He was instrumental in introducing and popularising Kathakali, the illustrious dance

drama of Kerala, lying in obscurity, to the outer world. He is considered one of the epic personalities of Indian dancing in the twentieth century like Uday Shankar. He showed how Indian dancing could handle themes other than those from Hindu mythology. অ্যাচিভার্স

28. (b) Switzerland has made provisions for referendums or popular votes on laws and constitutional decrees or issues on which citizens are asked to approve or reject by a yes or a no. The Swiss Federal Constitution 1891 permits a certain number of citizens to make a request to amend a constitutional article, or even to introduce a new article into the constitution.

29. (d) An earthquake is measured by its Magnitude and Intensity. The Magnitude indicates the amount of energy released at the source (or epicenter) and is measured by the open-ended Richter Scale. The intensity of an earthquake at a particular locality indicates the violence of earth motion produced there by the earthquake. It is computed with the help of Modified Mercalli Scale (MMS).

30. (a) India launched its first survey of high-risk glacial lakes in Tawang and Dibang Valley, Arunachal Pradesh. The initiative follows a glacial lake outburst flood in Sikkim's South Lhonaklake last October. It is led by the National Disaster Management Authority (NDMA). It is part of the National Glacial Lake Outburst Flood (GLOF) Mission. The survey aims to assess risks and feasibility for early warning systems and other preventive measures. It will evaluate lake accessibility, geo coordinates, boundaries, elevation, and land use patterns to install early warning systems and weather stations.

31. (d) The Securities and Exchange Board of India (frequently abbreviated SEBI) is the regulator for the securities market in India. It was established on 12 April 1992 through the SEBI Act, 1992. Initially SEBI was a non statutory body without any statutory power. However in 1995, the SEBI was given additional statutory power by the Government of India through an amendment to the Securities and Exchange Board of India Act 1992. In April, 1998 the SEBI was constituted as the regulator of capital markets in India under a resolution of the Government of India. অ্যাচিভার্স

32. (b) As a Buddhist emperor, Ashoka sent many prominent Buddhist monks (bhikshus) Sthaviras like Madhyamik Sthavira to modern Kashmir and Afghanistan; Maharaskshit Sthavira to Syria, Persia / Iran, Egypt, Greece, Italy and Turkey; and Massim Sthavira to Nepal. He built a number of stupas, Sangharama, viharas, chaitya, and residences for Buddhist monks all over South Asia and Central Asia. The Asokan pillar at Lumbini, Nepal speaks about Asoka and his works. অ্যাচিভার্স

33. (a) When the Constituent Assembly started the work of drafting the Constitution, Pt. Jawaharlal Nehru proposed the 'Objectives Resolution' on December 13, 1946. The 'Resolution' highlighted the objectives and laid down the 'national goals'. The 'Objective Resolution' passed by the Constituent Assembly on January 22, 1947, ultimately became the Preamble to the Constitution of India. অ্যাচিভার্স

34. (a) Cyclones are huge revolving storms caused by winds blowing around a central area of low atmospheric pressure. In the northern hemisphere, cyclones are called hurricanes or typhoons and their winds blow in an anti-clockwise circle. In the southern hemisphere, these tropical storms are known as cyclones, whose winds blow in a clockwise circle.

35. (b) Megasthenes was a Greek ethnographer and explorer who served as an ambassador of Seleucus I of the Seleucid dynasty to Chandragupta Maurya. His 'Indika,' throws light on the contemporary society, religious beliefs and social stratification. অ্যাচিভার্স

36. (c) India celebrated its first National Space Day on August 23, 2024. This day marks the successful landing of Chandrayaan-3's Vikram Lander on the Moon's southern polar region. India is the first country to land in this uncharted region and the fourth overall to achieve a lunar landing. The theme for the celebration is "Touching Lives while Touching the Moon: India's Space Saga."

