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Your Personal Exams Guide

- NDA
- CDS
- SSC CGL
- CBSE UGC NET
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- AFCAT
- CSIR UDC NET
- IBPS PO
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- RBI GRADE B
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RRB NTPC 2021 (CBT 1) Previous Year Paper (4 Jan 2021) Shift 1

Total Time: 1 Hour : 30 Minute **Total Marks:** 100

Instructions

Sl No.	Section Name	No. of Question	Maximum Marks	Negative Marks	Positive Marks
1	Test	100	100	0.33	1

1.) A total of 90 minutes is allotted for the examination.

2.) The server will set your clock for you. In the top right corner of your screen, a countdown timer will display the remaining time for you to complete the exam. Once the timer reaches zero, the examination will end automatically. The paper need not be submitted when your timer reaches zero.

3.) There will, however, be sectional timing for this exam. You will have to complete each section within the specified time limit. Before moving on to the next section, you must complete the current one within the time limits.

Test

1. Harish and Bimal can complete a task in 20 days. They worked at it for 15 days and then Bimal left. The remaining work was done by Harish alone, in 10 days. Harish alone can complete the entire task in: **(+1, -0.33)**

   a. 40 days

   b. 30 days

   c. 35 days

   d. 45 days

---

2. What is the keyboard command to delete ledger created in tally? **(+1, -0.33)**

   a. Alt + D

   b. Ctrl + D

   c. Shift + D

   d. Alt + F2

---

3. The main focus of the First Five-Year Plan was on the _ _ _ _ _ _ _. **(+1, -0.33)**

   a. service sector

   b. agricultural and industrial sector

   c. agricultural sector

   d. industrial sector

---

4. If $\sqrt{3}^{n} = 729$, then the value of n is equal to: (+1, -0.33)

a. 6

b. 8

c. 12

d. 9

---

5. In which year did India first participate in the Olympic games? (+1, -0.33)

a. 1900

b. 1925

c. 1923

d. 1924

---

6. With which state is the Nabakalebara festival associated? (+1, -0.33)

a. Odisha

b. Assam

c. Sikkim

d. West Bengal

---

7. Which branch of physics deals with properties of fluids at rest? (+1, -0.33)

a. Hydrostatics

b. Astrophysics

c. Thermodynamics

d. Optics

---

8. The HCF of two numbers is 6 and their LCM is 84. If one of these numbers is 42, then the second number is: **(+1, -0.33)**

a. 12

b. 40

c. 48

d. 30

---

9. The first Amendment to the constitution of India was made on _ _ _ _ _ _ _. **(+1, -0.33)**

a. 1951

b. 1953

c. 1952

d. 1950

---

10. The pH range of a human body is: **(+1, -0.33)**

a. 2.35 - 4.45

b. 5.35 - 6.45

c. 7.35 - 7.45

d. 8.35 - 9.45

---

11. When was the Hindustan Republican Association formed? (+1, -0.33)

a. 1920

b. 1922

c. 1924

d. 1926

---

12. If $x^2y^2 + \frac{1}{x^2y^2} = 83$, then the value of $xy - \frac{1}{xy}$ is: (+1, -0.33)

a. 85

b. 9

c. 10

d. 81

---

13. As per Nov 2020, How many countries have membership in the World Trade Organisation? (+1, -0.33)

a. 168

b. 160

c. 164

d. 165

---

14. Where was the fist nuclear power plant set up in India? (+1, -0.33)

a. Kalapakkam

b. Kakrapur

c. Tarapur

d. Kaiga

---

15. Who wrote the famous Hindi novel 'Tamas'? (+1, -0.33)

a. Yashpal

b. Nagendra

c. Bhisham Sahni

d. Trilochan

---

16. When did the Simon Commission arrive in India? (+1, -0.33)

a. 1931

b. 1928

c. 1927

d. 1930

---

17. The ratio of the number of females to that of male employees in a small company is 2 : 3. If the number of male employees in the company is 90, then the total number of employees working in the company is: (+1, -0.33)

a. 150

b. 130

c. 90

d. 120

---

18. If the area of a circle is 154 cm^2, then the circumference of the circle is: **(+1, -0.33)**

a. 22 cm

b. 44 cm

c. 36 cm

d. 11 cm

---

19. Which industry uses limestone as raw material? **(+1, -0.33)**

a. Planstic

b. Automobile

c. Utensils

d. Cement

---

20. A businessman purchase 20 articles whose cost is equal to the selling price of 15 articles. The profit or loss percentage of the businessman is: **(+1, -0.33)**

a. 33.33% profit

b. 25% profit

c. 15% profit

d. 23.33% profit

---

21. Programming language Java was developed by _ _ _ _ _ _ _. (+1, -0.33)

a. Paul Allen

b. Jaap Haartsen

c. Charles Simonyi

d. James Gosling

---

22. A mango kept in a basket doubles every one minute. If the basket gets completely filled by mangoes in 30 minutes then in how many minutes half of the basket was filled? (+1, -0.33)

a. 27

b. 29

c. 15

d. 28

---

23. Who built the Sanchi Stupa? (+1, -0.33)

a. Ashoka

b. Chanakaya

c. Bindusara

d. Chandragupta

---

24. The first national flag of India is said to have hoisted at _ _ _ _ _ _ _ in 1906. **(+1, -0.33)**

a. Patna

b. Kolkata

c. New Delhi

d. Ahmedabad

---

25. The pistil in the flower is _ _ _ _ _ _ _. **(+1, -0.33)**

a. a male reproductive part

b. unisexual

c. a female reproductive part

d. bisexual

---

26. According to the World Development Report, countries having per capita income of more than US$12,000 per annum as on 2016 are called: **(+1, -0.33)**

a. poor countries

b. low income countries

c. rich countries

d. low middle income countries

---

27. The value of $[(3\sqrt{2} + 2) \times (3\sqrt{2} - 2)]$ of 13 + 15 is: **(+1, -0.33)**

a. 616

b. 197

c. 140

d. 414

---

28. In a school, 60% of the students passed in an examination. If the number of failed candidates is 240, then the number of candidates that have passed is: **(+1, -0.33)**

a. 600

b. 240

c. 360

d. 410

---

29. When was INSAT 1B commissioned? **(+1, -0.33)**

a. 1985

b. 1983

c. 1987

d. 1980

---

30. There is a carpet of length $20\frac{5}{2}$ m. How many small pieces of carpet, each of length $4\frac{1}{2}$ m, can be cut out of it? **(+1, -0.33)**

a. 7

b. 8

c. 9

d. 5

---

31. 1. Banana price is more than that of lychee. **(+1, -0.33)**

2. Banana price is less than that of kiwi.

3. Kiwi Price is more than that of banana and lychee.

If both, 1 and 2 statements are true, then third is:

a. vague

b. true

c. uncertain

d. false

---

32. What was the code name for Pokhran Nuclear Test 2? **(+1, -0.33)**

a. Laughing Buddha

b. Smiling Buddha

c. Operation Research

d. Operation Shakti

---

33. In which form is data stored in a computer? **(+1, -0.33)**

a. Binary

b. Picture

c. Magnetic

d. Alphabets

---

34. If the ratio between two numbers is 3 : 5 and their LCM is 120, then the numbers are: **(+1, -0.33)**

a. 21; 35

b. 24; 40

c. 27; 45

d. 30; 50

---

35. In which year were the Women Transforming India Awards started by NITI Aayog? **(+1, -0.33)**

a. 2016

b. 2015

c. 2014

d. 2017

---

36. How many non-permanent members does the UN Council have? **(+1, -0.33)**

a. 15

b. 10

c. 12

d. 14

---

37. When a smaller number divides a larger number, we get a quotient of 6 and a remainder of 5. Find the smaller number if the difference between the two numbers is 1540. **(+1, -0.33)**

a. 580

b. 620

c. 735

d. 307

---

38. The value of $\frac{\sin 23^\circ}{\cos 67^\circ} + \frac{\cos 71^\circ}{\sin 19^\circ}$ is: **(+1, -0.33)**

a. 1

b. 3

c. 2

d. 0

---

39. The ability of metals to be drawn into thin wires is called: **(+1, -0.33)**

a. malleability

b. ductility

c. reactivity

d. solubility

---

40. In a class of students, Rajesh ranks 15 th from the top and Prakash ranks 25 th from the bottom. Gyan is on the 10 th place ahead of Prakash. If there are 10 students, exactly in between Rajesh and Gyan, then how many total students are there in the class? **(+1, -0.33)**

a. 60

b. 55

c. 40

d. 50

---

41. Pick the odd one out. **(+1, -0.33)**

a. MNKL

b. IJGH

c. EFCD

d. OPQR

---

42. Raja Ravi Varma was a famous _ _ _ _ _ _ _. **(+1, -0.33)**

a. painter

b. poet

c. mathematician

d. singer

---

43. The difference between the simple interest and the compound interest on Rs.5000/- at 10% per annum for 3 years is: **(+1, -0.33)**

a. Rs.155

b. Rs.480

c. Rs.233

d. Rs.235

---

44. In a symbolic language, 'surat is a hot place' is written as 'a hot is place surat' and 'water vapour to air here', as 'to air vapour here water', then in the same language, 'shimla is a hill place' would be written as? **(+1, -0.33)**

a. Shimla is a hill place

b. A hill is place shimla

c. A hill place is shimla

d. Shimla is a place hill

---

45. The perimeters of two similar triangles. ΔPQR and ΔXYZ are 48 cm and 24 cm respectively. If XY = 12 cm, then PQ is: **(+1, -0.33)**

a. 24 cm

b. 18 cm

c. 12 cm

d. 8 cm

---

46. Select the option that is related to the third term in the same way as the second term is related to the first term. **(+1, -0.33)**

BSTN : AQUP :: DNUC : ?

a. CLVE

b. BSTO

c. TOUS

d. TSTB

---

47. Train A, running at the speed of 80 km/hr crossed train B, running at the speed of 70 km/hr in the opposite direction. Both trains finish crossing each other in 30 seconds. If the length of train A is 300 m, then the length of train B is: **(+1, -0.33)**

a. 855 m

b. 950 m

c. 850 m

d. 750 m

---

48. The capacity of a cylindrical tank is 2376 m^3. If the radius of the tank is 21 m, then the depth of the tank is: **(+1, -0.33)**

a. 1.71 m

b. 2.89 m

c. 5.75 m

d. 3.72 m

---

49. The first high court of India was established in _ _ _ _ _ _ _. **(+1, -0.33)**

a. Kolkata

b. Delhi

c. Mumbai

d. Punjab

---

50. When did the RTI Act come into effect? **(+1, -0.33)**

a. December 2005

b. November 2006

c. September 2005

d. October 2005

---

51. Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) was launched in the year _ _ _ _ _ _ _. **(+1, -0.33)**

a. 2006

b. 2004

c. 2003

d. 2005

52. When was Akbar became the emperor? (+1, -0.33)

a. 1552 AD

b. 1550 AD

c. 1560 AD

d. 1556 AD

53. Who among the following is the youngest Nobel Laureate? (+1, -0.33)

a. Lawrence Bragg

b. Nadia Murad

c. Malala Yousafzai

d. Tsung Dao Lee

54. In which of the following does the river Godavari originate? (+1, -0.33)

a. Yamnotri

b. Thriambak hills (Bramhagiri hills)

c. Hills of Coorg

d. Gangotri

55. Five students are sitting in a circle facing the center. Sumit is between Sunil and Sushmit. Sushma is on the left side of Shweta, Sushmit and Sushma are (+1, -0.33)

not sitting next to each other. Who is sitting next to Sumit on his right side?

a. Sushma

b. Sushmit

c. Shweta

d. Sunil

---

56. The sum of two numbers is 25 and their difference is 15. The ratio of the numbers is: **(+1, -0.33)**

a. 2 : 3

b. 4 : 1

c. 3 : 2

d. 5 : 3

---

57. How many world heritage sites have been protected by UNESCO as of June 2020? **(+1, -0.33)**

a. 1121

b. 1256

c. 1056

d. 1273

---

58. Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern. **(+1, -0.33)**

a_bc_a_bcda_ccd_bcd_

a. a, a, b, c, c, d

b. a, c, b, d, b, d

c. a, d, b, b, a, d

d. a, d, b, b, d, d

---

59. If $x + \frac{1}{x} = 9$, then the value of $x^2 + \frac{1}{x^2}$ is: **(+1, -0.33)**

a. 83

b. 81

c. 79

d. 81.01

---

60. Consider the given statement and decide which of the given assumptions is/are implicit in the statement. **(+1, -0.33)**

Statement:

A wealthy person has a higher chance of having diabetes.

Assumptions:

I. Most of causes of death among wealthy persons are due to diabetes.

II. Poor persons do not have diabetes.

a. Only assumptions (II) is implicit.

b. Both, assumptions (I) and (II) are implicit

c. Neither assumption (I) nor (II) is implicit.

d. Only assumptions (I) is implicit.

