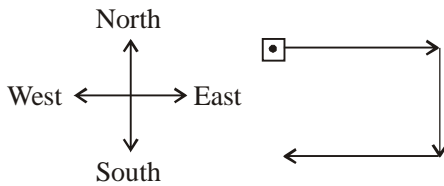


FCI (Tier-1) Exam. Model Practice Set

Answers with Explanation

1. (c) Here, **an epic (e-vowel sound) poem** right usage
 2. (c) Here, **Excuse me for interrupting you** is the right usage শ্রীচিডর্স
Look at the example given below :
 - I hope you will excuse me **for being** so late.
 3. (b) **one of my friends** is a **Singular Subject**. Hence, **Singular Verb-is** is the right usage
 4. (a) **carry out (Phr. V.)** : to do and complete a task
Here, **out** is the right usage.
 5. (d) **Prep.-in** শ্রীচিডর্স
Here, **in** is the right usage.
 6. (b) **of (Prep.)** is used for indicating the reason for something
Here, **of** is the right usage.
 7. (a) **meet (Verb)** is the right usage.
make both ends meet (Idiom) : to earn enough money to be able to buy the things you need
 8. (a) **speak of (Phr. V.)** : to be evident that something exists or is present
speak for (Phr. V.) : to state the views or wishes of a person or a group
Here, **speak of** is the right usage শ্রীচিডর্স
 9. (d) **philanthropic altruistic (Adj.)** : the fact of caring about the needs and happiness of other people more than your own; philanthropic.
 10. (d) **mysterious arcane (Adj.)** : secret and mysterious and therefore difficult to understand.
 11. (b) **regretful contrite (Adj.)** : very sorry for something bad that you have done; regretful.
 12. (c) **struck a chill to the heart** : to make somebody be afraid
 - The introduction of Boards in Class VIII **struck a chill to the heart** of all the students.
The best option is **aroused fear**.
 13. (c) **within a stone's throw** : a very short distance away
 - Her house is **within a stone's throw** from mine.
The best option is **very near to**.
 14. (d) **blue-eyed boy** : a person treated with special favour by somebody
 - He was very much the **blue-eyed boy** in the office.
The best option is **favourites**. শ্রীচিডর্স
 15. (c) **by leaps and bounds** : rapidly; very quickly
 - India is progressing **by leaps and bounds**.
The best option is **at a rapid pace**.
 16. (a) **vice (N.)** : evil or immoral behaviour.
virtue (N.) : behaviour or attitudes that show high moral standards.
 17. (b) **yielding (Adj.)** : willing to do what other people want; soft.
relentless (Adj.) : not stopping or getting less strong; unrelenting; refusing to give up; hard; harsh.
 18. (a) **friendship hostility (N.)** : unfriendly or aggressive feelings or behaviour. শ্রীচিডর্স
 19. (c) **phonetics phonetics (N.)** : the study of speech sounds and how they are produced
stylistics (N.) : the study of style and the methods used in written language
linguistics (N.) : the study of language or of particular languages
semantics (N.) : the study of the meanings of words and phrases
 20. (b) **parvenu parvenu (N.)** : a person from a low social or economic position who has suddenly become rich/powerful শ্রীচিডর্স
promiscuous (Adj.) : taken from a wide range of sources, without careful thought; having many sexual partners
sumptuary (Adj.) : regulating/controlling expenditure/ personal behaviour
extravagant (Adj.) : spending more money than is needed
 21. (b) The misspelt word is **murmured**
The correct spelling is **murmured**
 22. (d) The misspelt word is **persuasive** শ্রীচিডর্স
The correct spelling is **persuasive**
 23. (c) The misspelt word is **demonstretor**
The correct spelling is **demonstrator**
 24. (b) QRPS
 25. (c) QRSP
-

26. (d) Grain is stored in warehouse. Similarly, water is stored by constructing dam.
27. (a) Coin is manufactured in mint. Similarly, bricks are made in kiln.
28. (c) Several pages together constitute a book. Similarly, wall is constructed with the help of bricks.
29. (d) Preamble to the Constitution is the introduction to the Constitution containing basic philosophy of the Constitution. Similarly, Preface to a book summarises the main theme of the book.
30. (c) Poverty can be alleviated with the money. Similarly, illiteracy can be warded off through education.
31. (a) Reema is the daughter of Rajesh and Lakshmi. Rajan is the husband of Reema. Therefore, Rajesh is the father-in-law of Rajan.
32. (c) Ravi is brother of Govind and Prabhu. Prabhu is Brother-in-law of Kusuma.
33. (b) During the time of sunset, walking towards the opposite side of sun means, Shama was walking towards east.