37. (a) Astigmatism is an optical defect in which vision is blurred due to the inability of the optics of the eye to focus a point object into a sharp focused image on the retina. This may be due to an irregular or toric curvature of the cornea or lens. The two types of astigmatism are regular and irregular. Irregular astigmatism is often caused by a corneal scar or scattering in the crystalline lens, and cannot be corrected by standard spectacle lenses, but can be corrected by contact

lenses. Regular astigmatism arising from either the cornea or crystalline lens can be corrected by a toric lens. This optical shape gives rise to regular astigmatism in the eye. Toric lens is somewhat similar in significance to cylindrical cells.

38. (a) Liberty is the quality individuals have to control their own actions. Sociologists define the active exercise of freedom and rights as essential to liberty. There must be an independent and impartial judiciary for the protection and preservation and individual liberty. The judiciary must be independent of executive and legislative control. অ্যাচিভার্স

39. (c) Akbar encouraged widow re-marriage, discouraged child marriage, outlawed the practice of sati, and persuaded Delhi merchants to set up special market days for women, who otherwise were secluded at home. His attempt to ban voluntary sati also met with opposition by some prominent Hindus of his kingdom, including some of his ministers, and he agreed not to pursue the matter further.

40. (c) Guwahati: between the southern bank of the Brahmaputra river and the foothills of the Shillong plateau; Rajahmundry: on banks of the River Godavari; Tiruchirapalli: situated at the head of the Kaveri Delta; and Lucknow: on the northwestern shore of Gomti river, which flows through it. অ্যাচিভার্স

41. (c) Argon is the third most common gas in the Earth's atmosphere, at 0.93% (9,300 ppm), making it approximately 23.8 times as abundant as next most common atmospheric gas, carbon dioxide (390 ppm), and more than 500 times as abundant as the next most common noble gas, neon (18 ppm). Nearly all of this argon is radiogenic argon-40 derived from the decay of potassium-40 in the Earth's crust. In the universe, argon-36 is by far the most common argon isotope, being the preferred argon isotope produced by stellar nucleosynthesis in supernovas. We find the inert gases argon (9,340 ppmv), neon (18.18 ppmv) and helium (5.24 ppmv) in the earth's atmosphere. Note that we use ppmv here to mean parts per million by volume. Argon is produced industrially by the fractional distillation of liquid air. Argon is mostly used as an inert shielding gas in welding and other hightemperature industrial processes where ordinarily non-reactive substances become reactive.

42. (a) In economics, the study of factor pricing is related to the theory of functional distribution which attempts to explain the prices of land, labour, and capital. It sees the demand for land, labour, and capital as derived demand, stemming from the demand for final goods. অ্যাচিভার্স

43. (a) Indira Gandhi International Airport in Delhi achieved Net Zero Carbon Emission Airport status, the first in India. This Level 5 certification recognizes the airport's success in maintaining a net zero carbon balance. The airport reduced 90% of Scope 1 and Scope 2 emissions and offset the rest. Originally aiming for net zero by 2030, it met the goal earlier through renewable energy, electric vehicles, zero waste programs, and green infrastructure. The airport now aims to achieve net zero in Scope 3 emissions by 2050. অ্যাচিভার্স

44. (d) A thermonuclear weapon is a nuclear weapon design that uses the heat generated by a fission bomb to compress a nuclear fusion stage which indirectly results in greatly increased energy yield (i.e., bomb "power"). It is colloquially referred to as a hydrogen bomb or H-bomb because it employs hydrogen fusion, though in most applications the majority of its destructive energy comes from uranium fission, not hydrogen fusion by itself. The fusion stage in such weapons is required to efficiently cause the large quantities of fission characteristic of most thermonuclear weapons. The concept of the thermonuclear weapon was first developed and used by the United States and has since been used in most of the world's nuclear weapons.

45. (c) Minto-Marley Reforms: 1909; Montague-Chelmsford Reforms: 1919; Cripps Mission: March 1942; Cabinet Mission: March 1946.