---

61. Select the number from among the given options that can replace the question mark (?) in the following series. **(+1, -0.33)**

64, 60, 52, 40, ?, 4

a. 20

b. 24

c. 10

d. 16

---

62. The value of $\frac{(0.27)^2-(0.13)^2}{0.27+0.13}$ is: **(+1, -0.33)**

a. 0.40

b. 0.03

c. 0.14

d. 1.40

---

63. How many environmental activists got the Goldman Environmental Prize 2019? **(+1, -0.33)**

a. 5

b. 4

c. 6

d. 3

---

64. In which state is the Gandhi Sagar Dam constructed? **(+1, -0.33)**

a. Maharashtra

b. Himachal Pradesh

c. Rajasthan

d. Madhya Pradesh

---

65. When was revolt of 1857 finally supressed by British? **(+1, -0.33)**

a. 1859

b. 1861

c. 1860

d. 1857

---

66. If $\tan\theta + \cot\theta = 5$, then the value of $\tan^2\theta + \cot^2\theta + 2\tan^2 60°$ is: **(+1, -0.33)**

a. $29\sqrt{3}$

b. 29

c. 25

d. $10\sqrt{3}$

---

67. A class has 48 students, on a specific day, only $\frac{3}{8}$ of the students were present; the number of absentees on the same day would be: (+1, -0.33)

a. 18

b. 28

c. 38

d. 30

---

68. The value of $15 \times 14 - 30 + (3^2 + 17)$ is: (+1, -0.33)

a. 206

b. 124

c. 154

d. 266

---

69. URL stands for: (+1, -0.33)

a. Uniform Resource Locator

b. Uniform Remote Locator

c. Universal Remote Land

d. Universal Resource Locator

---

70. The angle of elevation of a pole from a point, which is 20 m away from the foot of the pole is 45°. Find the height of the pole. (+1, -0.33)

a. 20 m

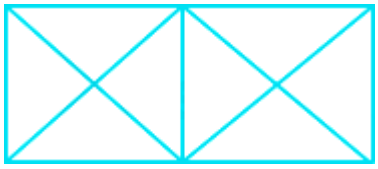
b. 20√2 m

c. 15 m

d. 10 m

---

71. How many triangles are there in the following figures? **(+1, -0.33)**



a. 20

b. 18

c. 22

d. 16

---

72. On which river is the Sardar Sarovar Dam constructed? **(+1, -0.33)**

a. Ganga

b. Brahmaputra

c. Yamuna

d. Narmada

---

73. The marks obtained by 7 students in a class in mathematics are 43, 44, 65, 41, 53, 65 and 62. The mode of the data is: **(+1, -0.33)**

a. 53

b. 65

c. 41

d. 62

---

74. 15 male employees or 20 female employees of a company can complete a project in 26 days. How long will 30 male employees and 12 female employees together take to complete the project? **(+1, -0.33)**

a. 14 days

b. 10 days

c. 12 days

d. 8 days

---

75. The sum of two numbers is 16 and their product is 63. The sum of their reciprocal is equal to: **(+1, -0.33)**

a. $\frac{63}{16}$

b. $\frac{8}{63}$

c. $\frac{60}{63}$

d. $\frac{16}{63}$

---

76. _ _ _ _ _ _ _ is the largest bauxite producing state of India. **(+1, -0.33)**

a. Odisha

b. Jharkhand

c. Andhra Pradesh

d. Gujarat

---

77. Aman is older than Sahu, Sahu is younger than Komal but older than Millan. Komal is older than Aman but younger than Uday. Who is the third oldest among them? **(+1, -0.33)**

a. Komal

b. Aman

c. Sahu

d. Uday

---

78. Select the option that is related to the third term in the same way as the second term is related to the first term. **(+1, -0.33)**

DFB : GHC :: LNJ : ?

a. LOJ

b. OQM

c. OPK

d. EGC

---

79. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements. **(+1, -0.33)**

Statements:

Some women are wise.

All wise are engineers.

Conclusions:

I. Some women are engineers.

II. All engineers are wise.

a. Neither conclusion I nor conclusion II follows.

b. Both, conclusion (I) and (II) follow.

c. Only conclusion (II) follows.

d. Only conclusion (I) follows.

---

80. If '+' denotes 'multiplication', '−', denotes 'addition', '×', denotes 'division' and '÷' denotes 'subtraction', then which of the following equation is true? **(+1, -0.33)**

a. 9 + 5 − 16 × 4 ÷ 2 = 41

b. 15 + 15 × 3 − 4 ÷ 5 = 26

c. 10 − 12 ÷ 18 × 6 + 2 = 16

d. 11 ÷ 8 × 2 − 4 + 1 = 41

---

81. 27% of 250 − 0.02% of 1000 is equal to: **(+1, -0.33)**

a. 65.52

b. 52.56

c. 67.30

d. 76.30

---

82. A bank provides a loan at the rate of 5% per annum to a trader on an amount of Rs.12,50,000 for 5 years. The simple interest to be paid is: **(+1, -0.33)**

a. Rs.2,25,400

b. Rs.3,12,500

c. Rs.2,40,600

d. Rs.4,20,250

---

83. The cause of Hepatitis A is a: **(+1, -0.33)**

a. mosquito bite

b. bacteria

c. Virus

d. protozoa

---

84. Which organ in the human body produces bile juice? **(+1, -0.33)**

a. Small intestine

b. Pancreas

c. Liver

d. Stomach

85. PQRS is a cyclic trapezium where PQ is parallel to RS and PQ is the diameter. If ∠QPR = 40° then the ∠PSR is equal to: **(+1, -0.33)**

a. 130°

b. 120°

c. 140°

d. 110°

86. If 'A + B' means 'A is daughter of B', 'A - B' means 'A is wife of B', 'A × B' means 'A is the son of B', If P × Q - S then which of the following is true? **(+1, -0.33)**

a. Q is the father of P

b. P is a daughter of Q

c. S is the father of P

d. S is the wife Q

87. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements. **(+1, -0.33)**

Statements:

Regularity is a cause for a success in exams.

Some irregular students pass in the examinations.

Conclusions:

I. All irregular students pass in exams.

II. Some irregular students fail in the exam.

a. Only conclusion (II) follows.

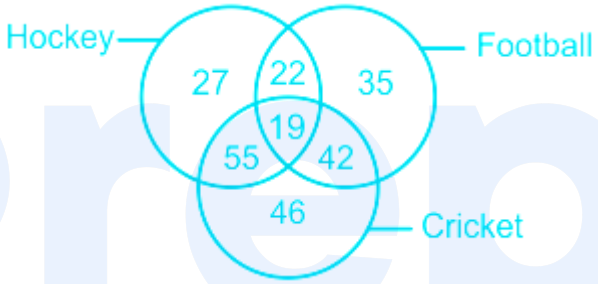
b. Only conclusion (I) follows.

c. Both, conclusion (I) and conclusion (II) follow.

d. Neither conclusion I nor conclusion II follows.

---

88. In the given figure, how many hockey players are playing football? **(+1, -0.33)**



a. 55

b. 35

c. 41

d. 22

---

89. Select the number that is different from the rest. **(+1, -0.33)**

a. 72563

b. 52637

c. 56372

d. 63754

90. A, B, C, D, and E are sitting in a line. C is sitting at the west end and E is the neighbour of B and C. Between A and C there are two persons. Who is sitting at the east end? (+1, -0.33)

a. B

b. D

c. A

d. C

91. If in a certain code, INTERNET is written as TENRETNI, then in the same code, REMEMBER would be written as: (+1, -0.33)

a. REWOLFES

b. MEMBARAI

c. SATATAION

d. REBMEMER

92. In one of the following letter-clusters, the number of letters skipped in between the adjacent letters is in a decreasing sequence. Identify the letter-cluster. (+1, -0.33)

a. UPGIG

b. OJEBG

c. UNSOB

d. VQMJH

---

93. Select the number from among the given options that can replace the question mark (?) in the following table. **(+1, -0.33)**

20	16	33
22	?	15
27	19	23

a. 32

b. 34

c. 36

d. 42

---

94. Select the option that is related to the third number in the same way as the second number is related to the first number. **(+1, -0.33)**

25 : 16 :: 41 : ?

a. 32

b. 31

c. 30

d. 51

---

95. Select the number from among the given options that can replace the question mark (?) in the following series. **(+1, -0.33)**

2, 6, 12, 20, ?, ?

a. 30, 42

b. 27, 36

c. 25, 30

d. 32, 48

---

96. Select the number from among the given options that can replace the question mark (?) in the following series. **(+1, -0.33)**

8, 27, 64, 125, 216, ?

a. 353

b. 337

c. 343

d. 341

---

97. Pick the odd one out. **(+1, -0.33)**

a. LEOPARD

b. COW

c. DEER

d. TIGER

---

98. Which of the following diagrams best represents the relationship between **(+1, -0.33)**

Man, Father and Brother?

a. 

b. 

c. 

d. 

---

99. Select the option in which the words share the same relationship as that shared by the given pair of words. **(+1, -0.33)**

Cat : Mew :: ? : ?

a. Duck : Quack

b. Jackal : Hoot

c. Bull : Crow

d. Owl : Hiss

---

100. Select the number from among the given options that can replace the **(+1, -0.33)**

question mark (?) in the following table.

90	80	120
5	4	6
7	6	10
25	?	30

a. 23

b. 55

c. 26

d. 25

Answers

1. **Answer: a**

Explanation:

Given:

No of days taken by Harish and Bimal = 20

Formula used:

No of days taken = Work/Efficiency

Calculation:

Let the total work be = 1

One day work done by Harish and Bimal = 1/20

Work done by Harish and Bimal in 15 days = 1/20 × 15 = 3/4

⇒ Remaining work = 1 - 3/4 = 1/4

Harish did remaining work in 10 days alone.

⇒ One day work done by Harish = 1/4 ÷ 10 = 1/40

∴ Time taken by Harish to do the entire task alone = 1 ÷ 1/40 = 40 days

⭐ **Shortcut Trick**

Fraction of work done by Harish & Bimal in 15 days = 15/20 = 3/4

The remaining 1/4th (25%) of work was done by Harish in 10 days.

∴ The 100% work would be done by Harish in (10 × 4) 40 days.

2. **Answer: a**

Explanation:

The correct answer is **Alt + D.**

⭐ **Key Points**

- A **ledge** r is the actual account head to identify your transactions and are used in all accounting vouchers.
- **Alt + D** is the keyboard command used to delete the ledger created in tally.
  - Go to Gateway of Tally > Accounts Info. > Ledgers > Alter > Press Alt+D .
- Users can delete any ledger in Tally if the balance does not exist in that particular ledger.

⭐ **Additional Information**

- **Alt+C** is the short key to access Auto Value Calculator in the amount field during voucher entry.
- **Ctrl+C is** the short key to create Cost Center from the Ledger creation screen.
- **Ctrl+B** is the short key to create a Budget from the Ledger creation screen.
- **Ctrl+G** is the short key to create an account Group from the Ledger creation screen.

---

3. **Answer: c**

Explanation:

The correct answer is **agricultural sector.**

⭐ **Key Points**

- The First Five Year Plan in India was active between **1951 and 1956.**
- The plan was based on the **Harrod-Domar model.**
- This plan gave priority to the**agricultural sector**of the country.

- The First Five Year Plan was presented before the parliament by **Jawaharlal Nehru.**
- **Gulzarilal Nanda** was the vice-president of the First Five Year Plan.
- Economist **K N Raj** is known as the architect of this plan.
- It was quasi-successful for the government.
- The target growth rate of the First Five Year Plan was **2.1% annual gross domestic product (GDP) growth** .

⭐ Additional Information

- The second Five Year Plan gave priority to the **Industrial development** of the country.
- The fifth Five Year Plan gave priority to **agriculture, industry, and mines.**
- The eighth Five Year Plan gave priority to the **development of human resources** (Human Model).

---

4. **Answer: c**

Explanation:

Given:

$\sqrt{3}\, n = 729$

Formulas used:

$(x^a)^b = x^{ab}$

If $x^a = x^b$ then $a = b$

Calculation:

$\sqrt{3}\, n = 729$

$\Rightarrow \sqrt{3}\, n = (3^2)^3$

$\Rightarrow (3\,n)^{1/2} = (3\,2)\,3$

$\Rightarrow (3\,n)\,1/2 = 3^{6}$

$\Rightarrow n/2 = 6$

$\therefore$ **n = 12**

---

5. **Answer: a**

Explanation:

The correct answer is **1900.**

⭐ **Key Points**

- India first participated in the Olympic Games in**1900.**
- The **International Olympic Committee** is a governing body of the Olympics.
- The first modern Olympics were held in **1896 in Athens, Greece.**
- Norman Pritchard represented India at the 1900 Olympics, making it the nation's first Olympic appearance. India sent its first contingent at the 1920 Olympics.
- India first sent a team to the Summer Olympic Games in **1920.**
- India won its first gold medal in Hockey at Amsterdam Olympics **1928** and until 1956 Indian men's Hockey team remained unbeaten in Olympics.
- India's last gold medal in Hockey was in the year **1980 Moscow Olympics.**
- In the 1952 Summer Olympics wrestler **K.D. Jadhav** won the first individual medal for independent India.
- **Milkha Singh** is the first Indian athlete to reach the Olympic finals in Athletics.

