

# SUKHOI ACADEMY

## SCHOLARSHIP CUM ENTRANCE EXAM 2024

-- 9<sup>th</sup> Sainik/RMS --

### SET - A

Maximum marks – 400

Time – 3:00 Hours

Note – Question paper contains Five parts –

|                         |              |           |
|-------------------------|--------------|-----------|
| Part – A Mathematics    | 50 Questions | 200 Marks |
| Part – B English        | 25 Questions | 50 Marks  |
| Part – C Social Science | 25 Questions | 50 Marks  |
| Part – D Science        | 25 Questions | 50 Marks  |
| Part – E Reasoning      | 25 Questions | 50 Marks  |

- All Questions are compulsory .
- There is No Negative Marking .
- Read the question paper carefully .

### Part – A ( Mathematics )

1. If  $\frac{\sqrt{3}-1}{\sqrt{3}+1} = a - b\sqrt{3}$ , then:

- (a)  $a = 2, b = 1$
- (b)  $a = 2, b = -1$
- (c)  $a = -2, b = 1$
- (d)  $a = b = 1$

2. If  $x + \frac{1}{x} = 3$ , then  $x^6 + \frac{1}{x^6} = ?$

- (a) 927
- (b) 414
- (c) 364
- (d) 322

3. If  $4^x - 4^{x-1} = 24$ , then  $(2x)^x$  equals:

- (a)  $5\sqrt{5}$
- (b)  $\sqrt{5}$
- (c)  $25\sqrt{5}$
- (d) 125

4. If  $a + b + c = 0$ , then  $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = ?$

- (a) 0
- (b) -1
- (c) 1
- (d) 3

5. The coefficient of  $x$  in  $(x + 3)^3$  is:

- (a) 1
- (b) 9
- (c) 18
- (d) 27

6. A coin is tossed 1000 times, if the probability of getting a tail is  $\frac{3}{8}$ , how many times head is obtained?

- (a) 525
- (b) 375
- (c) 625
- (d) 725

7. If the mean of the observations:  $x, x + 3, x + 5, x + 7, x + 10$  is 9, the mean of last three observation is:

- (a)  $\frac{31}{3}$
- (b)  $\frac{32}{3}$
- (c)  $\frac{34}{3}$
- (d)  $\frac{35}{3}$

8. A histogram is a pictorial representation of the grouped data in which class intervals and frequency are respectively taken along.

- (a) Vertical axis and horizontal axis
- (b) Vertical axis only
- (c) Horizontal axis only
- (d) Horizontal axis and vertical axis

9. The mid value of a class interval is 42, if the class size is 10, then the upper and lower limits of the class are:

- (a) 47 and 37
- (b) 37 and 47
- (c) 37.5 and 47.5
- (d) 47.5 and 37.5

10. A cylindrical rod whose height is 8 times of its radius is melted and recast into a spherical balls of same radius, the number of balls will be:

- (a) 4
- (b) 3
- (c) 6
- (d) 8

11. The volume of sphere which is exactly inserted in a cube of edge 6 cm is:

- (a)  $36\pi \text{ cm}^3$
- (b)  $64\sqrt{3} \pi \text{ cm}^3$
- (c)  $14\pi \text{ cm}^3$
- (d)  $288 \pi \text{ cm}^3$

12. Horse stable is in the form of a cuboid, whose external dimensions are 70 m x 35 m x 20 m, surrounded by a cylinder halved vertically through diameter 35 m and it is open from one rectangular face 70 m x 20 m. Find the cost of painting the exterior of the stable at the rate of Rs 2/m<sup>2</sup>.