Now, Shama is facing west.

34. (a)

R ⇒ -	A ⇒ +
B ⇒ ÷	C ⇒ ×

 $25 A 37 C 2 B 4 R 1 = ?$
 $\Rightarrow ? = 25 + 37 \times 2 \div 4 - 1$
 $? = 62 \times 2 \div 4 + 1$
 $? = 124 \div 4 + 1$
 $? = 31 + 1 = \boxed{32}$
35. (b)

A ⇒ +	B ⇒ -	C ⇒ ×
-------	-------	-------

 $(10 C4) A (4C4) B6 = ?$
 $\Rightarrow ? = (10 \times 4) + (4 \times 4) - 6$
 $\Rightarrow ? = 40 + 16 - 6 = \boxed{50}$
36. (a) 4th = Saturday
 Other Saturdays ⇒ 11, 28, 25
 Therefore, 27th ⇒ Monday.
37. (b) Each second-space equals 1°. A clock gains five minutes every hour.
 It means the clock gains $\frac{5}{60}$ minutes in one minute.

$$\frac{5}{60} \times 360 = 30$$

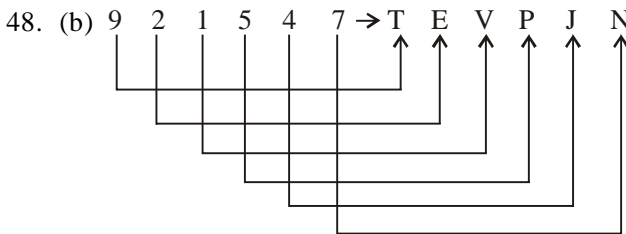
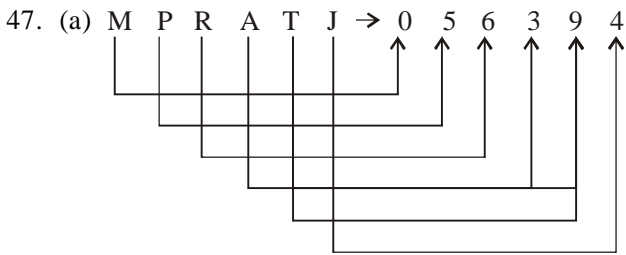
The second hand will traverse 360.5° in one minute.

প্র্যাচিভর্ক

38. (b) $4 \times 3 = 12$ and $(12)^2 = 144$
 $11 \times 9 = 99$ and $(99)^2 = 9801$
 $15 \times 6 = 90$ and $(90)^2 = 8100$
39. (c) $27 = 9 \times (2 + 1)$
 $35 = 7 \times (3 + 2)$
 $36 = 4 \times (4 + 5)$
40. (d) There is no 'C' letter in the given word. Therefore, the word PORTICO cannot be formed.
 $P O \boxed{R T F} O L \boxed{I} O \Rightarrow RIFT$
 $P \boxed{O R} T \boxed{F O} L I O \Rightarrow ROOF$
 $P O \boxed{R T F O} L I O \Rightarrow FORT$
41. (d) There is no 'G' letter in the given word. Therefore, the word CHANGE cannot be formed.
 $\boxed{M E} R C \boxed{H} A N D I \boxed{S} E \Rightarrow MESH$
 $M E R \boxed{C} H A N \boxed{D I} S \boxed{E} \Rightarrow DICE$
 $\boxed{M} E \boxed{R C H A} N D I S E \Rightarrow CHARM$
42. (c) Both the Premises are Particular Affirmative (I-type).
 No Conclusion follows from the two Particular Premises.
 Conclusion I is the Converse of the second Premise.
 Conclusion II is the converse of the first Premise.
43. (d) Both the Premises are Universal Negative (E-type).
 No Conclusion follows from the two negative Premises.
- 44 (b) Number of days from September 15, 2000 to September 15, 2001
 $= 365 + 1 = 366$
 $366 \div 7 = 2$ odd days
 \therefore September 15, 2001
 \Rightarrow Saturday
45. (a) $113 \times 2 - 1 = 225$
 $225 \times 2 - 1 = 449$
 $449 \times 2 - 1 = \boxed{897}$
 $897 \times 2 - 1 = 1793$
46. (b) $\frac{24}{4} = 6$; $\frac{18}{2} = 9$; $\frac{36}{4} = 9$; $\frac{24}{2} = \boxed{12}$