---

6. **Answer: a**

Explanation:

The correct answer is **Odisha.**

⭐ Key Points

- **Nabakalebara** is a festival celebrated in **Odisha** state.
- It is a symbolic recreation of the wooden forms of three Hindu deities at **Jagannath Temple, Puri.**
- Nabakalebara festival was first observed in **1575 A.D.**
- It was first organised by Yaduvanshi Bhoi King **Ramachandra Deva.**
- The meaning of 'Naba' is 'new' and 'Kalebara' is 'body'.
- Nabakalebara celebrating in 8 years or 16 years or 19 years depending on the auspicious day.
- In the 20th century, the Nabakalebara function was celebrated in the Temple in 1912, 1931, 1950, 1969, 1977 and 1996.
- The last Nabakalebara festival was celebrated in **2015.**

⭐ Additional Information

- Bihu is the most important festival of **Assam.**
- Saga Dawa is the most important festival of **Sikkim.**
- Jamai Shashti is the most important festival of **West Bengal.**

---

7. Answer: a

Explanation:

The correct answer is **Hydrostatics.**

⭐ Key Points

- **Hydrostatics** is the branch of physics that deals with the properties of fluids at rest.
- It particularly deals with the pressure in a fluid or exerted by a fluid (gas or liquid) on an immersed body.
- It also deals with **Archimedes' principle** and the equilibrium of floating bodies.
- Liquids and gases are sometimes grouped together as fluids.

- The hydrostatic pressure for incompressible fluids that are not subject to gravity is calculated according to Pascal's law.

⭐ Additional Information

- **Astrophysics** is a branch of science that deals with the laws of physics and chemistry to explain the birth, life and death of stars, planets, galaxies, nebulae and other objects in the universe.
- **Thermodynamics** is the branch of science that deals with the relationship between heat, work, temperature, and energy.
- **Optics** is a branch of science that deals with the determination of behaviour and the properties of light.

---

8. **Answer: a**

Explanation:

Given:

HCF of two numbers = 6

LCM of two numbers = 84

Formula used:

Product of two numbers = HCF × LCM

Calculation:

First No × Second No = 6 × 84

⇒ 42 × Second no = 6 × 84

⇒ Second No = (6 × 84)/42 = 12

∴ The second No = 12

---

9. **Answer: a**

Explanation:

The correct answer is **1951.**

⭐ **Key Points**

- The First Amendment to the constitution of India was made in **1951.**
- The first Amendment added the **ninth schedule** to the Indian constitution.
- It restricted the **freedom of speech and expression.**
- It was introduced to remove certain practical difficulties created by the court's decision in several cases such as Kameshwar Singh Case, Romesh Thapar Case, etc.
- The First Amendment protects us against government limits on our freedom of expression, but it doesn't prevent a private employer from setting its own rules.
- It prevents the government from requiring you to say something you don't want to or keeping you from hearing or reading the words of others.
- It inserted **articles 31A and 31B** into the Indian constitution.

---

10. **Answer: c**

Explanation:

The correct answer is **7.35 - 7.45.**

⭐ **Key Points**

- The pH range of a human body is **7.35 - 7.45.**
- pH means the **potential of Hydrogen.**
- The pH scale is the scale used to express the acidity or alkalinity of a substance based on the concentration of hydrogen ions in its solution.
- pH scale was discovered by Soren Sorensen.
- The range of pH scale 0 to 14.
    - If pH < 7 then solution is acidic.

    - If pH > 7 then solution is basic.
    - If pH = 7 then solution is neutral
- The strength of acids and bases depends on the number of H+ ions and OH- ions produced, respectively.
- When the pH of rainwater is less than 5.6, it is called **acid rain.**
- The pH value of the **Milk of Magnesia** is 10.5.

---

11. Answer: c

Explanation:

The correct answer is **1924.**

⭐ **Key Points**

- Hindustan Republican Association was a revolutionary organization formed in **1924.**
- It was formed by **Ram Prasad Bismil and Sachindra Nath Sanyal.**
- The main leaders of the Hindustan Republican Association are Chandra Shekar Azad, Ram Prasad Bismil, Ashfaq Ullah Khan, Thakur Roshan Singh, Roshan Singh, and Rajendra Lahiri.
- The constitution for the Hindustan Republican Association was drafted in **1923 at Allahabad.**
- It was the first revolutionary movement at the national level against the British.
- **Kakori conspiracy** is associated with the Hindustan Republican Association.
    - The British captured the leaders of the Hindustan Republican Association for involvement in the Kakori Conspiracy.
    - Ram Prasad Bismil, Ashfaq Ullah Khan, Roshan Singh, and Rajendra Lahiri were hanged in 1927.
    - Chandra Shekar Azad shot himself on 27th February 1931.
- Hindustan Republican Association was later renamed as **Hindustan Socialist Republican Association.**

---

12. **Answer: b**

Explanation:

Given:

$x^2y^2 + \frac{1}{x^2y^2} = 83$

Formula used:

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

Calculation:

$x^2y^2 + 1/x^2y^2 = 83$

By subtracting 2 from both sides

$\Rightarrow x^2y^2 + 1/x^2y^2 - 2 = 83 - 2$

$\Rightarrow (xy - 1/xy)^2 = 81$

$\Rightarrow (xy - 1/xy) = \sqrt{81}$

$\therefore (xy - 1/xy) = 9$

---

13. **Answer: c**

Explanation:

The correct answer is **164.**

⭐ **Key Points**

- **World Trade Organization (WTO)** is an international organization dealing with the rules of trade between nations.
- it operates a global system of trade rules and as a forum for negotiating trade agreements.

- As of Nov 2020, WTO has **164 members** representing 98% of world trade.
- **Afghanistan** is the last country to join in WTO, joining effective 29 July 2016.
- More than 20 countries are seeking to join the WTO.
- A government has to bring its economic and trade policies in line with WTO rules and negotiate its terms of entry with the WTO membership.
- World Trade Organisation was formed on **1 January 1995.**
- The Headquarters of the WTO is located in **Geneva in Switzerland.**
- **Ngozi Okonjo-Iweala** is the current director-general of the World Trade Organisation.

---

14. Answer: c

Explanation:

The correct answer is **Tarapur.**

⭐ **Key Points**

- **Tarapur power plant** was the first commercial nuclear power station built in India.
- It is located in Tarapur, **Maharashtra.**
- It was owned and operated by the state-run **Nuclear Power Corporation of India.**
- It was constructed initially with **two boiling water reactor** (BWR) units.
- It was constructed with the help of the **United States.**
- A contract between the governments of India and the United States was signed for the construction of the Tarapur nuclear power plant on 8 May 1964.
- **France, China, and Russia** are supplied uranium fuel to the Tarapur nuclear power plant.

⭐ **Additional Information**

- Madras Atomic Power Station (MAPS) located at **Kalpakkam** is India's first fully indigenously constructed nuclear power station.
- **Kakrapar** Atomic Power Station is a nuclear power station that lies in the proximity of Surat and Tapi river in the state of Gujarat.

- **Kaiga** Generating Station is a nuclear power generating station situated at Kaiga in Karnataka.

---

15. **Answer: c**

Explanation:

The correct answer is **Bhisham Sahni.**

⭐ **Key Points**

- **Bhisham Sahni** was an Indian writer in the Hindi language.
- He is best known for his famous Hindi novel ' **Tamas** '.
  - Tamas is a novel based on the riots of the 1947 Partition of India which he witnessed at Rawalpindi.
  - Tamas won the 1975 Sahitya Akademi Award for literature.
  - Tamas was later made into a television film in 1987 by Govind Nihalani.
- Bhisham Sahni was honoured with the **Padma Bhushan** for literature in 1998.
- India Post released a commemorative postage stamp to honour Sahni in 2017.

⭐ **Important Points**

- Notable works of Bhisham Sahni are:
  - Jharokhe.
  - Kadian.
  - Basanti.
  - Kunto.

⭐ **Additional Information**

- Notable works of **Yashpal** are:
  - Jhutha Sach.
  - Meri Teri Uski Baat.
  - Pinjre ki Uran.
- Notable works of **Nagendra** are:
  - Vichaar Aur Vivechan.

- Vichaar Aur Vishleshan.
- Arastoo Ka kaavyashaastr.
- Anusandhaan Aur Aalochana.

- Notable works of **Trilochan** are:
  - Earth.
  - Gulab and Bulbul.
  - Digant.
  - Warm Days.

---

16. Answer: b

Explanation:

The correct answer is **1928.**

⭐ **Key Points**

- The British government appointed the Simon Commission to review the Government of India Act 1919 in the year **1927.**
- The Simon commission arrived in India in**1928.**
- It was formed to study constitutional reforms and make r **ecommendations to the government in India.**
- Simon commission was an all-white commission without any Indian members.
- The commission consisted of seven Englishman and sir **John Simon** was its chairman.
- It was formed on **26th November 1927.**
- Simon commission arrived in India on**3rd February 1928.**
- The **Madras session** of the congress passed a resolution to boycott the Simon Commission.
- Simon commission submitted its reports on 27th May 1930.

---

17. Answer: a

Explanation:

Given:

The ratio of number of females to males = 2 : 3

No of male employees = 90

Calculation:

Let the number of females and males be 2y and 3y

⇒ Total no of employees = 2y + 3y = 5y

3y = 90

⇒ y = 30

5y = 5 × 30 = 150

∴ Total no of employees = 150

⭐ Shortcut Trick

F : M = 2 : 3

⇒ M = 3 = 90

⇒ 5 = 90/3 × 5 = 150

∴ Total no of employees = 150

---

18. **Answer: b**

Explanation:

Given:

Area of a circle = 154 cm 2

Formula used:

Area of a circle = πr^2

Circumference of a circle = $2\pi r$

Calculation:

$\pi r\ 2 = 154$

$\Rightarrow 22/7 \times r\ 2 = 154$

$\Rightarrow r\ 2 = 154 \times 7/22 = 7^2$

$\Rightarrow r = 7$

∴ Circumference of a circle = 2 × 22/7 × 7 = 44 cm

---

19. **Answer: d**

Explanation:

The correct answer is **Cement.**

⭐ **Key Points**

- **Limestone** is a form of calcium carbonate which is used extensively for the**manufacture of cement.**
  - Cement is manufactured through a closely controlled chemical combination of calcium, silicon, aluminium, iron and other ingredients.
  - Crushed limestone is often the main raw ingredient in the manufacture of portland cement.
- $CaCO_3$is the chemical formula of Calcium carbonate.
- Limestone is a carbonate **sedimentary roc** k composed primarily of calcium carbonate (CaCO3).
- Limestone released **carbon dioxide** gas while heating.

⭐ Important Points

- Limestone is used as:
  - Building material.
  - Essential component cement industry.
  - Aggregate for the base of roads.
  - Filler in products such as toothpaste or paints.

---

20. Answer: a

Explanation:

Given:

Cost price of 20 articles = Selling price of 15 articles

Formula used:

Profit = Selling Price - Cost Price

Profit percent = Profit/CP × 100

Calculation:

CP × 20 = SP × 15

⇒ 20/15 = SP/CP

Here, CP < SP

Profit = 20 - 15 = 5

Profit percent = 5/15 × 100 = 33.33%

∴ Profit percent = 33.33%

---

21. Answer: d

Explanation:

The correct answer is **James Gosling.**

⭐ **Key Points**

- **Java** is a high-level object-oriented programming language.
- Java was developed by **James Gosling.**
- James Gosling is known as the father of Java.
- Java was formerly known as **Oak.**
- Since Oak was already a registered company the name later changed to Java.
- Java was originally developed at **Sun Microsystems** and released in 1995 as a core component of Sun Microsystems' Java platform.
- Java code can run on all platforms that support Java without the need for recompilation.
- Java is used to develop mobile apps, web apps, desktop apps, games etc.
- Java is a high level, robust and secure programming language.

⭐ **Additional Information**

- **Paul Allen** is the co-founder of Microsoft.
- **Jaap Haartsen** is best known for his role in producing the specification for Bluetooth.
- **Charles Simonyi** is best known for developing the first versions of Microsoft Office software suite.

---

22. Answer: b

Explanation:

Given:

A mango kept in a basket doubles every one minute.

The basket gets filled in 30 minutes.

Calculation:

The basket is full (1) in 30 minutes.

The Time required to fill the basket with mango is 30 minutes.

So, half the basket is filled in 29 minutes.

As in every minute, the basket gets doubled. So, in 29 minutes, it is half-filled and in the next minutes, it will be completely filled.

∴ Obviously, the basket will be half-filled (1/2) filled in 29 minutes.

⭐ Alternate Method

According to the question,

1st min = $2^1 = 2$

2nd min = $2^2 = 4$

We have observed every min double the quantity

then in 29 min = $2^{29} = 536870912$

Last 30 min = $2^{30} = 1073741824$

We have observed the 29th min is half of the 30th min quantity.