- (a) 20825 Rs
- (b) 25280 Rs
- (c) 28025 Rs
- (d) 15225 Rs

13. The height of a solid cone is 12 cm and the area of circular base is  $64 \pi \text{ cm}^2$ . A Plane parallel to the base of the cone cuts through the cone 9 cm above the vertex of the cone, the area of the base of the new cone, so formed is:

- (a)  $9 \pi \text{ cm}^2$
- (b)  $16 \pi \text{ cm}^2$
- (c)  $25 \pi \text{ cm}^2$
- (d)  $36 \pi \text{ cm}^2$

14. The radius of a wire is decreased to one third. If the volume remains the same the length will become:

- (a) 3 times
- (b) 6 times
- (c) 9 times
- (d) 27 times

15. The number of planks of dimensions 4m x 50 cm x 20 cm that can be stored in a pit which is 16 m long, 12 m wide and 4 m deep is:

- (a) 1900
- (b) 1920
- (c) 1800
- (d) 1840

16. The length, breadth and height of a cuboid are 15m, 6m and 5dm respectively. The lateral surface area of the cuboid is:

- (a)  $90 \text{ m}^2$
- (b)  $21 \text{ m}^2$
- (c)  $201 \text{ m}^2$
- (d)  $45 \text{ m}^2$

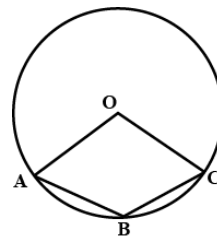
17. If the area of isosceles right angles triangle is  $8 \text{ cm}^2$ , what is the perimeter of triangle?

- (a)  $8 + \sqrt{2} \text{ cm}$
- (b)  $8 + 4\sqrt{2} \text{ cm}$
- (c)  $4 + 8\sqrt{2} \text{ cm}$
- (d)  $12\sqrt{2} \text{ cm}$

18. With the help of a ruler and compass, it is possible to construct an angle of:

- (a)  $35^\circ$
- (b)  $40^\circ$
- (c)  $37\frac{1}{2}^\circ$
- (d)  $47\frac{1}{2}^\circ$

19. O is the centre of the circle such that  $\angle AOC = 130^\circ$  the  $\angle ABC = ?$



- (a)  $130^\circ$
- (b)  $115^\circ$
- (c)  $65^\circ$
- (d)  $165^\circ$

20. Diagonals AC and BD of a parallelogram ABCD intersect each other at the point O, if  $\angle DAC = 32^\circ$  and  $\angle AOB = 70^\circ$ , then  $\angle DBC$  is equal to:

- (a)  $24^\circ$
- (b)  $86^\circ$
- (c)  $38^\circ$
- (d)  $32^\circ$

21. If  $(2k - 1, k)$  is a solution of the equation  $10x - 9y = 12$ , then  $k = ?$

- (a) 1
- (b) 2
- (c) 3
- (d) 4

22. If  $x^3 + 6x^2 + 4x + k$  is exactly divisible by  $x + 2$  then  $k = ?$

- (a) - 6
- (b) - 7
- (c) - 8
- (d) - 10

23. If  $2x + \frac{y}{3} = 12$  and  $xy = 30$ , then  $8x^3 + \frac{y^3}{27} = ?$

- (a) 1008
- (b) 168
- (c) 106
- (d) None of these

24. If the 6 digit number  $x35624$  and  $1257y4$  are divisible by 11 and 72 respectively then what is the value of  $5x - 2y$

- (a) 13
- (b) 14
- (c) 10
- (d) 12

25. Find the sum of all those prime numbers that are not larger than 17.

- (a) 59
- (b) 58
- (c) 41
- (d) 42

26. Three bells ring together at 11 AM. All the three ring at intervals of 20 minutes, 30 minutes and 40 minutes respectively. Accordingly, what time will they ring together again?

- (a) 2 PM
- (b) 1 PM
- (c) 1.15 PM
- (d) 1.30 PM

27. Solve:  $5\frac{1}{5} \times 8\frac{4}{5} \div 4\frac{2}{5}$

- (a)  $5\frac{2}{5}$
- (b)  $10\frac{2}{5}$
- (c)  $\frac{11}{5}$
- (d) 10

28.  $\frac{\sqrt[3]{8}}{\sqrt{16}} \div \sqrt{\frac{100}{49}} \times \sqrt[3]{125} = ?$