প্র্যাচিভর্ক

প্র্যাচিভর্ক



49. (d) There are seven blocks in the given figure.

50. (a) First Column

$$(3 \times 4 \times 5) - 2 = 58$$

Second Column

$$(5 \times 6 \times 2) - 2 = 58$$

Third Column

$$(8 \times 4 \times 2) - 2 = 62$$

Forth Column

$$(7 \times 6 \times 3) - 2 = \boxed{124}$$

শ্রদ্ধাচিহ্ন

51. (b) By the Binomial expansion we have

$$(x + 1)^n = x^n + {}^n C_1 x^{n-1} + {}^n C_2 x^{n-2} + \dots + {}^n C_{n-1} x + 1$$

Here, each term except the last term contains x. Obviously, each term except the last term is exactly divisible by x.

Following the same logic, $7^{19} = (6 + 1)^{19}$ has each term except last term divisible by 6.

Hence, $7^{19} + 2$ when divided by 6 leaves remainder = $1 + 2 = 3$

52. (c) $\times\times\times) 64329 (\times\times\times$

$$\begin{array}{r} \times\times\times \dots (i) \\ \underline{1752} \end{array}$$

$$\begin{array}{r} \times\times\times \dots (ii) \\ \underline{\times 1149} \end{array}$$

$$\begin{array}{r} \times\times\times \dots (iii) \\ \underline{\times 213} \end{array}$$

Number at (i) = $643 - 175 = 468$

Number at (ii) = $1752 - 114 = 1638$

Number at (iii) = $1149 - 213 = 936$

Clearly, 468, 1638 and 936 are multiples of 234 and $234 > 213$.

∴ Divisor = 234

শ্রদ্ধাচিহ্ন

শ্রদ্ধাচিহ্ন

53. (b) Let the fraction be x,
According to the question,

$$\frac{x}{3} - x \times \frac{3}{5} = \frac{32}{75}$$

$$\Rightarrow \frac{5x}{3} - \frac{3x}{5} = \frac{32}{75}$$

$$\Rightarrow \frac{25x - 9x}{15} = \frac{32}{75}$$

$$\Rightarrow \frac{16x}{15} = \frac{32}{75}$$

$$\Rightarrow x = \frac{32}{75} \times \frac{15}{16} = \frac{2}{5}$$

Correct answer = $\frac{2}{5} \times \frac{3}{5} = \frac{6}{25}$

শ্রদ্ধাচিহ্ন

শ্রদ্ধাচিহ্ন

54. (c) Required time = LCM of 6, 7, 8, 9 and 12 seconds = 504 seconds

55. (c) As the height of each stack is same, the required number of books in each stack

= HCF of 84, 90 and 120

$$84 = 2 \times 2 \times 3 \times 7$$

$$90 = 2 \times 3 \times 3 \times 5$$

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

∴ HCF = $2 \times 3 = 6$

56. (d) Let the value of * be x.