---

23. Answer: a

Explanation:

The correct answer is **Ashoka.**

⭐ Key Points

- **Sanchi Stupa** is a Buddhist complex built by **Ashok** a.
  - It is situated in the Raisen District of **Madhya Pradesh.**
  - It is considered the oldest stone structure in India.
  - It was designed by the Mauryan emperor Ashoka within the 3rd century BCE.
  - It is also the UNESCO World Heritage site.
  - Sanchi Stupa motif is a feature that can be seen in the new **Rs. 200 note.**

⭐ **Important Points**

- **Ashoka** was an Indian emperor of the Maurya Dynasty.
  - Ashoka was also known as **Devanam Priyadasi.**
  - Ashoka invaded Kalinga in 261 B.C, In **Kalinga War.**
  - Ashoka was the first king in Indian history who has left his records engraved on stones.

⭐ **Additional Information**

- **Chanakya** was a royal advisor who assisted the first Mauryan emperor Chandragupta in his rise to power.
- **Chandragupta Maurya** was the founder of the Maurya Empire in ancient India.
- **Bindusara** was the second Mauryan emperor of India and the father of its most famous ruler Ashoka.

---

24. Answer: b

Explanation:

The correct answer is **Kolkata.**

⭐ **Key Points**

- The first national flag in India is said to have been hoisted on **7th August 1906.**
- It was hoisted in the Parsee Bagan Square (Green Park) in **Kolkata.**
- The flag was composed of three horizontal strips of red, yellow and green.
- The second flag was hoisted in Paris by **Madame Cama in 1907.**

- The third flag was hoisted in **1917.**

⭐ **Important Points**

- A resolution was passed adopting a tricolour flag as our national flag in **1931.**
- The constituent assembly adopted the national flag on **22nd July 1947.**
- The shape of the National Flag of India shall be **rectangular.**
- The ratio of length to width(height) of the flag shall be **3:2.**

⭐ **Additional Information**

- India's national flag is a tricolour panel made up of three rectangular panels or sub-panels of equal widths
  - The top panel of the national flag is India saffron (Kesaria) and that of the bottom is India green.
  - The middle panel is white.
  - The centre of the white panel consists of an Ashoka Chakra in navy blue colour with 24 equally spaced spokes.

---

25. **Answer: c**

Explanation:

The correct answer is **a female reproductive part.**

⭐ **Key Points**

- Pistil is the**female reproductive part**of a flower with a stigma at its top.
- Pistil is the **ovule producing** part of a flower.
- The function of a pistil is to receive **pollen and produce seeds.**
- The ovary often supports a long style, topped by a stigma.
- The mature **ovary is a fruit** , and the mature ovule is a seed.
- Pollens are produced by the male part of a flower called the stamen.
- A flower is actually made of specialized stems and leaves.

---

26. **Answer: c**

Explanation:

The correct answer is**rich countries.**

- **According to the World Development Report, countries having per capita income of more than US$12,000 per annum as on 2016 are called rich countries**.

⭐ Key Points

- World Bank published the 2020 Atlas of the Sustainable Development Goals.
- Sustainable Development Goals seek to guide global action to address many of the world's greatest challenges such as eradicating poverty, eliminating hunger, expanding access to education, achieving gender equality, and addressing the climate crisis.

⭐ Important Points

The 17 sustainable development goals (SDGs) to transform our world:

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
  GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation, and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions

- GOAL 17: Partnerships to Achieve the Goal

---

27. **Answer: b**

Explanation:

Given:

$[(3\sqrt{2} + 2) \times (3\sqrt{2} - 2)]$ of $13 + 15$

Formula used:

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

Calculation:

$[(3\sqrt{2} + 2) \times (3\sqrt{2} - 2)]$ of $13 + 15$

$\Rightarrow [(3\sqrt{2})^2 - (2)^2] \times 13 + 15$

$\Rightarrow [18 - 4] \times 13 + 15$

$\Rightarrow 14 \times 13 + 15$

$\Rightarrow 197$

$\therefore$ The required result = 197

---

28. **Answer: c**

Explanation:

Given:

Percentage of students passed = 60%

No of failed students = 240

Calculation:

Total percentage of students = 100%

Percentage of students failed = 100% - 60% = 40%

⇒ 40% = 240

⇒ 1% = 240/40 = 6

∴ No of students passed = 60%

⇒ 60 × 6 = 360

⭐ Shortcut Trick

40% (Failed students) = 240

∴ 60% (Passed students) = 240 × 60%/40% = 360

---

29. Answer: b

Explanation:

The correct answer is **1983.**

⭐ Key Points

- **INSAT-1B** was an Indian communications satellite.
- INSAT-1B is the second satellite in the INSAT-1 series.
- It was the first operational satellite in the **Indian National Satellite System** (INSAT) series.
- It was successfully launched by Space Shuttle of the USA in**1983.**
- It was manufactured by **Ford Aerospace.**
- INSAT-1B was launched on**30 August 1983.**
- It was operational till July **1990.**

30. **Answer: d**

Explanation:

Given:

Length of carpet = $20\frac{5}{2}$ m = 45/2 m

Length of small pieces of carpet = $4\frac{1}{2}$ m = 9/2 m

Formula used:

No of small pieces of carpet = Length of carpet/Length of 1 small piece of carpet

Calculation:

∴ No of small pieces of carpet that can be cut out = 45/2 ÷ 9/2

⇒ 45/2 × 2/9

⇒ 5

31. **Answer: b**

Explanation:

Given:

Statement 1: Banana price is more than that of lychee.

Banana > Lychee

Statement 2: Banana price is less than that of kiwi.

Kiwi > Banana

Statement 3. Kiwi Price is more than that of banana and lychee.

Kiwi > Banana and Kiwi > Lychee

From 1 and 2:

Kiwi > Banana > Lychee

∵ Kiwi Price is more than that of banana and lychee is true.

∴ The third statement is true.

Hence, the correct answer is **"True".**

---

32. Answer: d

Explanation:

The correct answer is Operation Shakti.

⭐ Key Points

- The **Pokhran nuclear test 2** was a series of five nuclear bomb test explosions conducted by India at the Indian Army.
- It was conducted at the Pokhran test range in **Rajasthan.**
- Pokhran Nuclear Test 2 was conducted in **May 1998.**
- Pokhran 2 was code-named **Operation Shakti.**
- It was the second instance of nuclear testing conducted by India.
- The first test, code-named **Smiling Buddha** was conducted in May 1974.
- The five nuclear bombs were designated **Shakti-I through to Shakti-V.**

---

33. Answer: a

Explanation:

The correct answer is **Binary.**

⭐ **Key Points**

- Data stored in a compute in the form of**binary**.
- A binary number is a number expressed only two symbols: typically **"0" (zero) and "1" (one).**
- Each digit is referred to as a bit or binary digit.
- **Bit** is the smallest unit of memory.
- Bit is the short form of Binary digit.
- Half byte is known as a **nibble.**

⭐ **Additional Information**

- The memory of a computer is usually measured in bytes.
- Tera-represents the fourth power of 1000.
- A Terabyte is more precisely defined as 1,024 gigabytes.
- 1 TB equals 1,024 gigabytes (GB).
- The storage capacity of a hard disc is measured in Megabytes, Gigabytes, and Terabytes.

---

34. Answer: b

Explanation:

Given:

The ratio between two numbers = 3 : 5

LCM of the two numbers = 120

Formula used:

Product of two numbers = LCM × HCF

Calculation:

Let the HCF of two numbers = y

Let the two numbers be 3y and 5y.

$3y \times 5y = 120 \times y$

$\Rightarrow 15y^2 = 120y$

$\Rightarrow 15y = 120$

$\Rightarrow y = 8$

$3y = 3 \times 8 = 24$

$5y = 5 \times 8 = 40$

∴ The two numbers are 24, 40.

---

35. Answer: a

Explanation:

The correct answer is **2016.**

⭐ **Key Points**

- NITI Aayog started the Women Transforming India Awards in**2016**.
- The contest was launched to mark the celebration of **International Women's Day** , 2016.
- It is an annual contest supported by the **United Nations in India.**
- It was launched in partnership with **MyGov and the United Nations in India.**
- Women Transforming India was launched with the aim to celebrate the indomitable spirit of women working tirelessly to empower communities and transform India.

⭐ **Additional Information**

- The NITI Aayog is a policy think tank of the Government of India.

- It was formed on **1st January 2015.**
- Its headquarters is in **New Delhi.**
- It was established to replace the **Planning Commission** which followed a top-down model.
- The **prime minister** of India is the chairman of the NITI Aayog.
- The CEO and Vice-Chairperson of the NITI Aayog are appointed by the Prime Minister.

---

36. Answer: b

Explanation:

The correct answer is **10.**

⭐ **Key Points**

- The United Nations Security Council is one of the principal organs of the United Nations.
- United Nations Security Council has **15 Members** , and each Member has one vote.
- Among these 15 members, 5 are permanent members and **10 are non-permanent members.**
- The General Assembly elects non-permanent members for **two-year terms**
- More than 50 United Nations Member States have never been members of the Security Council.

⭐ **Important Points**

- Non-permanent members:

1. Albania (2023)
2. Brazil (2023)
3. Gabon (2023)
4. Ghana (2023)
5. India (2022)

6. Ireland (2022)
7. Kenya (2022)
8. Mexico (2022)
9. Norway (2022)
10. United Arab Emirates (2023)

- Permanent members:
    1. China.
    2. France.
    3. Russia.
    4. The United Kingdom.
    5. The United States.

⭐ Additional Information

- The Security Council held its first session on **17 January 1946** at Church House, Westminster, London.
- Since its first meeting, the Security Council has taken permanent residence at the United Nations Headquarters in New York City.
- Originally, there were **11 members** of the Security Council: 5 permanent and 6 non-permanent members.
- The General Assembly recommended an amendment to the Charter to increase the membership of the Security Council In **1963.**

---

37. Answer: d

Explanation:

Given:

Difference between two numbers = 1540

Concept:

Dividend = Divisor × Quotient + Remainder

Calculation:

Let the smaller number be = a

⇒ Larger number = a + 1540

As per the question:

a + 1540 = a × 6 + 5

⇒ 5a = 1535

⇒ a = 307

∴ The smaller number = 307

⭐ Alternate Method

By Hit & Trial Method

Option 1: 580 × 6 + 5 ≠ 580 + 1540

Option 2: 620 × 6 + 5 ≠ 620 + 1540

Option 3: 735 × 6 + 5 ≠ 735 + 1540

Option 4: 307 × 6 + 5 = 307 + 1540

---

38. Answer: c

Explanation:

Given:

$\frac{\sin 23^\circ}{\cos 67^\circ} + \frac{\cos 71^\circ}{\sin 19^\circ}$

Formula used:

sin (90°- x) = cos x

cos (90°- x) = sin x

Calculation:

$\frac{\sin 23^\circ}{\cos 67^\circ} + \frac{\cos 71^\circ}{\sin 19^\circ}$

⇒ sin(90° - 67°)/cos 67° + cos (90° - 19°)/sin 19°

⇒ cos 67°/ cos 67° + sin 19°/sin 19°

⇒ 1 + 1 = 2

∴ The required result = 2

---

39. Answer: b

Explanation:

The correct answer is **ductility.**

⭐ **Key Points**

- **Ductility** is the ability of a material to be drawn or plastically deformed without fracture.
- It is the ability of metals to be **drawn into thin wires.**
- **Gold** is the most ductile metal.
- Ductility is a **permanent strain** that accompanied fracture in a tension test.
- The ductility of the metals decreases as the **temperature increases.**

⭐ **Additional Information**

- The property of metals by which they can be beaten into thin sheets is called **malleability.**
- **Solubility** is the maximum amount of a substance that will dissolve in a given amount of solvent at a specified temperature.
- **Reactivity** is the ability of matter to combine chemically with other substances.

---

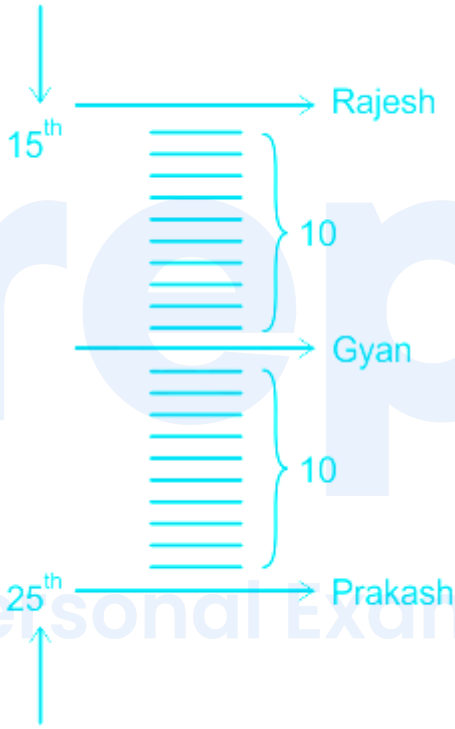
40. **Answer: a**

Explanation:

1. Rajesh ranks 15 th from the top and Prakash ranks 25 th from the bottom.

2. Gyan is on the 10 th place ahead of Prakash.

3. If there are 10 students, exactly in between Rajesh and Gyan.



Total number of students in the class = 15 + 10 + 10 + 25 = 60

Hence, ' **60** ' is the correct answer.