46. (c) Haryanvi has a very rich culture in terms of folk songs that are called Raginis. Ragini song is the trade mark of Haryanvi culture. It is supplemented by folk dramas, known by the name of Saang. অ্যাচিভার্স

47. (c) Tissue culture is the growth of tissues or cells separate from the organism. This is typically facilitated via use of a liquid, semi-solid, or solid growth medium, such as broth or agar. Tissue culture commonly refers to the culture of animal cells and tissues, with the more specific term plant tissue culture being used for plants. In

modern usage, tissue culture generally refers to the growth of cells from a tissue from a multicellular organism in vitro.

48. (a) On Independence Day, sambar and barking deer were released in Chandaka Wildlife Sanctuary. It is located in Khurda district, Odisha, marking the northeastern limits of the Eastern Ghats. The sanctuary, established in 1982, is home to many threatened wild animals and birds. The climate is tropical, with summer, rainy season, and winter. The flora includes a mix of evergreen and deciduous vegetation, with species like Dhaman, Kusum, and Thorny bamboo. The fauna includes elephants, chital, wild boar, rhesus monkey, sloth bear, Indian wolf, and hyena

49. (b) The Indira Gandhi Canal is the largest irrigation project India. It starts from the Harike Barrage at Firozpur, below the confluence of the Satluj and Beas rivers in the Indian state of Punjab and terminates in irrigation facilities in the Thar Desert in Rajasthan. It runs through Punjab, Haryana and Rajasthan.

50. (a) No money bill can be introduced in the Lok Sabha without the prior approval of the president. The money bill originates only in the Lok Sabha.

Note : The Aadhaar Act 2016 was the last bill passed as Money Bill.

51. (a) $4^{61} + 4^{62} + 4^{63}$
$= 4^{61}(1 + 4 + 4^2)$
$= 4^{61} \times 21$ which is divisible by 3.

52. (a) $999\frac{998}{999} \times 999$
$= \left(999 + \frac{998}{999}\right) \times 999$
$= 999^2 + 998$
$= (1000 - 1)^2 + 998$
$= 1000000 - 2000 + 1 + 998$
$= 998999$

53. (b) Let the number be x.
According to the question,
$x - 4 = \frac{21}{x}$
$\Rightarrow x^2 - 4x = 21$
$\Rightarrow x^2 - 4x - 21 = 0$
$\Rightarrow x^2 - 7x + 3x - 21 = 0$
$\Rightarrow x(x - 7) + 3(x - 7) = 0$
$\Rightarrow (x + 3)(x - 7) = 0$
$\Rightarrow x = 7$ because $x \neq -3$.

54. (b) LCM of 5, 10, 12, 15

2	5, 10, 12, 15
3	5, 5, 6, 15
5	5, 5, 2, 5
	1, 1, 2, 1

$\therefore$ LCM $= 2 \times 3 \times 5 \times 2 = 60$
$\therefore$ Number $= 60k + 2$
Now, the required number should be divisible by 7.
Now, $60k + 2 = 7 \times 8k + 4k + 2$
If we put $k = 3$, $(4k + 2)$ is equal to 14 which is exactly divisible by 7.
$\therefore$ Required number $= 60 \times 3 + 2 = 182$

55. (d) Required number = HCF of 200 and 320 = 40
Illustration :

200) 320 (1
200
120) 200 (1
120
80) 120 (1
80
40) 80 (2
80
×

56. (b) I. $= \frac{3}{4} \times \frac{6}{5} = \frac{9}{10}$
II. $= 3 \div \left[\frac{4}{5} \times \frac{1}{6}\right] = 3 \div \frac{2}{15} = \frac{45}{2}$
III. $= \left[3 \div \frac{4}{5}\right] \div 6 = \frac{15}{4} \div 6 = \frac{5}{8}$
IV. $= 3 \div 4 \times \frac{5}{6} = 3 \div \frac{10}{3} = \frac{9}{10}$
Obviously, (I) and (IV) are equal

57. (c) $\left(\sqrt{2} + \frac{1}{\sqrt{2}}\right)^2$
$= 2 + \frac{1}{2} + 2 \times \sqrt{2} \times \frac{1}{\sqrt{2}} = 4\frac{1}{2}$