$$\therefore \frac{50}{x} = \frac{x}{12 \frac{1}{2}}$$

$$\Rightarrow \frac{50}{x} = \frac{2x}{25}$$

$$\Rightarrow 2x^2 = 50 \times 25$$

$$\Rightarrow x^2 = 25 \times 25$$

$$\therefore x = 25$$

শ্রদ্ধাচিহ্ন

57. (d) $\frac{0.8\bar{3} \div 7.5}{2.32\bar{1} - 0.09\bar{8}} = \frac{\frac{83-8}{90} \div 7.5}{2 \frac{321-3}{990} - \frac{98}{990}}$

$$= \frac{\frac{75}{90} \div 7.5}{2 \frac{318}{990} - \frac{98}{990}} = \frac{\frac{75}{90} \div 7.5}{2 \frac{220}{990}}$$

$$= \frac{7.5}{90 \times 7.5} \times \frac{990}{2200} = \frac{1}{20} = 0.05$$

58. (a) Expression

$$= \sqrt{8 + \sqrt{57 + \sqrt{38 + \sqrt{108 + \sqrt{169}}}}}$$

শ্রদ্ধাচিহ্ন

$$\begin{aligned}
 &= \sqrt{8 + \sqrt{57 + \sqrt{38 + \sqrt{108 + 13}}}} \\
 &= \sqrt{8 + \sqrt{57 + \sqrt{38 + \sqrt{121}}}} \\
 &= \sqrt{8 + \sqrt{57 + \sqrt{38 + 11}}} \\
 &= \sqrt{8 + \sqrt{57 + \sqrt{49}}} \\
 &= \sqrt{8 + \sqrt{57 + 7}} = \sqrt{8 + \sqrt{64}} \\
 &= \sqrt{8 + 8} = \sqrt{16} = 4
 \end{aligned}$$

অ্যাচিভার্স

59. (d) Number of natural numbers = x \therefore Their sum = $15x$

According to the question,

$$15x + 30 - 5 = x \times 17.5$$

$$\Rightarrow 17.5x - 15x = 25$$

$$\Rightarrow 2.5x = 25$$

$$\Rightarrow x = \frac{25}{2.5} = 10$$

অ্যাচিভার্স

60. (d) When each number is multiplied by 8, the new average gets multiplied by 8. i.e.,

$$21 \times 8 = 168$$

$$61. (a) \frac{a+b}{\sqrt{ab}} = \frac{4}{1} \Rightarrow \frac{a+b}{2\sqrt{ab}} = \frac{2}{1}$$

By componendo and dividendo,

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

$$\Rightarrow \frac{(\sqrt{a} + \sqrt{b})^2}{(\sqrt{a} - \sqrt{b})^2} = \frac{(\sqrt{3})^2}{(1)^2}$$

$$\Rightarrow \frac{\sqrt{a} + \sqrt{b}}{\sqrt{a} - \sqrt{b}} = \frac{\sqrt{3}}{1}$$

অ্যাচিভার্স

Again using componendo and dividendo,

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

$$\Rightarrow \frac{\sqrt{a}}{\sqrt{b}} = \frac{\sqrt{3}+1}{\sqrt{3}-1}$$

On squaring both sides

$$\frac{a}{b} = \left(\frac{\sqrt{3}+1}{\sqrt{3}-1} \right)^2 = \frac{3+1+2\sqrt{3}}{3+1-2\sqrt{3}}$$

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

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

অ্যাচিভার্স

62. (c) Before battle,

Officers $\Rightarrow 3x$ Soldiers $\Rightarrow 31x$

According to the question,

After battle,

$$\frac{3x-6}{31x-22} = \frac{1}{13}$$

$$\Rightarrow 39x - 78 = 31x - 22$$

$$\Rightarrow 39x - 31x = 78 - 22$$

$$\Rightarrow 8x = 56$$

$$\Rightarrow x = \frac{56}{8} = 7$$

$$\Rightarrow x = \frac{56}{8} = 7$$

$$\Rightarrow x = \frac{56}{8} = 7$$

 \therefore Required number of officers = $3 \times 7 = 21$ 63. (c) If the number be x , then