---

41. **Answer: d**

Explanation:

The pattern followed here is:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

According to the alphabetical positions of the letters,

1. MNKL → M + 1 = N; N − 3 = K; K + 1 = L

2. IJGH → I + 1 = J; J − 3 = G; G + 1 = H

3. EFCD → E + 1 = F; F − 3 = C; C + 1 = D

4. OPQR → O + 1 = P; P + 1 = Q; Q + 1 = R

Hence, ' **OPQR** ' is the odd one out.

---

42. Answer: a

Explanation:

The correct answer is **painter.**

⭐ **Key Points**

- **Raja Ravi Varma** was an Indian**painting artist**.
  - was closely related to the **royal family of Travancore** (present-day Kerala).
  - He was honoured with the **Kaiser-i-Hind gold medal** in 1904.
  - The title **Raja** was conferred as a personal title by the Viceroy and Governor-General of India during the British period.
  - He has the ability to reconcile Western aesthetics with Indian iconography.
- Notable works of Raja Ravi Varma are:

- **Shakuntala.**
- Nair Lady Adorning Her Hair.
- There Comes Papa.
- Galaxy of Musicians.

---

43. **Answer: a**

Explanation:

Given:

Principal = Rs.5000

Rate of interest = 10% per annum

Time = 3 years

Formulas used:

Compound Interest = Amount - Principal

⇒ Amount = $P (1 + r/100)^{t}$

Simple Interest = Principal × Rate/100 × Time

Calculation:

Compound Interest = $5000(1 + 10/100)^{3} - 5000$

⇒ $5000(110/100)^{3} - 5000$

⇒ 5000[11/10 × 11/0 × 11/10 - 1]

⇒ 5000[(1331 - 1000)/1000]

⇒ 5 × 331 = Rs.1655

Simple Interest = 5000 × 10/100 × 3

⇒ Rs.1500

Difference between compound interest & simple interest = Rs.1655 - Rs.1500

⇒ Rs.155

∴ The required result = Rs.155

⭐ **Alternate Method**

Calculation of effective rate for compound interest:
Effective rate = $x + x + x^2/100$

Interest rate for 1 year = 10%

Effective rate for 2 years = 10 + 10 + (10 × 10)/100 = 10 + 10 + 1

⇒ 21%

Effective rate for 3 years = 21 + 10 + (21 × 10)/100

⇒ 31 + 2.1 = 33.1%

or

Rate = a% p.a.
Effective rate for 3 years

$3a \quad + \quad 3a^2 \quad + \quad a^3$

$3 \times 10 \qquad 3(10)^2 \qquad (10)^3$

$30 + 3 \qquad 3 \times 100 + 10 \qquad 1000$

3 3 • 1 0 0 0

3 3 • 1000 ⇒ 33.1%

Calculation of effective rate of interest for simple interest:

At 10% per annum for 3 years

Rate = 10% × 3 = 30%

Difference between the CI and SI rate = 33.1% - 30% = 3.1%

∴ Difference between the CI and SI for 3 years = 5000 × 3.1/100

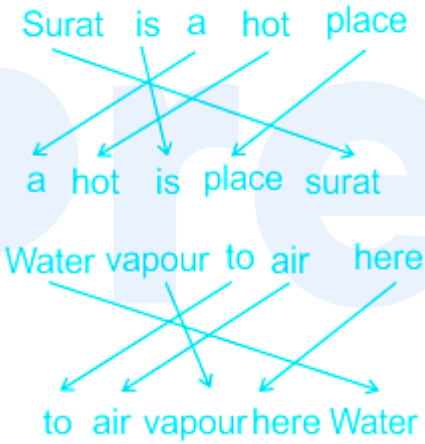
⇒ Rs.155

---

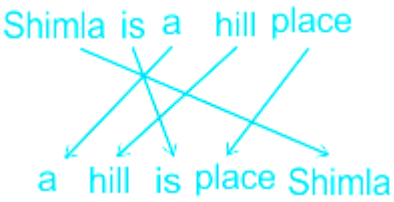
44. Answer: b

Explanation:

The logic is:



Similarly,



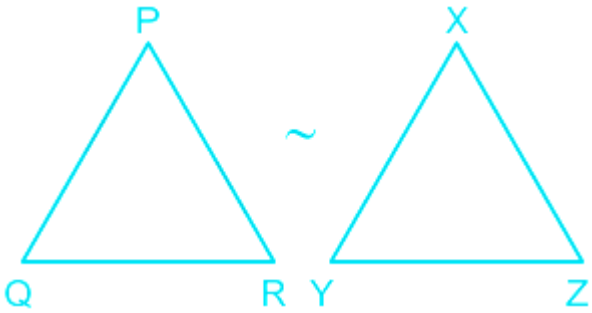
Hence, ' **A hill is place shimla** ' is the correct answer.

---

45. Answer: a

Explanation:

Given:



Perimeters of two similar triangles ΔPQR and ΔXYZ are 48 cm and 24 cm respectively.

XY = 12 cm

Concept:

When two triangles are similar to each other, the ratio of their corresponding sides is equal to the ratio of their respective other sides, medians, and perimeters.

⇒ Perimeter of ΔPQR/Perimeter of ΔXYZ = PQ/XY

Calculation:

48/24 = PQ/12

⇒ PQ/12 = 2

⇒ PQ = 24 m

∴ The length of side PQ = 24 cm

---

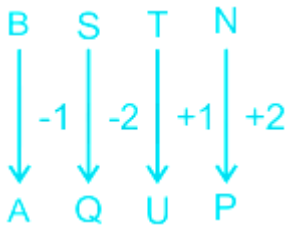
46. Answer: a

Explanation:

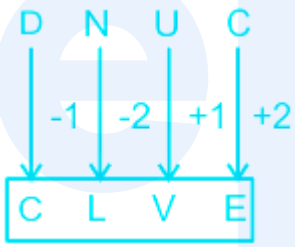
The pattern followed here is:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

According to the alphabetical positions of the letters,



Similarly,



Hence, ' **CLVE** ' is the correct answer.

---

47. Answer: b

Explanation:

Given:

Speed of train A = 80 km/h

Speed of train B = 70 km/h

Time taken in crossing = 30 seconds

Length of train A = 300 m

Formulas used:

Relative speed of trains (opposite direction) = $S_A + S_B$

Distance covered while crossing = Length (Train A + Train B)

Time = Distance/Relative Speed

Calculation:

Let the length of train B = b m

30 seconds = (300 + b)/(70 + 80) km/h

⇒ 30 seconds = (300 + b)/150 km/h

⇒ 30 secs × 150 km/h × 1000m/3600 secs = 300 + b

⇒ 1250 = 300 + b

⇒ b = 1250 - 300 = 950

∴ The length of train B = 950 m

---

48. **Answer: a**

Explanation:

Given:

The capacity of a cylindrical tank = 2376 m 3

Radius = 21 m

Formula used:

Volume of cylinder = $\pi r^2 h$

Calculation:

$\pi r\ 2h = 2376\ m\ 3$

$\Rightarrow 22/7 \times 21 \times 21 \times h = 2376$

$h = 1.714$

∴ The depth of the tank = 1.71 m

---

49. **Answer: a**

Explanation:

The correct answer is **Kolkata.**

⭐ **Key Points**

- The first high court of India was established in **Kolkata**.
- It was formerly called the **High Court of Judicature at Fort William.**
- It was issued under the Indian **High Courts Act 1861.**
- It was formally opened on **1 July 1862.**
- **Sir Barnes Peacock** as its first Chief Justice of the Calcutta High Court.
- **Justice Sumboo Nath Pandit** was the first Indian to assume office as a Judge of the Calcutta High Court.

⭐ **Additional Information**

- The Chief Justice of the High Court is appointed by the **President.**
- Every high court shall consist of a Chief Justice and such other Judges as the President may decide.
- Judges of the High Courts are removed by the President on the same grounds and manner as the judges of the Supreme Court are removed.

- The oath and affirmation to the judges of the High Court are administered by the Governor of the State.
- A judge of the High Court can resign his office by writing to the President.

---

50. Answer: d

Explanation:

The correct answer is **October 2005.**

⭐ **Key Points**

- The Right to Information is a tool, which every person in India can use to find out information that can make their lives better.
- India initiated the enactment of the Right to Information Act in the year **2005.**
- Right to Information Act 2005 mandates timely response to citizen requests for Government information.
- The Act was passed by the Indian Parliament on **12th May 2005.**
- The Act received Presidential assent on **15th June 2005.**
- The RTI Act came into force on**12th October 2005.**

⭐ **Important Points**

- **Mazdoor Kisan Shakti Sangathan** is the organization that was instrumental in the passage of the RTI Act.
- Central and State Information commissions consist of a chief information commissioner and not more than 10 information commissioners.
- The first RTI application in India was submitted by **Shahid Raza Burney.**
- There are only **2 schedules** in RTI Act 2005.
- The modified form of the RTI Act was passed in **February 2011.**
- The main object of the Right to Information Act is to empower the citizens, promote transparency and accountability in the working of the Government, contain corruption, and make our democracy work for the people in a real sense.
- **Sweden** is the first country to pass the Right to Information Act.

51. Answer: c

Explanation:

The correct answer is **2003.**

⭐ **Key Points**

- The Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) is a national government scheme that attempts to address inequities in the availability of affordable healthcare facilities across the country.
- The scheme was first launched in the year **2003.**
- The scheme was approved in March **2006.**
- The first phase in the PMSSY consists of two components:

1. Setting up of **six institutions in the line of AIIMS** .
    - Bihar (Patna).
    - Chattisgarh (Raipur).
    - Madhya Pradesh (Bhopal).
    - Orissa (Bhubaneswar).
    - Rajasthan (Jodhpur).
    - Uttaranchal (Rishikesh)
2. Upgradation of **13 existing Government medical college institutions.**

- **Ministry of Health and Family Welfare** is the nodal agency of Pradhan Mantri Swasthya Suraksha Yojana.

52. Answer: d

Explanation:

The correct answer is **1556 AD.**

⭐ Key Points

- **Akbar** was the third Mughal emperor.
- He became the emperor of the Mughal dynasty in **1556 AD.**
- He ruled the Indian subcontinent between 1556 and 1605.
- **Din-i-Ilahi** was a religion introduced by Akbar in 1582.
- During Akbar's rule, the **second battle of Panipat** took place in 1556.
  - It was fought between **Samrat Hem Chandra Vikramaditya** (Hemu) and Akbar's army.
  - Under the leadership of Bairam Khan, the Mughals won the fight decisively.
  - The conflict put an end to the **Mughal-Afghan dispute for Delhi's monarchy.**
  - In 1560, Akbar ended Bairam Khan's regency and, at the age of 18, took over the throne of India.

⭐ Additional Information

- The historical structures built during the reign of Akbar are:
  - Agra Fort.
  - Lahore Fort.
  - Fathepur Sikri.
  - Allahabad Fort.
  - Buland Darwaza.

---

53. Answer: c

Explanation:

The correct answer is **Malala Yousafzai.**

⭐ Key Points

- **Malala Yousafzai** is a Pakistani activist for female education.
- In 2014, she was awarded the **Nobel Peace Prize.**
- She is the **youngest Nobel Prize laureate.**

- She was honored with the Nobel Prize at the **age of 17.**
- **Kailash Satyarthi** and Malala Yousafzai shared the Nobel Peace Prize in 2014.

⭐ **Important Points**

- Notable work of Malala Yousafzai:
  - **We are displaced: True Stories of Refugee Lives.**
  - Malala's Magic Pencil.
  - My Story of Standing Up for Girls' Rights.
- Pakistan's **first National Youth Peace Prize** was given to her.
- **'Gul Makai'** is a Malala Yousafzai biographical drama.
- Between 1901 and 2021, 947 laureates and 28 organizations received the Nobel Prize.

⭐ **Additional Information**

- **Lawrence Bragg**was the second youngest Nobel Laureate.
  - He was honored with the Nobel Prize for Physics in 1915 at the age of 25.
- **Nadia Murad** is the third youngest Nobel Laureate.
  - She was honored with the Nobel Prize for Peace in 2018 at the age of 25.
- **Tsung-Dao Lee** is the fifth youngest Nobel Laureate.
  - He was honored with the Nobel Prize for Physics in 1957 at the age of 31.

---

54. Answer: b

Explanation:

The correct answer is **Brahmagiri hills.**

⭐ **Key Points**

- The **Godavari** is India's largest peninsular river.
- It is the second-longest river in India after the Ganga.
- It rises from **Maharashtra's Thriambak hill.**
- Its length is about **1500 km.**
- Due to its length and the area it covers, it is also known as the ' **Dakshin Ganga** '.