- (a) 7
- (b)  $1\frac{3}{4}$
- (c)  $\frac{7}{100}$
- (d)  $\frac{4}{7}$

29.  $\sqrt[3]{333 + \sqrt[3]{987 + \sqrt[3]{2197}}}$  is equal to:

- (a) 21
- (b) 18
- (c) 7
- (d) 3

30. If  $\frac{1}{1+a^{y-z}+a^{z-x}} + \frac{1}{1+a^{x-y}+a^{y-z}} + \frac{1}{1+a^{y-z}+a^{z-x}} = ?$

- (a) 0
- (b) 1
- (c)  $a^{x-y-z}$
- (d)  $a^{x+y+z}$

31. If  $b$  is mean proportion of  $a$  and  $c$  then

$(a - b)^3 : (b - c)^3 = ?$

- (a)  $a^3 : c^3$
- (b)  $b^2 : c^2$
- (c)  $a^2 : c^2$
- (d)  $a^3 : b^3$

32. 234 had to distribute into three persons A, B and C in the ratio  $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$  but it was distributed in the ratio 2 : 3 : 4 mistakenly. Who benefited the most and how much?

- (a) A, ₹ 52
- (b) B, ₹ 35
- (c) A, ₹ 56
- (d) C, ₹ 50

33. A's income is 25% more than B, then what percentage of B's income to the A's income

- (a) 90%
- (b) 80%
- (c) 75%
- (d) 125%

34. The population of a city first increased by 10% and then decreased by 20% the net decreased in the population is:

- (a) 15%
- (b) 20%
- (c) 12%
- (d) 8%

35. A loss of 19% on a belt gets converted into profit of 17%, when the selling price is increased by ₹ 162, what is the cost price of belt?

- (a) ₹ 540
- (b) ₹ 450
- (c) ₹ 600
- (d) ₹ 360

36. A and B took contract for 4500 to complete a work. A alone can complete the work in 8 days, B can do it in 12 days with the help of C, they finished the work in 4 days. Find the share of C in the contractual amount?

- (a) ₹ 2250
- (b) ₹ 1500
- (c) ₹ 750
- (d) ₹ 375

37. A 150 m long train crosses a mile stone in 15 sec and a train of same length coming from opposite direction in 12 sec. The speed of other train is:

- (a) 36 km/hr
- (b) 54 km/hr

(c) 50 km/hr

(d) 45 km/hr

38. At what rate of annual simple interest will 10000 double in 15 years?

(a) 5.5%

(b) 8%

(c) 6.75%

(d) 7.25%

39. What will be the compound interest on 6000 at 10% per annum for  $1\frac{1}{2}$  year

(a) ₹ 910

(b) ₹ 870

(c) ₹ 930

(d) ₹ 900

40. If 48 men can dig a trench in 14 days, how long will 42 men take to dig a similar trench?

(a) 16 days

(b) 17 days

(c) 18 days

(d) 19 days

41. The price of 9 kg sugar is ₹ 279, what will be the price of 153 kg of sugar?

(a) 3375

(b) 4473

(c) 4377

(d) 4743

42. In a triangle, if two of the angles are complementary then the measure of the third angle is:

(a)  $40^\circ$

(b)  $45^\circ$

(c)  $75^\circ$

(d)  $90^\circ$

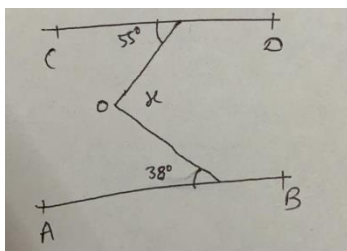
43. In  $AB \parallel CD$  Find  $\angle x$

(a)  $87^\circ$

(b)  $267^\circ$

(c)  $93^\circ$

(d) None of these



44. Each interior angle of a regular polygon is 156, find the number of sides of a polygon.

(a) 15

(b) 12

(c) 10

(d) 8

45. A horse is tethered for grazing inside a rectangular field 70 m by 52 m and is tethered to one corner by a rope 21 m long, how much area can it graze?