$$x \times \frac{75}{100} + 75 = x$$

$$\Rightarrow \frac{3x}{4} + 75 = x$$

$$\Rightarrow x - \frac{3x}{4} = 75$$

$$\Rightarrow \frac{x}{4} = 75$$

$$\Rightarrow x = 4 \times 75 = 300$$

 \therefore 40% of 300

$$= \frac{300 \times 40}{100} = 120$$

64. (d) If the third number is 100, then the numbers

are $100 + \frac{25}{2} = \frac{225}{2}$ and 125 respectively. \therefore First number as a percentage of the second

$$= \frac{225}{2 \times 125} \times 100 = 90$$

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

$$\Rightarrow x^2 + \frac{1}{x} - 2 + y^2 + \frac{1}{y} = 0$$

$$\Rightarrow \left(x - \frac{1}{x} \right)^2 + \left(y - \frac{1}{y} \right)^2 = 0$$

$$\Rightarrow x - \frac{1}{x} = 0$$

$$\Rightarrow x^2 - 1 = 0 \Rightarrow x = 1$$

Similarly,

$$y = 1$$

$$\therefore x^2 + y^2 = 1 + 1 = 2$$

$$66. (d) \frac{x^2}{yz} + \frac{y^2}{zx} + \frac{z^2}{xy}$$

অ্যাচিভার্স

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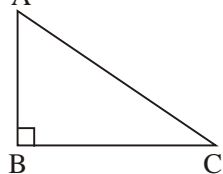
$$= \frac{x^3 + y^3 + z^3}{xyz} = \frac{3xyz}{xyz} = 3$$

67. (d) Expression

$$\begin{aligned} &= \operatorname{cosec}^2 18^\circ - \frac{1}{\cot^2 72^\circ} \\ &= \operatorname{cosec}^2 18^\circ - \tan^2 72^\circ \\ &[\because \tan \theta \cdot \cot \theta = 1] \\ &= \operatorname{cosec}^2 18^\circ - \tan^2(90^\circ - 18^\circ) \\ &= \operatorname{cosec}^2 18^\circ - \cot^2 18^\circ \\ &= 1 \end{aligned}$$

$$\begin{aligned} &[\because \tan(90^\circ - \theta) = \cot \theta; \\ &\operatorname{cosec}^2 \theta - \cot^2 \theta = 1] \end{aligned}$$

68. (b) A



$$\frac{AB}{BC} = \frac{2}{1}$$

$$\Rightarrow AB = 2k, BC = k$$

$$\begin{aligned} \therefore AC &= \sqrt{(2k)^2 + k^2} = \sqrt{5k^2} \\ &= \sqrt{5}k \end{aligned}$$

$$\therefore \sin A + \cot C = \frac{BC}{AC} + \frac{BC}{AB}$$

$$= \frac{k}{\sqrt{5}k} + \frac{k}{2k}$$

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

69. (c) $\angle ABC + \angle ACB + \angle BAC = 180^\circ$

$$\Rightarrow \angle ABC + \frac{1}{5}\angle ABC + \frac{3}{5}\angle ABC = 180^\circ$$

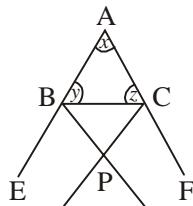
$$\Rightarrow \angle ABC + \frac{4}{5}\angle ABC = 180^\circ$$

$$\text{or } \frac{9}{5}\angle ABC = 180^\circ$$

$$\Rightarrow 9 \angle ABC = 180 \times 5$$

$$\Rightarrow \angle ABC = 100^\circ$$

70. (c)



প্রমাণ করুন

প্রমাণ করুন

প্রমাণ করুন

In $\triangle ABC$,

$$\angle A = x, \angle B = y; \angle C = z$$

In $\triangle PBC$,

$$\angle PBC + \angle PCB + \angle BPC = 180^\circ$$

$$\Rightarrow \frac{1}{2}\angle EBC + \frac{1}{2}\angle FCB + \angle BPC = 180^\circ$$