- Flows through the states of **Maharashtra, Chhattisgarh, Telangana, and Andhra Pradesh.**

⭐ Important Points

- Purna, Pranhita, Indravati, and Sabari rivers are major left-bank tributaries.
- Pravara, Manjira, and Manair rivers are major right bank tributaries.
- The **Pranhita river** is Godavari's greatest tributary.
- Important dams built across the Godavari river:
  - Jayakwadi dam.
  - Gangapur Dam.
  - Babli project.
  - Sriram Sagar Dam.
- The **Coringa mangrove forest** is situated in the Godavari delta.
- The Godavari drains into the **Bay of Bengal.**

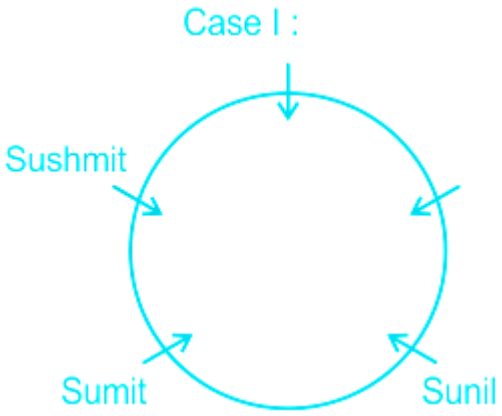
---

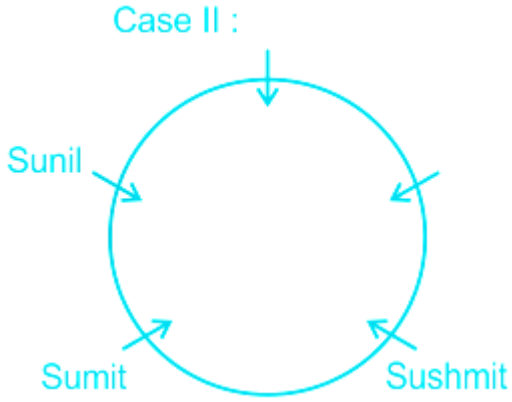
55. **Answer: d**

Explanation:

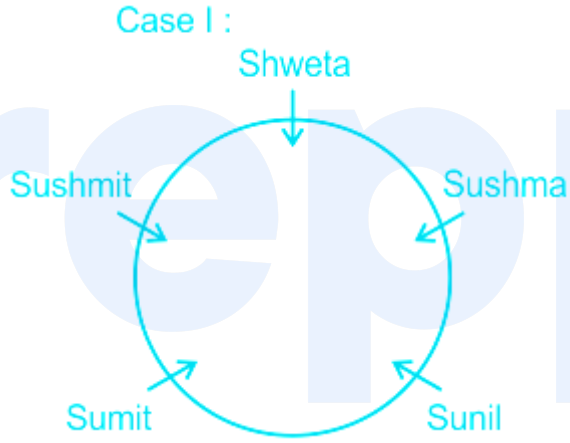
Five students are sitting in a circle facing the center.

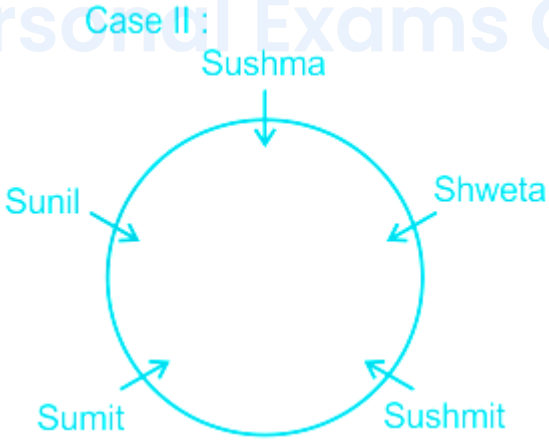
1. Sumit is between Sunil and Sushmit.





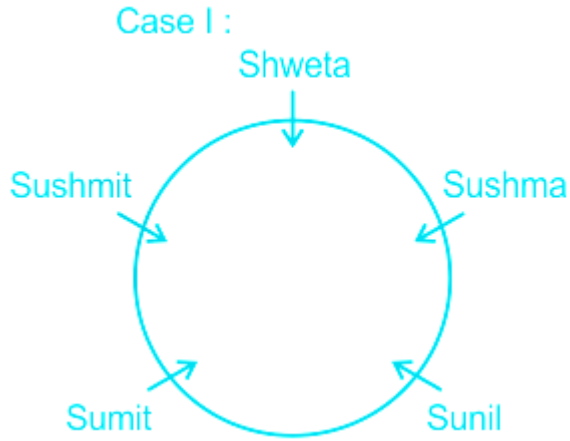
2. Sushma is on the left side of Shweta, Sushmit and Sushma are not sitting next to each other.





Here case II will be eliminated.

Final arrangement:



Clearly, Sunil is sitting next to Sumit on his right side.

Hence, ' **Sunil** ' is the correct answer.

---

56. **Answer: b**

Explanation:

Given:

Sum of two numbers = 25

Difference of two numbers = 15

Calculation:

Let the two no be = a & b

a + b = 25

a - b = 15

(1) + (2)

⇒ 2a = 40

⇒ a = 20

By putting the value of a in equation (1)

⇒ b = 5

∴ a : b = 20 : 5 = 4 : 1

---

57. Answer: a

Explanation:

The correct answer is **1121.**

⭐ **Key Points**

- A World Heritage Site is an area with legal protection by an international convention administered by the United Nations Educational, Scientific, and Cultural Organization (UNESCO).
- The sites are designated as having " **outstanding universal value** " under the Convention Concerning the Protection of the World Cultural and Natural Heritage.
- As of June 2020, there are **1121 world heritage sites** that have been protected by UNESCO.
- UNESCO classified these sites as **cultural, natural, and mixed.**
- UNESCO published its first list of protected places in **1978.**
- There were just **12 World Heritage Sites** while releasing UNESCO's first list of protected places.
- The first World Heritage Site on the list is the **Galápagos Islands.**

⭐ **Mistake Points**

- As of July 2021, the UNESCO world heritage list currently contains **1154** different properties.

---

58. Answer: c

Explanation:

Given :- a_bc_a_bcda_ccd_bcd_

By checking options and substituting accordingly.

1. a, a, b, c, c, d → a **a** b c **a**- a **b** b c d - a **c** c c d - **c** b c d **d**

2. a, c, b, d, b, d → a **a** b c **c**- a **b** b c d - a **d** c c d - **b** b c d **d**

3. a, d, b, b, a, d → a **a** b c **d**- a **b** b c d - a **b** c c d - **a** b c d **d**

4. a, d, b, b, d, d → a **a** b c **d**- a **b** b c d - a **b** c c d - **d** b c d **d**

 Option (3) gives a cyclic pattern of **aa** bcd - a **bb** cd - ab **cc** d - abc **dd**.

Hence, ' **a, d, b, b, a, d** ' is the correct answer.

---

59. **Answer: c**

Explanation:

Given:

$x + \frac{1}{x} = 9$

Formula used:

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

Calculation:

$x + \frac{1}{x} = 9$

By squaring both sides;

$\Rightarrow x^2 + 1/x^2 + 2 \times x \times 1/x = 81$

$\Rightarrow x\ 2 + 1/x\ 2 = 81 - 2 = 79$

∴ The required result = 79

---

60. **Answer: c**

Explanation:

Assumptions:

I. Most of causes of death among wealthy persons are due to diabetes. → The assumption is not implicit in the statement.

The statement only suggests that a wealthy person has a higher chance of having diabetes but it does not implies that most of causes of death among wealthy persons are due to diabetes.

II. Poor persons do not have diabetes. → The assumption is not implicit in the statement.

The statement mentions nothing about poor people.

Hence, **neither assumption (I) nor (II) is implicit** .

Additional Information

1. Read the statement with an approach that the assumptions would be true with regard to the statement.
2. Do not go too logical with the statements. Analyze the given information and the assumption must only be made based on the information in the statement. Do not over-complicate it.
3. Common assumptions can always be followed but other than that do not align the statement with General Knowledge or other facts
4. Use the elimination method if you are unable to apprehend the answer. Read the statement and then the assumptions given in the options, you shall notice that a few of them will most definitely not follow. Eliminate them and then choosing from lesser options may prove to be more convenient

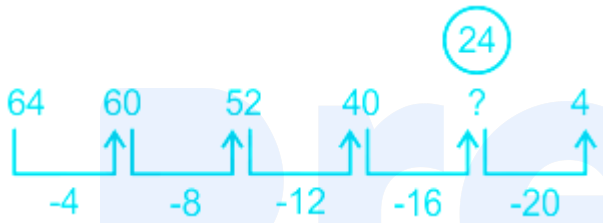
5. One thing to make a note of is that the assumption is something that the author believes to be true so while choosing the correct option, keep this thought in mind as well. If any option contradicts the statement, then that assumption will not follow.

---

61. Answer: b

Explanation:

The logic followed here is:



Hence, the correct answer is **"24".**

---

62. Answer: c

Explanation:

Given:

$\frac{(0.27)^2-(0.13)^2}{0.27+0.13}$

Formula used:

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

Calculation:

$\frac{(0.27)^2-(0.13)^2}{0.27+0.13}$

⇒ (0.27 + 0.13)(0.27 - 0.13)/(0.27 + 0.13)

⇒ (0.27 - 0.13)

⇒ 0.14

∴ The required result = 0.14

---

63. Answer: c

Explanation:

The correct answer is **6.**

⭐ **Important Points**

- The **Goldman Environmental Prize** is the world's foremost award honoring grassroots environmental activists.
- It is given for the **six inhabited continental regions** : Africa, Asia, Europe, Islands & Island Nations, North America, and South & Central America.
- An international panel chooses the winners from submissions submitted anonymously by a global community of environmental groups and individuals.
- It was created in **1989** by civic leaders and philanthropists Richard N. Goldman and Rhoda H. Goldman.

⭐ **Key Points**

- **Six environmental activists** received the prestigious Goldman Environmental Prize 2019.
- The winners of the Goldman Environmental Prize 2019 are:
    1. Linda Garcia of US.
    2. Ana Colovic Lesoska of North Macedonia.
    3. Bayarjargal Agvaantseren of Mongolia.
    4. Alfred Brownell of Liberi.
    5. Jacqueline Evans of the Cook Islands.
    6. Alberto Curamil of Chile.

64. **Answer: d**

Explanation:

The correct answer is **Madhya Pradesh.**

⭐ Key Points

- The **Gandhi Sagar Dam** is a dam located in the Mandsaur districts of **Madhya Pradesh.**
- It is built on the **Chambal River.**
- Gandhi Sagar Dam is a **masonry gravity dam.**
- The foundation stone was laid by Prime Minister of India Pandit **Jawaharlal Nehru** on 7 March 1954.
- The reservoir created by the Gandhi Sagar Dam is the third-largest in India after the Indiranagar Reservoir and Hirakud Reservoir.
- The electricity from the dam's powerhouse is supplied to such far-off places in Madhya Pradesh and in Rajasthan state.

⭐ Important Points

- Major dams in **Madhya Pradesh** are:
  - Barna Dam .
  - Bargi Dam .
  - Bansagar Dam .
  - Omkareshwar Dam.
  - Kolar Dam.

⭐ Additional Information

- Major dams in **Maharashtra** are:
  - Mulshi Dam .
  - Koyna Dam .
  - Jayakwadi Dam .
  - Panshet Dam .

    - Kolkewadi Dam .
    - Vaitarna Dam
- Major dams in **Himachal Pradesh** are:
    - Nathpa Jhakri Dam .
    - Chamera Dam .
    - Pong Dam.
    - Bhakra Nangal Dam.
    - Pandoh Dam.
- Major dams in **Rajasthan** are:
    - Jawahar Sagar Dam .
    - Kota Barrage .
    - Rana Pratap Sagar dam .
    - Chavli Dam.

---

65. Answer: a

Explanation:

The correct answer is **1859.**

⭐ **Key Points**

- The Revolt of 1857 is a major landmark in the history of India against British rule in India.
- The Revolt of 1857 was started on **10th May 1857 at Meerut.**
- The **introduction of greased cartridges** was the immediate cause of the 1857 revolt.
- Heavy taxation was one of the major reasons for the outbreak of the 1857 revolt.
- The peasants had to pay heavy taxes in the form of Land tax during 1857.

⭐ **Additional Information**

- **Mangal Pandey** was the first martyr of the 1857 revolt.
- **Lord Canning** was the governor-general of India during the 1857 revolt.

- The English called the revolt the ' **devil's wind** '.
- Finally, the revolt of 1857 was suppressed by the British in **1859.**
- The control of the Indian administration was passed on to the British crown by the **Government of India Act 1858.**
- All Indian prisoners except those who committed serious offences were released.