(a)  $346.5 \text{ m}^2$

(b)  $340 \text{ m}^2$

(c)  $349.5 \text{ m}^2$

(d)  $348.5 \text{ m}^2$

46. The denominator of a rational number is 8 greater than its numerator, if 1 is subtracted from the denominator and 17 is added to the numerator, the number becomes  $\frac{3}{2}$ . Find the rational number.

(a)  $\frac{11}{2}$

(b)  $\frac{3}{10}$

(c)  $\frac{13}{21}$

(d)  $\frac{25}{13}$

47. The number of times a particular observation occurs in a given data is called:

(a) Frequency

(b) Range

(c) Mean

(d) None of these

48. If mean and median of a group of number are 8.9 and 9 respectively, then find their mode.

(a) 9.4

(b) 9.6

(c) 9.2

(d) 11.2

49. If  $x = \frac{4ab}{a+b}$ , then the value of  $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$  is:

(a)  $\frac{2ab}{(a+b)^2}$

(b) 2

(c) 4

(d)  $\frac{4ab}{(a+b)^2}$

50. Sanjay has started a business by investing ₹ 18000. After 4 months Deepak became partner by investing ₹ 24000, if there was a profit of ₹ 17850 in the year end, then what will be the share of Deepak?

(a) ₹ 8400

(b) ₹ 8500

(c) ₹ 7900

(d) ₹ 9000

## Part – B ( English )

### 51. Write Antonym of Dissolution.

- (a) Retribution (b) Establishment
- (c) Persuasion (d) Compliance

### 52. Write Antonym of Asceticism.

- (a) Comfort (b) Luxury
- (c) Antisemitism (d) Humility

**Choose the word from the among the four option which is similar in meaning to the given word.**

### 53. Soporific

- (a) Soothing (b) terrific
- (c) Supreme (d) Sleep-inducing

### 54. Coax

- (a) Pacify (b) Punish
- (c) Persuade (d) Please

### 55. A thing likely to be easily broken. (**Choose suitable one word substitution**)

- (a) Vulnerable (b) Flexible
- (c) brittle (d) Delicate

### 56. To bury the hatchet. (**Choose the suitable idioms and phrase**)

- (a) To have found a treasure
- (b) To make peace
- (c) To purchase something without discretion
- (d) To act in a suspicious manner.

### 57. We warned her \_\_\_\_\_ the danger. (**Choose the suitable preposition**)

- (a) From (b) about
- (c) Against (d) of

### 58. Everybody was watching the T.V., \_\_\_\_\_? (**Choose the suitable question tag**)

- (a) Wasn't he (b) weren't they
- (c) were they (d) was he

### 59. It is high time we \_\_\_\_\_ home.

- (a) return (b) had returned
- (c) returned (d) are returning

**Fill in the blanks with suitable pronoun.**

### 60. I know you as much as \_\_\_\_\_.

- (a) he (b) his
- (c) him (d) himself

### 61. The man and his dog \_\_\_\_\_ I saw yesterday have been kidnapped.

- (a) Who (b) which
- (c) that (d) whom

### 62. What amused you? (**Change into passive**)

- (a) What are you made to amuse by?
- (b) By what are you being amused?
- (c) By what were you amused?
- (d) By what have you been amused?

### 63. Quinine taste bitter. (**Change into passive**)

- (a) Quinine is bitter when it is tasted.
- (b) Quinine is bitter tasted.
- (c) The taste of quinine is bitter.
- (d) Quinine is tasted bitter.

### 64. My father said to me, "Bravo! You have well done".

- (a) My father applauded me saying that I had done well.
- (b) My father applauded me saying that I have done well.
- (c) My father applauded me saying that I did well.
- (d) My father applauded me saying that you have done well.

### 65. He said "How lovely the scene is!"

- (a) He exclaimed that the scene is very lovely.
- (b) He exclaimed that how the scene was lovely.
- (c) He exclaimed that the scene was very lovely.
- (d) He exclaimed that the scene is indeed lovely.

Fill in the blank with suitable article.