$$\Rightarrow \angle EBC + \angle FCB + 2\angle BPC = 360^\circ$$

$$\Rightarrow (180^\circ - y) + (180^\circ - z) + 2\angle BPC = 360^\circ$$

$$\Rightarrow 360^\circ - (y + z) + 2\angle BPC = 360^\circ$$

$$\Rightarrow 2\angle BPC = y + z$$

$$\Rightarrow 2\angle BPC = 180^\circ - x$$

$$= 180^\circ - \angle BAC$$

$$\therefore \angle BPC = 90^\circ - \frac{1}{2}\angle BAC$$

$$= 90^\circ - 50^\circ = 40^\circ$$

71. (a) Circumference of the circular wire = $2\pi r$

$$= 2 \times \frac{22}{7} \times 42 = 264 \text{ cm}$$

$$\Rightarrow \text{Perimeter of rectangle} = 264 \text{ cm}$$

Let the sides of rectangle be $6x$ and $5x$ cm.

$$\therefore 2(6x + 5x) = 264$$

$$\Rightarrow 2 \times 11x = 264$$

$$\Rightarrow x = \frac{264}{22} = 12$$

\therefore The smaller side

$$= 5x = 5 \times 12 = 60 \text{ cm.}$$

72. (c) The chord nearer to the centre is larger.

$$\therefore \frac{15}{8} = \frac{x}{16}$$

$$\Rightarrow x = \frac{15 \times 16}{8} = 30 \text{ cm}$$

73. (a) $ab + bc + ca = 0$

$$\Rightarrow ab + ca = -bc$$

$$\therefore a^2 - bc = a^2 + ab + ac$$

$$= a(a + b + c)$$

Similarly,

$$b^2 - ac = b(a + b + c)$$

$$c^2 - ab = c(a + b + c)$$

$$\therefore \frac{1}{a^2 - bc} + \frac{1}{b^2 - ca} + \frac{1}{c^2 - ab}$$

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

$$= \frac{1}{(a+b+c)} \left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right)$$

$$= \frac{1}{a+b+c} \left(\frac{bc+ca+ab}{abc} \right)$$

প্রমাণ করুন

প্রমাণ করুন

প্রমাণ করুন

$$= \frac{1}{a+b+c} \times \frac{0}{abc} = 0$$

74. (c) $x = p + \frac{1}{p}$

অ্যাকাডেমিক

$$y = p - \frac{1}{p}$$

$$\therefore x + y = p + \frac{1}{p} + p - \frac{1}{p} = 2p$$

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

$$\begin{aligned} \therefore x^4 - 2x^2y^2 + y^4 &= (x^2 - y^2)^2 \\ &= \{(x + y)(x - y)\}^2 \\ &= \left(2p \times \frac{2}{p}\right)^2 = 4^2 = 16 \end{aligned}$$

75. (c) Expression

অ্যাকাডেমিক

$$= \frac{4x^3 - x}{(2x+1)(6x-3)}$$

$$= \frac{x(4x^2 - 1)}{(2x+1) \times 3(2x-1)}$$

$$= \frac{x(2x+1)(2x-1)}{3(2x+1)(2x-1)}$$

$$= \frac{x}{3} = \frac{9999}{3} = 3333$$

76. (d) The Rig Veda mentions such artisans as the carpenter, the chariot-maker, the weaver, the leather worker, the potter, etc. This indicates that they practiced all these crafts. The term, ayas used for copper or bronze shows that metal working was known. Gold was known as 'hiranya'.

অ্যাকাডেমিক

77. (c) Pannalal Ghosh, also known as Amal Jyoti Ghosh, was a Bengali Indian flute player and composer. He was a disciple of Allauddin Khan, and is credited with giving the flute its status in Hindustani classical music. Pandit Bhimsen Gururaj Joshi was an Indian vocalist in the Hindustani classical tradition. Anjolie Ela Menon is one of India's leading contemporary female artists. Her paintings are in several major collections. Madurai Mani Iyer was a Carnatic music singer, who was famous for his unique style.

78. (c) At its core, sovereignty is typically taken to mean the possession of absolute authority

within a bounded territorial space. There is essentially an internal and external dimension of sovereignty. Internally, a sovereign government is a fixed authority with a settled population that possesses a monopoly on the use of force. It is the supreme authority within its territory. Externally, sovereignty is the entry ticket into the society of states.