---

66. **Answer: b**

Explanation:

Given:

$\tan\theta + \cot\theta = 5$

Formula used:

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

Calculation:

$\tan\theta + \cot\theta = 5$

Squaring both sides

$\Rightarrow \tan^2\theta + \cot 2\theta + 2\tan\theta\cot\theta = 25$

$\Rightarrow \tan 2\theta + \cot 2\theta = 25 - 2$

$\Rightarrow \tan 2\theta + \cot 2\theta = 23$

$\tan 2\ \theta + \cot 2\ \theta + 2\tan 2\ 60°$

$\Rightarrow 23 + 2 \times (\sqrt{3})^2$

$\Rightarrow 23 + 2 \times 3$

$\Rightarrow 29$

∴ The required result = 29

---

67. **Answer: d**

Explanation:

Given:

No of students in a class = 48

Fraction of students present = 3/8

Calculation:

Fraction of students absent = 1 - 3/8 = 5/8

∴ No of absentees on the same day = 48 × 5/8

⇒ 30

---

68. **Answer: a**

Explanation:

Given:

15 × 14 - 30 + (3 2 + 17)

Calculation:

⇒ 15 × 14 - 30 + (3 2 + 17)

⇒ 210 - 30 + (9 + 17)

⇒ 210 - 30 + 26

⇒ 206

∴ The required result = 206

---

69. **Answer: a**

Explanation:

The correct answer is **Uniform Resource Locator.**

⭐ **Key Points**

- **Uniform Resource Locator** is an address used to identify the name of a web resource.
- Uniform Resource Locator is a web address that indicated a webpage.
- URL is also known as 'internet address' or ' **web address** '.
- Every valid URL refers to a **distinct resource.**

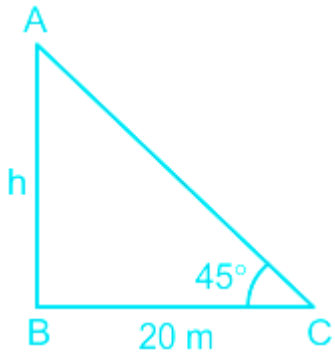
⭐ **Additional Information**

- Part of a URL that indicated a particular webpage is known as a **domain name.**
- Every domain name has a suffix that indicates the top-level domain it belongs to.
- Uniform Resource Locators are also used for file transfer (ftp), email, database access (JDBC), and many other applications.
- The URL allows a computer to find and open a web page on another computer connected to the Internet.

---

70. **Answer: a**

Explanation:



Given:

Angle of elevation = 45°

Distance of the bottom of the pole from a point = 20m

Calculation:

In triangle ABC, AB/BC = tan45°

⇒ h/20 = 1

∴ The height of the pole = h = 20 m

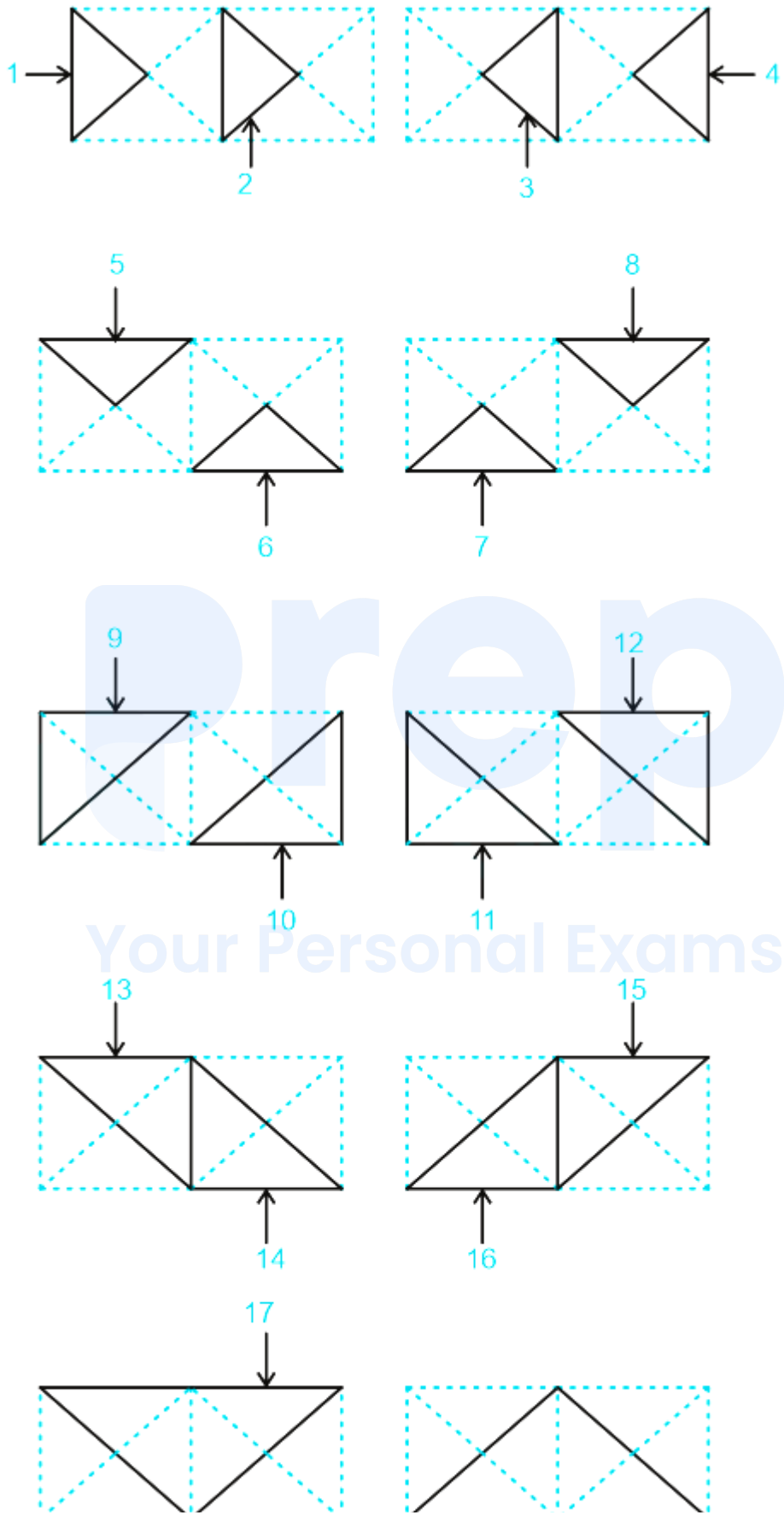
⭐ Shortcut Trick

---

71. **Answer: b**

Explanation:

the total number of triangles in the figure is shown below:



Hence, ' **18** ' is the correct answer.

---

72. Answer: d

Explanation:

The correct answer is **Narmada.**

⭐ **Key Points**

- The **Sardar Sarovar Dam** is a concrete gravity dam located at Narmada District in Gujarat.
- On the **Narmada river** , the Sardar Sarovar dam is being constructed.
- The Sardar Sarovar dam provides water and energy to **Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan.**
- The foundation stone of the project was laid out by Prime Minister **Jawaharlal Nehru** on 5 April 1961.
- Prime Minister Narendra Modi dedicated the dam to the nation in **2017.**

⭐ **Important Points**

- **Narmada** is the largest west-flowing peninsular river in India.
  - Narmada is also known as the **'lifeline of Madhya Pradesh'.**
  - Between the Vindhya and Satpura ranges, it flows through a **rift valley.**
  - **Kanha National Park** is located on the banks of the Narmada River.

⭐ **Additional Information**

- The **Ganges** is the national river of India.
  - The river Ganga is known as the Padma in Bangladesh.
- The **Brahmaputra** originates from the Chemayundung glacier near Manasarover lake in Tibet.
  - The Brahmaputra is known as Dihang in Arunachal Pradesh.

- The Brahmaputra River enters India west of Sadiya, Arunachal Pradesh.
- The Brahmaputra is the Indian River with the greatest volume of water.

- Lakhwar-Vyasi Dam is built on **Yamuna River.**

---

73. Answer: b

Explanation:

Given:

Marks of 7 students in Mathematics are 41, 43, 44, 53, 62, 65, 65

Concept:

The mode is the value occurring most frequently in a series of items.

Calculation:

Here, in the given data 65 has occurred twice and rest of the items occurred only once.

∴ The mode of the data is 65.

---

74. Answer: b

Explanation:

Given:

15 males or 20 females can complete a project in 26 days.

Formula used:

$(M1 \times D1)/W1 = (M2 \times D2)/W2$

Calculation:

15 males × 26 days = 20 females × 26 days

∵ 15 males = 20 females

∴ 30 males = 40 females

Total work in terms of females = 20 females × 26 days = 520 units

No of days taken by 30 males and 12 females:

⇒ (40 females + 12 females) = 52 females

∴ No of days taken = 520 units /52 females = 10

---

75. Answer: d

Explanation:

Given:

Sum of two numbers = 16

Product of two numbers = 63

Calculation:

Let the numbers be = a, b

a + b = 16

ab = 63

∴ Sum of the reciprocal of a and b = 1/a + 1/b

⇒ (b + a)/ab

⇒ 16/63

---

76. **Answer: a**

Explanation:

The correct answer is **Odisha.**

⭐ Key Points

- **Odisha** is the largest bauxite-producing state in India.
- More than half of India's bauxite deposits are found in Odisha.
- Bauxite is an important mineral used in the production of **aluminium.**
- **Kalahandi** in Odisha is famous for the production of bauxite.
- Bauxite deposits are formed by the decomposition of a wide variety of rocks that consists of **aluminium silicates.**

⭐ Important Points

- Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, Gujarat, Maharashtra, and Tamil Nadu are the major bauxite-producing states.
- Bauxite is primarily utilized in the **Bayer process** to generate alumina.
- Important bauxite mines in India are:
  - Bilaspur & Maikal Hills.
  - Singhbhum.
  - Jamnagar.
  - Balangir.
  - Bargarh.
  - Koraput.
  - Kalahandi.
  - Sambalpur.
  - Sundergarh.

⭐ Additional Information

- **Jharkhand** is the **No. 1 producer** in **Iron ore, Copper ores, Micca, Kainite, Uranium, Asbestos, etc.** and **No. 3 in coal production after Odisha and Chattisgarh.**
- **West Bengal** is India's leading rice producer.

- **Gujarat** is the largest producer of cash crops like cotton, groundnut, cumin, sesame, etc. in India.

---

77. Answer: b

Explanation:

1. Aman is older than Sahu.

Aman > Sahu

2. Sahu is younger than Komal but older than Millan.

Komal > Sahu > Millan

3. Komal is older than Aman but younger than Uday.

Uday > Komal > Aman

Combining all the three statements, we get:

Uday > Komal > Aman > Sahu > Millan

Clearly, Aman is the third oldest among them.

Hence, ' **Aman** ' is the correct answer.

---

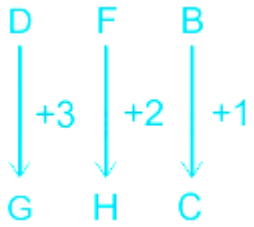
78. Answer: c

Explanation:

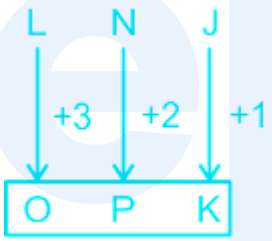
The pattern followed here is:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

According to the alphabetical positions of the letters,



Similarly,



Hence, ' **OPK** ' is the correct answer.

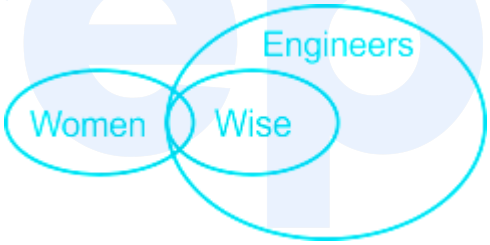
---

79. Answer: d

Explanation:

The least possible Venn diagram is:

Statement	Conclusion		
	Definite (100% true)	Can't Say	Incorrect (100% false)
All A are B 	Some A are B Some B are A	Some B are not A All B are A	Some A are not B No A is B No B is A
Some A are B 	Some B are A	Some A are not B All B are A Some B are not A All A are B	No A is B No B is A
No A is B 	No B is A Some A are not B Some B are not A		Some A are B Some b are A All A are B All B are A
Some A are not B 		Some B are not A Some A are B Some B are A All B are A No A is B No B is A	All A are B



Conclusions:

I. Some women are engineers. → True (As, Some women are wise and All wise are engineers → some women are engineers)

II. All engineers are wise. → False (As, All wise are engineers → some engineers are wise)

Hence, **only conclusion (I) follows** .

---

80. **Answer: c**

Explanation:

Symbol	+	−	×	÷
Meaning	×	+	÷	−

B	Brackets in order (), {}, []	ब्रेकेट (), {}, [] क्रम में
O	of	का
D	Division (÷)	विभाजन (÷)
M	Multiplication (×)	गुणा (×)
A	Addition (+)	जोड़ (+)
S	Subtraction (−)	घटाव (−)

1. 9 + 5 - 16 × 4 ÷ 2 = 41

After replacing the symbols by their meaning, we get:

L.H.S = 9 × 5 + 16 ÷ 4 − 2

= 45 + 4 − 2

= 49 − 2

= 47 ≠ 41

2. 15 + 15 × 3 - 4 ÷ 5 = 26

After replacing the symbols by their meaning, we get:

L.H.S = 15 × 15 ÷ 3 + 4 − 5

= 75 + 4 − 5

= 79 − 5

= 74 ≠ 26

3. 10 − 12 ÷ 18 × 6 + 2 = 16

After replacing the symbols by their meaning, we get:

L.H.S = 10 + 12 - 18 ÷ 6 × 2

= 10 + 12 – 3 × 2

= 10 + 12 – 6

= 22 – 6

⇒ 16 = 16

4. 11 ÷ 8 × 2 - 4 + 1 = 41

After replacing the symbols by their meaning, we get:

L.H.S = 11 - 8 ÷ 2 + 4 × 1

= 11 – 4 + 4

= 11 ≠ 41

Hence, ' **10 - 12 ÷ 18 × 6 + 2 = 16** ' is the correct answer.