### 66. He behaved \_\_\_\_\_.

- (a) miser
- (b) miserly
- (c) in a miserly manner
- (d) none of these

### Question 17 – 18 (Spot the error)

### 67. A strong breeze/ blew his/ cap off/ no error.

- (a) (b) (c) (d)

### 68. (A) The two first to arrive/ (B) were the lucky recipients/ (C) of a surprise gift/ (D) no error

**Fill in the blanks with suitable words.**

### 69. He is the \_\_\_\_\_ of two players.

- (a) good (b) better
- (c) best (d) more better

### 70. Diamond is more precious than \_\_\_\_\_.

- (a) any metal (b) any other metal
- (c) all other metal (d) most other metal

**Read the following poem carefully and answer the questions that follow.**

### Law of the Jungle

I have heard

There is a law of the jungle

I have heard when the lion has eaten his full

He never attacks

He goes to lie under dense shady trees

And when the rough gusts

Shake branches of trees

The mynah leaving her own young

Covers the frain crow's eggs

With her protective wings.

I have heard

When any bird-young falls out of the nest

The entire jungle wakes to rescue.

I have heard

When the weaver bird's nest

Reflects on the lake  
 The silvery fishes adopt it as neighbour.  
 And if a rough storm breaks the foot-bridge.  
 Then on a wooden plant  
 Squirrel, snake, goat and cheetah walk in a  
 file.  
 I have heard  
 There is a law of the jungle  
 O God! All Powerful! All Seeing! All Wise!  
 In my city  
 Proclaim a law  
 Even the law of the jungle.

- 71. The lines \_\_\_\_\_ when the lion has eaten his full/He never attacks' mean that.**  
 (A) the lion becomes lazy on full stomach  
 (B) the lion kills only to survive  
 (C) the lion does not attack any easy prey  
 (D) the lion likes to sleep under an easy prey
- 72. When the Weaver-bird's nest hangs from a branch above a lake-**

- (A) the nest is destroyed  
 (B) the silvery fish of the lake attack it  
 (C) the silvery fish are friendly to it  
 (D) the nest falls to the lake

**73. In case of a natural calamity, all the animals.**

- (A) run helter-skelter  
 (B) create confusion  
 (C) protect/safeguard one another  
 (D) take cover in other's home

**74. 'Proclaim a law' means**

- (A) make an announcement of a new law  
 (B) break the law  
 (C) change the law  
 (D) destroy the city law

**75. The poet prays to God for blood**

- (A) turning the city into a jungle  
 (B) making people more sympathetic understanding  
 (C) killing all animals  
 (D) letting animals rule man

## Part – C ( Social Science )

**76. An international convention that lists several species of animals and birds in which trade is prohibited is known as:**

- (a) IUCN (b) SAARC (c) NATO (d) CITES

**77. Minerals that lie near the surface are simply dug out. What is the process known as?**

- (a) Drilling (b) Shaft-Mining  
 (c) Quarrying (d) Open-Cast Mining

**78. In which year was power transferred from East India Company to British Crown?**

- (a) 1832 (b) 1776 (c) 1870 (d) 1858

**79. Existence of more than one level of government in a country is known as:**

- (a) Federalism  
 (b) Separation of Powers  
 (c) Parliamentary Form of Government  
 (d) Democracy

**80. Who came the Governor General of India when the policy of Paramountcy was initiated?**

- (a) Lord Clive (b) Lord Hastings  
 (c) Lord Cornwallis (d). Lord Dalhousie

**81. Santhals tribe rose in revolt in the year--**

- (a) 1900 (b) 1855  
 (c) 1920 (d) 1930

**82. According to whom, "English education had enslaved Indians"?**

- (a) Rabindranath Tagore (b) Mahatma Gandhi  
 (c) Subhas Chandra Bose (d) Acharya Vinoba Bhave

**83. During which period did Ambedkar lead three temple entry movement?**

- (a) Between 1900 to 1927 (b) Between 1927 to 1935  
 (c) Between 1935 to 1940 (d) Between 1940 to 1945