58. (a) Expression
$= \frac{4}{15}$ of $\frac{5}{8} \times 6 + 15 - 10$
$= 1 + 15 - 10 = 16 - 10 = 6$

59. (d) Sixth result $= 6 \times 49 + 6 \times 52 - 11 \times 50$
$= 294 + 312 - 550 = 56$

60. (b) Average of 7 consecutive numbers = 20
∴ Fourth number = 20
∴ Largest number = 20 + 3 = 23

61. (c) $A:B=\frac{1}{2}:\frac{1}{3}=3:2$

$B:C=\frac{1}{5}:\frac{1}{3}=3:5$

$\frac{A}{B}=\frac{3}{2}$

$\Rightarrow \frac{A+B}{B}=\frac{3+2}{2}=\frac{5}{2}$

$\frac{B}{C}=3:5 \Rightarrow \frac{C}{B}=\frac{5}{3}$

$\Rightarrow \frac{C+B}{B}=\frac{5}{3}+1=\frac{8}{3}$

$\therefore \frac{A+B}{C+B}=\frac{5}{2}\div\frac{8}{3}$

$=\frac{5}{2}\times\frac{3}{8}=\frac{15}{16}=15:16$

62. (a) Milk : Water = K : 1
∴ S.P. = (K + 1) × 9
C.P. = 10K
Gain = 9 – K

$\text{Gain \%} = \frac{9-K}{10K}\times 100$

$\Rightarrow \frac{9-K}{10K}\times 100 = 20$

$\Rightarrow 90 - 10K = 20K$

$\Rightarrow 30K = 90 \Rightarrow K = 3$

∴ Ratio = 3 : 1

63. (a) Required per cent

$=\left(\frac{3.5}{7.5}\times 100\right)$

$=\frac{3500}{75}=\frac{140}{3}=46\frac{2}{3}\%$

64. (b) Radha's total percentage expenditure
= (40 + 20 + 10 + 10)% = 80%
Percentage savings
=100 – 80 = 20%
Now, 20% of her total salary = 1500

$\text{Her total salary} = \frac{1500\times 100}{20} = ₹\ 7500$

65. (d) $x^2 - yz = x^2 + xy + zx$
$= x(x + y + z)$

$\left[\because \begin{matrix} xy+yz+zx=0 \\ \Rightarrow yz=-xy-zx \end{matrix}\right]$

Similarly,
$y^2 - zx = y(x + y + z)$
$z^2 - xy = x(x + y + z)$

∴ Expression

$=\frac{1}{x(x+y+z)}+\frac{1}{y(x+y+z)}+\frac{1}{z(x+y+z)}$

$=\frac{yz+zx+xy}{xyz(x+y+z)}=0$

66. (b) $x=\sqrt{3}-\frac{1}{\sqrt{3}}$

$y=\sqrt{3}+\frac{1}{\sqrt{3}}$

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

$xy=\left(\sqrt{3}-\frac{1}{\sqrt{3}}\right)\left(\sqrt{3}+\frac{1}{\sqrt{3}}\right)$

$=3-\frac{1}{3}=\frac{9-1}{3}=\frac{8}{3}$

$\therefore \frac{x^2}{y}-\frac{y^2}{x}=\frac{x^3+y^3}{xy}$

$=\frac{(x+y)^3-3xy(x+y)}{xy}$

$=\frac{(2\sqrt{3})^3-3\times\frac{8}{3}(2\sqrt{3})}{\frac{8}{3}}$

$=\frac{24\sqrt{3}-16\sqrt{3}}{\frac{8}{3}}$

$=\frac{8\sqrt{3}\times 3}{8}=3\sqrt{3}$

67. (b) $\sin\theta + \sin^2\theta = 1$
$\Rightarrow \sin\theta = 1 - \sin^2\theta = \cos^2\theta$
$\therefore \cos^2\theta + \cos^4\theta$
$= \cos^2\theta + (\cos^2\theta)^2$
$= \cos^2\theta + \sin^2\theta = 1$