---

81. **Answer: c**

Explanation:

Given:

27% of 250 - 0.02% of 1000

Calculation:

27% of 250 - 0.02% of 1000

⇒ 27/100 × 250 - 2/10000 × 1000

⇒ 6750/100 - 2/10

⇒ 67.5 - 0.2

⇒ 67.3

∴ The required result = 67.3

---

82. Answer: b

Explanation:

Given:

Principal = Rs.12,50,000

Rate = 5% per annum

Time = 5 years

Formula used:

Simple Interest = Principal × Rate/100 × Time

Calculation:

Simple Interest = 12,50,000 × 5/100 × 5 = 312500

∴ The simple interest is Rs.312500

---

83. Answer: c

Explanation:

The correct answer is **Virus.**

⭐ **Key Points**

- Hepatitis A is a disease caused by the **virus.**
- The hepatitis A virus (HAV) is spread through ingesting tainted food or drinking tainted water, or by coming into close contact with an infected person.
- Hepatitis A does not cause chronic liver disease.
- Chronic liver disease is caused by **hepatitis B and C.**
- Hepatitis A is very **contagious.**
- **Hepatitis A vaccine** is a vaccine that prevents hepatitis A.

⭐ Additional Information

- Diseases that are spread to people through **mosquito bites** :
  - Zika virus.
  - West Nile virus.
  - Chikungunya virus.
  - Dengue.
- Important diseases caused by **bacteria** are:
  - Tuberculosis.
  - Anthrax.
  - Tetanus.
  - Leptospirosis.
  - Pneumonia.
  - Cholera.
- Important diseases caused by **protozoa** are:
  - Leishmaniasis.
  - Amoebiasis.
  - Diarrhoea.
  - Trypanosomiasis.
  - Toxoplasmosis.

---

84. Answer: c

Explanation:

The correct answer is **Liver.**

⭐ Key Points

- The **liver** secretes bile juice, which is a digesting juice.
- Bile is stored in the **gallbladder.**
- **Bilirubin and biliverdin** , as well as bile salts and cholesterol, make up bile juice.
- Bile juice helps in the **emulsification of fat.**
- Large fat globules are broken down into smaller globules by bile juice, making it easier for pancreatic enzymes to act on them.
- The human liver is the **largest gland in the body.**
- The liver is situated on the right side of the stomach.
- The main function of the liver is to **produce bile pigment.**
- **Ammonia and urea** are produced in the liver.

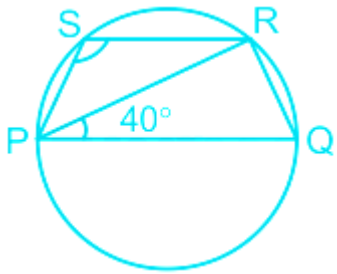
⭐ Additional Information

- Insulin and Glucagon are the hormones secreted by the **pancreas.**
- The nutrients in digested food are absorbed from the **small intestine.**
- The **stomach** is a hollow organ that holds food while it is being mixed with stomach enzymes.

---

85. Answer: a

Explanation:



Given:

PQRS is a cyclic trapezium where PQ is parallel to RS.

PQ is the diameter & ∠QPR = 40°

Concept:

Angle made in a semicircle is a right angle.

The sum of the opposite angles of a cyclic trapezium is 180°.

Calculation:

In triangle PQR,

∠RPQ + ∠RQP + ∠QRP = 180° [Angle sum property]

⇒ 40° + ∠RQP + 90° = 180°

⇒ ∠RQP = 180° - 130° = 50°

∠RQP + ∠PSR = 180° [Supplementary Angles]

∴ ∠PSR = 180° - 50° = 130°

---

86. **Answer: c**

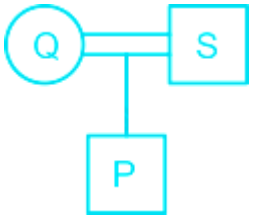
Explanation:

By using the symbols in the table given below, we can draw the following family tree:

Symbol in Diagram	Meaning
○	Female
□	Male
=	Married Couple
—	Siblings
|	Difference of a Generation

A is			
Symbol	+	-	×
Meaning	Daughter	Wife	Son
to B			

P × Q − S → P is son of Q and Q is wife of S



Clearly, S is the father of P.

Hence, ' **S is the father of P** ' is the correct answer.

---

87. **Answer: a**

Explanation:

Conclusions:

I. All irregular students pass in exams. → The conclusion does not follows. (As Some irregular students pass in the examinations)

II. Some irregular students fail in the exam. → The conclusion does follows. (As Some irregular students pass in the examinations → Some irregular students fail in the exam)

Hence, **only conclusion (II) follows**.

⭐ Additional Information

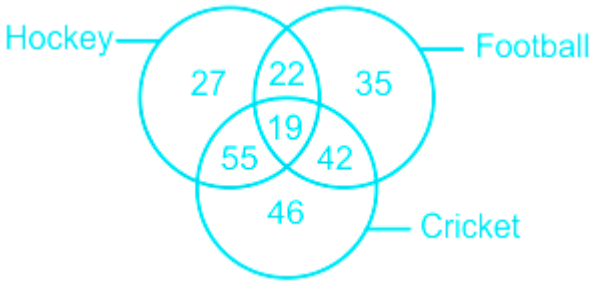
- If there are two or more sentences that are used to frame a statement, then, the sentences must be interrelated, and mutual contradiction should be there.
- Do not look for truthful notions. The information provided in the statement is the only requirement for a student to answer the question. No assumptions must be made.
- Read the statement carefully and look for keywords that are common between the statement and the conclusions
- If there is more than one conclusion that is applicable to the statement, students must ensure that the conclusions they opt for have some relation with each other.

---

88. **Answer: c**

Explanation:

Hockey players who play football is shown below:



Number of hockey players who play football = 22 + 19 = 41

Hence, ' **41** ' is the correct answer.

⭐ **Mistake Points**

i) In the question, it is mentioned that Hockey players who play football but it is not mentioned that we do not have to include players who play cricket. So unless mentioned we have to consider all the categories.

ii) Here the word **"only"** is not used. If **only words** have used in the question then the answer would have been 22 but as and is used answer will be 41.

---

89. Answer: d

Explanation:

The logic is:

Sum of digits of given numbers = 23

1. 72563 → 7 + 2 + 5 + 6 + 3 = 23

2. 52637 → 5 + 2 + 6 + 3 + 7 = 23

3. 56372 → 5 + 6 + 3 + 7 + 2 = 23

4. 63754 → 6 + 3 + 7 + 5 + 4 = 25 ≠ 23

Hence, ' **63754** ' is the odd one out.

---

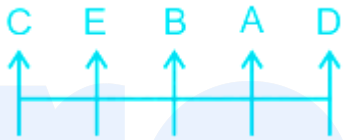
90. Answer: b

Explanation:

Persons - A, B, C, D, and E are sitting in a line.

1. C is sitting at the west end and E is the neighbour of B and C.

2. Between A and C there are two persons.



Clearly, D is sitting at the east end.

Hence, ' **D**' is the correct answer.

---

91. Answer: d

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The logic is:

Letters are written from right end to left end.

INTERNET → TENRETNI

Similarly,

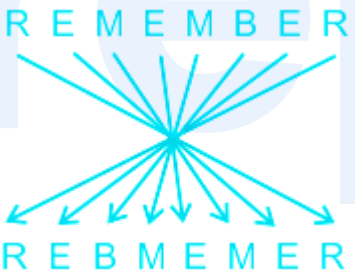
REMEMBER → REBMEMER

Hence, ' **REBMEMER** ' is the correct answer.

⭐ **Alternate Method**

The logic follows here is:

Similarly,



Hence, ' REBMEMER ' is the correct answer.

---

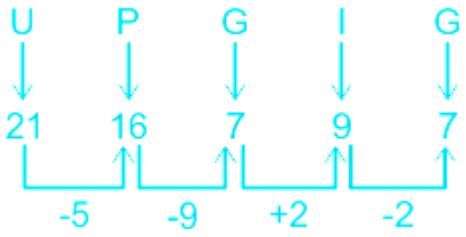
92. Answer: d

Explanation:

The pattern followed here is:

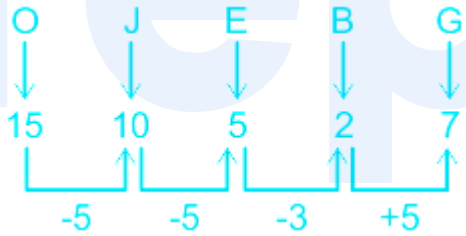
Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

Option 1) UPGIG - False



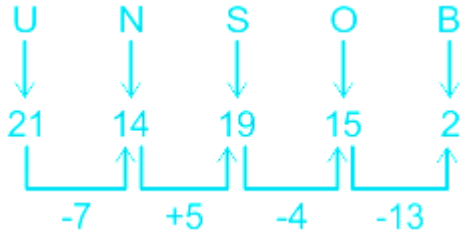
(The difference between in letters are not in decreasing sequence).

Option 2) OJEBG - False



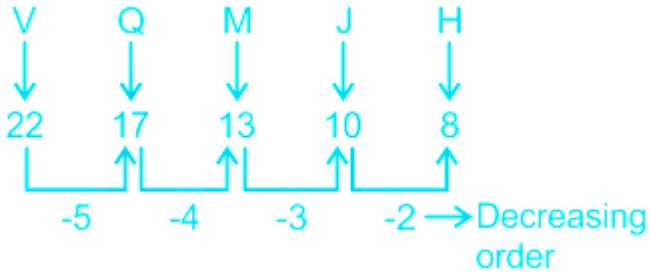
(The difference between in letters are not in decreasing sequence).

Option 3) UNSOB - False



(The difference between in letters are not in decreasing sequence).

Option 4) VQMJH - True, it follows the Decreasing sequence.



Hence, ' **VQMJH** ' is the correct answer.

---

93. Answer: a

Explanation:

The logic is:

1st row: 20 + 16 + 33 = 69

3rd row: 27 + 19 + 23 = 69

Similarly,

Let the missing number be 'a'.

22 + a + 15 = 69

⇒ a = 69 - 37

⇒ a = 32

Hence, ' **32** ' is the correct answer.

---

94. Answer: a

Explanation:

The logic is:

25 : 16 → 25 - 9 = 16

Similarly,

41 : ? → 41 - 9 = 32

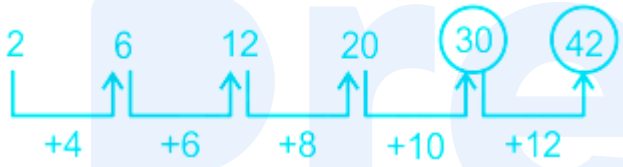
Hence, ' **32** ' is the correct answer.

---

95. Answer: a

Explanation:

The logic is:



Hence, ' **30, 42** ' is the correct answer.

---

96. Answer: c

Explanation:

The logic is:

$2^3 = 8$

$3^3 = 27$

$4^3 = 64$

$5^3 = 125$

$6^3 = 216$

$7^3 = 343$

Hence, ' **343** ' is the correct answer.

---

97. Answer: b

Explanation:

The description is as follows:

Option		Description
1.	LEOPARD	Leopard is a wild animal.
2.	**COW**	**Cow is a domestic animal.**
3.	DEER	Deer is a wild animal.
4.	TIGER	Tiger is a wild animal.

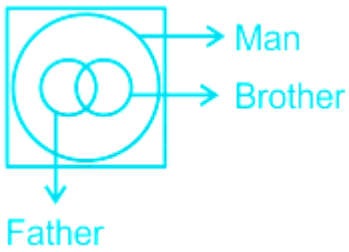
Hence, ' **COW** ' is the odd one out.

---

98. Answer: b

Explanation:

The diagram that best represents the relationship between Man, Father and Brother is shown below:



Some Father are Brother. All Father and Brother are Man.

Hence, ' **option 2** ' is the correct answer.

---

99. Answer: a

Explanation:

The logic is:

Cat : Mew → The sound made by cat is mew.

Similarly,

Duck : Quack → The sound made by duck is quack.

Hence, ' **Duck : Quack** ' is the correct answer.

---

100. Answer: c

Explanation:

The logic followed here is:

In a column: 1st number ÷2nd number + 3rd number = 4th number

Column 1:

90 ÷ 5 + 7

18 + 7

= 25

Column 2:

120 ÷ 6 + 10

20 + 10

= 30

Similarly,

Column 3:

80 ÷ 4 + 6

20 + 6

= 26

Hence, the correct answer is **"26".**

⭐ **Alternate Method**

The logic is:

Column 1: 90 - [(5 × 7) + 25]

= 90 - [35 + 25]

= 90 - 60

= 30

Column 3: 120 - [(6 × 10) + 30]

= 120 - [60 + 30]

= 120 - 90

= 30

Similarly,

Let the missing number in Column 2 be 'a'.

$80 - [(4 \times 6) + a] = 30$

$\Rightarrow 80 - [24 + a] = 30$

$\Rightarrow 80 - 30 = 24 + a$

$\Rightarrow 50 = 24 + a$

$\Rightarrow 50 - 24 = a$

$\Rightarrow 26 = a$

Hence, ' **26** ' is the correct answer.