**84. Who started schools for Muslim girls in Patna and Calcutta?**

- (a) Mumtaz Ali (b) Begum Rokeya  
 (c) Sayyid Ahmed Khan (d) None of these

**85. The uneven distribution of population in the world is due to the varied characteristics of:**

- (a) land and climate (b) Climate  
 (c) Vegetation (d) Settlements

**86. Which Of the following country is a leading producer of rice?**

- (a) China (b) Pakistan  
 (c) Malaysia (d) Egypt

**87. The earlier name of Jamshedpur was:**

- (a) Sakshi (b) Sakchi  
 (c) Subarnarekha (d) Kharkai

**88. Which of the following is not the region where very few people live?**

- (a) High altitudes areas (b) Plains  
 (c) High mountains (d) Equatorial forest area

**89. During British rule which Government of India Act allowed some elected representation**

- (a) Government of India Act 1919  
 (b) Government of India Act 1909  
 (c) Government of India Act 1916  
 (d) Government of India Act 1947

**90. When did the Rowlatt Act come into effect?**

- (a) On 10th February, 1917  
 (b) On 10th January, 1918  
 (c) On 10th March, 1919  
 (d) On 20th April, 1920

**91. When did the Supreme Court ban the practice of manual scavenging?**

- (a) 2001 (b) 2002 (c) 2004 (d) 1993

**92. What is the term used for a business enterprise that makes profit primarily through trade during the British period?**

- (a) Corporate (b) Joint Stock Company  
(c) Industry (d) Mercantile

**93. Every person has a Fundamental Right to be defended by a lawyer is guaranteed in the Indian Constitution under:**

- (a) Article 23 (b) Article 39A  
(c) Article 22 (d) Article 25 A

**94. Who tried the Ryotwari System on a small scale?**

- (a) Holt Mackenzie (b) Capt. Alexander Read  
(c) Lord Munroe (d) Lord Cornwallis

**95. The fundamental duties are included in the constitution by which of the following act?**

- (a) 40th Amendment act (b) 44th Amendment Act  
(c) 43rd Amendment act (d) 42nd Amendment act

**96. Which is an important administrative way to regulate executive in Parliament?**

- (a) Assembly (b) Zero hour  
(c) Question hour (d) None

**97. Which source of energy is known as Buried Sunshine?**

- (a) Petroleum (b) Coal  
(c) Fire wood (d) Nuclear gas

**98. The process by which metals are extracted from their ores by heating beyond the melting point is known as:**

- (a) Melting (b) Smelting  
(c) Freezing (d) Blasting

**99. Who guarantees the Right to Education for all the children between the ages of 6 - 14 years?**

- (a) President (b) Parliament  
(c) Lok Sabha (d) Indian Constitution

**100. Name the first territory Annexed by the Britishers through "Doctrine of lapse":**

- (a) Satara (b) Gwalior  
(c) Jhansi (d) Meerut

## Part – D ( Science )

**101. In LEDs, the longer lead (wire) is always connected to the terminal.**

- (a) negative (b) neutral (c) positive (d) any terminal

**102. A common preservative used in jam and pickles is:**

- (a) Sodium Benzoate (b) HCl  
(c) Sodium Chloride (d) Copper Sulphate

**103. When glass rod is rubbed with silken cloth than glass rod has:**

- (a) negative charge

(b) positive charge

(c) sometimes negative charge and sometimes positive charge

(d) no charge

**104. The loudness of a sound depends on its:**

- (a) Amplitude (b) Frequency (c) Pitch (d) Strength

**105. From which part of the female body egg is produced?**

- (a) Uterus (b) Fallopian tube (c) Ovary (d) Stomach

**106. Which property of a metal is used in making bells, gangs, etc.:**

- (a) Luster (b) Malleability (c) Ductility (d) Sonorous

**107. Which of the following cell in the eye is sensitive to bright light?**

- (a) Cons (b) Rods (c) Retina (d) Iris

**108. Myopia can be rectified by \_\_\_\_\_**

- (a) convex lens (b) concave lens  
(c) cylindrical lens (d) none

**109. Spring balance is a device used for measuring \_\_\_\_\_ acting on an object.**

- (a) mass (b) pressure (c) force (d) width

**110. Which of the following objects can be charged by rubbing while being held in a hand?**

- (a) Steel spoon (b) Silver bar  
(c) Glass rod (d) A copper wires

**111. Which of the following present in the Chromosomes carries the unit that transfers characters from parents to offspring?**