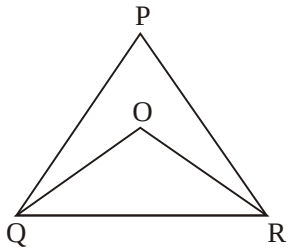
68. (b) $\tan A + \cot A = 2$

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

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

$\Rightarrow \tan^2 A + 1 = 2\tan A$
$\Rightarrow \tan^2 A - 2\tan A + 1 = 0$
$\Rightarrow (\tan A - 1)^2 = 0$
$\Rightarrow \tan A - 1 = 0 \Rightarrow \tan A = 1$
$\Rightarrow \cot A = 1$
$\therefore \tan^{10} A + \cot^{10} A = 1 + 1 = 2$

69. (c)



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$\angle ROQ = 96°$

In ΔOQR

$\angle OQR + \angle ORQ + \angle QOR = 180°$

$\Rightarrow \frac{1}{2}\angle PQR + \frac{1}{2}\angle PRQ + 96^o = 180^o$

$\Rightarrow \frac{1}{2}(\angle PQR + \angle PRQ)$

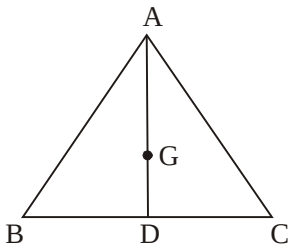
$= 180° - 96° = 84°$

$\Rightarrow \angle PQR + \angle PRQ = 2 \times 84° = 168°$

In ΔPQR,

$\therefore \angle QPR = 180° - 168° = 12°$

70. (b)



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The point of intersection of medians of a triangle is called centroid. It divides each median in the ratio 2 : 1.

$\therefore \frac{AG}{GD} = \frac{2}{1} \Rightarrow \frac{GD}{AG} = \frac{1}{2}$

$\Rightarrow \frac{GD}{AG} + 1 = \frac{1}{2} + 1$

$\Rightarrow \frac{GD + AG}{AG} = \frac{1+2}{2}$

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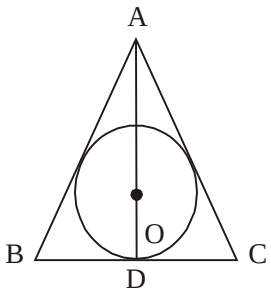
$\Rightarrow \frac{AD}{AG} = \frac{3}{2}$

$\Rightarrow AG : AD = 2 : 3$

71. (c)



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$BD = DC = 7\sqrt{3}cm$

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

$= \sqrt{(14\sqrt{3})^2 - (7\sqrt{3})^2}$

$= \sqrt{(14\sqrt{3} + 7\sqrt{3})(14\sqrt{3} - 7\sqrt{3})}$

$= \sqrt{21\sqrt{3} \times 7\sqrt{3}} = 21cm$

$\therefore$ OD = Radius of circle

$= \frac{1}{3} \times 21 = 7cm$

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$\therefore$ Area of circle $= \pi r^2$

$= \frac{22}{7} \times 7 \times 7 = 154$ sq.cm.

72. (b) Area of a square = $(side)^2$

$= \left(\frac{Perimeter}{4}\right)^2 = \left(\frac{44}{4}\right)^2$

$= (11)^2 = 121\ cm^2$

Area of a cricle = π $(radius)^2$

$= \pi\left(\frac{Circumference}{2\pi}\right)^2$

$= \frac{(Circumference)^2}{4\pi}$

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$= \frac{44 \times 44}{4 \times \frac{22}{7}} = 22 \times 7 = 154\ cm^2$

Area of circle – Area of square

$= 154 - 121 = 33cm^2$

$\therefore$ Area of the circle is larger than the area of the square by 33 cm^2.