অ্যাকাডেমিক

79. (a) A hanging valley is a tributary valley with the floor at a higher relief than the main channel into which it flows. They are most commonly associated with U-shaped valleys when a tributary glacier flows into a glacier of larger volume. The main glacier erodes a deep U-shaped valley with nearly vertical sides while the tributary glacier, with a smaller volume of ice, makes a shallower U-shaped valley. Since the surfaces of the glaciers were originally at the same elevation, the shallower valley appears to be 'hanging' above the main valley.

80. (b) Every year World Stroke Day is observed on October 29th to emphasize the serious nature and high rates of stroke. It is also observed to raise awareness of the prevention & treatments of strokes. It was started in 2006 by the World Stroke Organization (WSO). WSO declared stroke a public health emergency in 2010.

81. (b) India borrowed features of fundamental duties and planning mechanism from the former Soviet Union. India opted for planned economic growth model as resources were scarce at the time of independence. So it was imperative for the leaders to move along planned model so as to achieve optimum utilization of resources development and meeting the aim of social justice simultaneously.

অ্যাকাডেমিক

82. (a) The Indo-Greek kings were the first to issue gold coins in India and their coins were special in the sense that each king had his own distinctive coins by which he could be definitely identified. However, some scholars contend that this credit should go to the Kushan kings. Vima Kadphises is said to be the first to introduce gold coinage in India, in addition to the existing copper and silver coinage.

83. (b) The Constitution of India was framed by Constituent Assembly that was formed on 9 December 1946. It was formed following negotiations between Indian leaders and members of the 1946 Cabinet Mission to India. The Indian Constitution was adopted on 26