73. (d) $x + \frac{1}{x} = \sqrt{3}$

On cubing both sides,

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

$\Rightarrow x^3 + \frac{1}{x^3} + 3\sqrt{3} = 3\sqrt{3}$

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$\Rightarrow x^3 + \frac{1}{x^3} = 0$

$\therefore$ Expression $= x^{30} + x^{24} + x^{18} + x^{12} + x^6 + 1$

$= x^{24}(x^6 + 1) + x^{12}(x^6 + 1) + 1(x^6 + 1)$

$= (x^6 + 1)(x^{24} + x^{12} + 1)$

$= x^3\left(x^3+\frac{1}{x^3}\right)(x^{24}+x^{12}+1)=0$

74. (a) $\frac{p^2}{q^2}+\frac{q^2}{p^2}=1$

$\Rightarrow \frac{p^4+q^4}{p^2q^2}=1 \Rightarrow p^4+q^4=p^2q^2$

$\Rightarrow p^4 + q^4 - p^2 q^2 = 0$ ..... (i)

$\therefore p^6 + q^6 = (p^2)^3 + (q^2)^3$

$= (p^2 + q^2)(p^4 + q^4 - p^2 q^2)$

$\left[\because a^3+b^3=(a+b)(a^2-ab+b^2)\right]$

$= (p^2 + q^2) \times 0 = 0$

75. (d) $a^3 + b^3 = (a + b)^3 - 3ab(a + b)$

$\therefore x^3+\frac{1}{x^3}=110$

$\Rightarrow \left(x+\frac{1}{x}\right)^3-3\left(x+\frac{1}{x}\right)=110$

$= 125 - 15$

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

$= (5)^3 - 3 \times 5$

$\Rightarrow x+\frac{1}{x}=5$

76. (a) The sentence shows **Past** time. Hence, **Past Perfect** i.e. **Although I had never seen the girl before** is the right usage.

77. (c) Here, **Objective Case** i.e. **you and him** is the right usage.

78. (a) **fly into a rage (Id.)** : to become suddenly very angry Here, **He flew into a rage** is the right usage.
Look at the sentence :
- **He flies into a rage if you even mention the subject.**

79. (c) **devoid of something** : completely lacking in something
Here, **devoid of** is the right option.

80. (a) **so** ... **that** is correct form of **Correlative**.
Hence, **that he fell** is the right option.

81. (b) **call in (Phr. V.)** : to ask for the services of somebody; to call in a doctor/ police.
Here, **called in** is the right option.

82. (a) **alert (V.)** : to make somebody aware of something; to warn about a dangerous or urgent situation.
Here, **alerted** is the right option.

83. (a) To express **Exclamation Inversion,** i.e. **have I** should be used after **never**.
Hence, **have I** is the right option.

84. (d) **injurious**
pernicious (Adj.) : having a very harmful effect on somebody/something that is gradual; destructive, injurious, ruinous.

85. (c) **praise**
eulogy (N.) : a speech or piece of writing praising somebody/something very much; accolade; commendation.

86. (a) **dry**
desiccated (Adj.) : dried, completely dry.

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

88. (c) **lose your head :** to become unable to act in a calm or sensible way
- When the fuel leaked out of the place, the pilot asked the passengers not **to lose their head**.
The best option is **panic.**

89. (a) **cut no ice with me :** to have no influence or effect
- I don't care who you are, It **cuts no ice with me**.
The best option is **had no influence on me.**

90. (c) **a red-letter day :** an important day
- 15th August is a **red-letter day** in the history of India.
The best option is **an important or joyful occasion in one's life.**

91. (c) **inexact (Adj.)** : not accurate or exact.
impeccable (Adj.) : without mistakes or faults; perfect.

92. (b) **authentic (Adj.)** : known to be real and genuine and not a copy; true and accurate.
spurious (Adj.) : false, although seeming to be genuine

93. (a) **determine (V.)** : arrange something; establish.
meander (V.) : ramble; to curve a lot rather than being in a straight line; wander.

94. (b) **mint**
95. (b) **interlude**
96. (a) **succeeded**
97. (b) **really**
98. (c) **flying**
99. (b) **experiments**
100. (b) **believed**

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