- November 1949 and came into force on 26 January 1950.
84. (c) About 70% of the world's fresh water is stored as glacial ice. Only 3% water of the earth is fresh, rest 97% salted. Of that 3%, over 2% is frozen in ice sheets and glaciers. Means less than 1% fresh water is found in lakes, rivers and underground. ଅପ୍ରେଲ
85. (b) Kharvela was the third and greatest emperor of the Chedi dynasty of Kalinga (present-day Odisha). The main source of information about Kharavela is his famous Hanthigumpha inscription. During his reign, the Chedi dynasty ascended to eminence, which had been subdued since the devastating war with Ashoka.
86. (c) Indian Air Force (IAF) and French Air and Space Force (FASF) are participating in a bilateral exercise named 'Garuda' from 26th Oct to 12th Nov 2022 at Air Force Station Jodhpur. This is the seventh edition of the 'Garuda' air exercise jointly carried out by India and France ଅପ୍ରେଲ
87. (d) Pascal's principle guarantees that the pressure is transmitted equally to all parts of the enclosed fluid system. This gives straight-line braking unless there is a fluid leak or something to cause a significant difference in the friction of the surfaces. The hydraulic brake is an arrangement of braking mechanism which uses brake fluid, typically containing ethylene glycol, to transfer pressure from the controlling unit, which is usually near the operator of the vehicle, to the actual brake mechanism, which is usually at or near the wheel of the vehicle.
88. (c) The Fundamental Duties of citizens were added to the Constitution by the 42nd Amendment in 1976, upon the recommendations of the Swaran Singh Committee that was constituted by the government earlier that year. ଅପ୍ରେଲ
89. (a) Dr Srivari Chandrasekhar, Secretary, Department of Science and Technology, inaugurated the 1st ASEAN-India Start-up Festival (AISF) on 27th October 2022 in Bogor, Indonesia. The 4-day event is part of the overall ASEAN-India Science, Technology and Innovation Cooperation program. It will strengthen the collaboration in science, technology & innovation between the ASEAN countries & India ଅପ୍ରେଲ
90. (a) The Niyamgiri is a hill range situated in the districts of Kalahandi and Rayagada in Odisha. These hills are home to Dongria Kondh indigenous people. In recent times these hills are in media discussions due to the conflict of inhabitant tribals and Bauxite Mining Project by Vedanta Aluminium Company. ଅପ୍ରେଲ
91. (a) Lactose is a disaccharide sugar that is found most notably in milk and is formed from galactose and glucose. Lactose makes up around 2~8% of milk (by weight), although the amount varies among species and individuals. It is extracted from sweet or sour whey. The name comes from lac or lactis, the Latin word for milk, plus the -ose ending used ${}_{12}\text{H}_{22}\text{O}_{11}$. Food industry applications, both of pure lactose and lactosecontaining dairy by-products, have markedly increased since the 1960s. For example, its bland flavor has lent to its use as a carrier and stabiliser of aromas and pharmaceutical products. Lactose is not added directly to many foods, because it is not sweet and its solubility is less than other sugars commonly used in food. Infant formula is a notable exception where the addition of lactose is necessary to match the composition of human milk. ଅପ୍ରେଲ
92. (c) Microeconomics is the branch of economics concerned with isolated parts of the economy, for example, individual people, firms or industries. It involves such topics as the theory of prices and of the firm.
93. (d) Dr Rajesh Ranjan, an IFS Officer of 2001 batch, has been appointed as the next Ambassador of India to the Republic of Cote d'Ivoire. He will replace Y. K. Sailas Thangal. Dr Ranjan is presently the High Commissioner of India to the Republic of Botswana.
94. (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. অ্যাচিভার্স
95. (d) In September 1873, Jyotirao Phule formed the Satyashodhak Samaj (Society of Seekers of Truth) to attain equal rights for peasants and the lower caste and his contributions to the field of education. Phule is regarded as an important figure of the Social Reform Movement in Maharashtra. অ্যাচিভার্স
96. (a) Three subject lists, the Union list, the State list, and the Concurrent list, define the legislative powers of each level of government. All residuary powers are vested with the centre.
97. (b) Vitamin A is found naturally in many foods: liver (beef, pork, chicken, turkey, fish) (6500 ÷g 722%), including cod liver oil; dandelion greens (5588 IU 112%); carrot (835 ÷g 93%); broccoli leaf (800 ÷g 89%); spinach (469 ÷g 52%); collard greens (333 ÷g 37%), etc. Brewer's yeast is often taken as a powder, or as tablets or capsules. High-quality brewer's yeast powder or flakes contain as much as 60 mcg of chromium per tablespoon (15 grams). The B-complex vitamins in brewers yeast include B₁ (thiamine), B₂ (riboflavin), B₃ (niacin), B₅ (pantothenic acid), B₆ (pyridoxine), B₉ (folic acid), and H or B₇ (biotin). These vitamins help break down carbohydrates, fats, and proteins, which provide the body with energy. Wheat germ oil is extracted from the germ of the wheat kernel, which makes up only 2.5% by weight of the kernel. Wheat germ oil is very high in vitamin E, and has the highest content of vitamin E of any food that has not undergone prior preparation or vitamin fortification. Raw cabbage is a good source of vitamins, minerals, and fiber that help protect our body. All cabbage types provide vitamin C, folic acid, potassium, manganese, magnesium, riboflavin and thiamin. অ্যাচিভার্স
98. (c) Quality Council Of India has appointed Jaxay Shah, former Chairman of the Confederation Of Real Estate Developers' Associations of India (CREDAI) as the new chairman of QCI for a period of 3 years. Jaxay Shah succeeds Adil Zainulbhai.
99. (c) The 4.5 megawatt hydroelectric power station near Sivasamudram falls of the Cauvery in Karnataka was the first major power station in India. Owned by a few British companies, it was set up by General Electric of the US. It was commissioned in 1902. The first small hydro power plant, a 130 kilowatt plant, started functioning in 1897 at Darjeeling. অ্যাচিভার্স
100. (c) The Kakori Conspiracy was a train robbery that took place between Kakori near Lucknow, on 9 August 1925 during the Indian Independence Movement against the British Indian Government. The robbery was carried out by Ram Prasad Bismil, Ashfaqulla Khan, Rajendra Lahiri, Chandrashekhar Azad and others.