- (a) Ribosome (b) Genes (c) Plastid (d) Nucleolus

**112. The Coke is used in the manufacturing of--**

- (a) Lead (b) Steel (c) Iron (d) Copper

**113. Metamorphosis in frog is controlled by which of the following hormone?**

- (a) Glucagon (b) Insulin (c) Adrenaline (d) Thyroxin

**114. Which of the following machines can be used to harvest a crop and also to beat out the grain from the chaff?**

- (a) Harvester (b) Combine (c) Thresher (d) Harrow

**115. Metal A dipped in a salt of metal B and displaces B from the solution. This shows that:**

- (a) A is more reactive than B  
(b) B is more reactive than A  
(c) Both a and b are equally reactive  
(d) None of these

**116. Which of the following is the non-living part of the cell?**

- (a) Cell membrane (b) Cytoplasm  
(c) Mitochondrion (d) Cell wall

**117. ....is the first fully synthetic Fiber.**

- (a) Acrylic (b) Polyester (c) Nylon (d) Rayon

**118. The colour of outer zone of candle flame is\_**

- (a) orange (b) blue (c) red (d) yellow

**119. When sulphur reacts with oxygen, the oxides formed is ..... in nature.**

- (a) alkaline (b) neutral (c) basic (d) acidic

**120. The upward force exerted the liquid displaced by the body when it placed inside the liquid is called:**

- (a) Buoyant force (b) Gravitational force  
(c) Centripetal force (d) Electrostatic force

**121. The atmosphere exerts enormous pressure on us. But we don't feel it because:**

- (a) our blood exerts a pressure slightly more than that of the atmosphere.  
(b) we are used to it.  
(c) our bones are very strong and can withstand the pressure.  
(d) the surface area of our head is very small.

**122. The compound decomposed into its constituents under the effect of current is called**

- (a) Electroplating (b) Electrolysis  
(c) Hydrolysis (d) Corrosion

**123. Shooting stars are called --**

- (a) asteroids (b) galaxies (c) meteors (d) Andromeda

**124. The sound from a mosquito is produced when it vibrates its wings at an average rate of 200 vibrations per second. What is the time period of the vibration?**

- (a) 0.002 sec (b) 0.0002 sec  
(c) 0.005 sec (d) 0.242 sec

**125. The most reactive element among the following is**

- (a) Na (b) K (c) Ca (d) Mg

## Part - E REASONING

**126. If A = 1, CAT = 60, then MAN =?**

- (a) 52  
(b) 96  
(c) 182  
(d) 214

**DIRECTIONS (127):** In each of the following questions, a word has been given, followed by four other words, one of which cannot be formed by using the letters of the given word. Find that word.

**127. EFFLORESCENT**

- (a) CREST  
(b) FOREST  
(c) ROLER  
(d) COFFEE

**DIRECTIONS (128):** In each of the following questions arrange the given words as per reverse order of what they appear in dictionary.

**128. (1) Rapid (2) Rapture (3) Rapt  
(4) Rapport (5) Refresh**

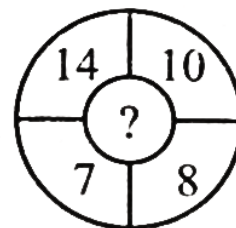
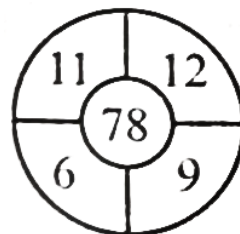
- (a) 2, 3, 4, 5, 1  
(b) 3, 4, 2, 1, 5  
(c) 5, 2, 3, 4, 1  
(d) 3, 2, 4, 1, 5

**DIRECTIONS (129):** In each of the following questions, arrange the given words in a meaningful sequence and then choose the most appropriate sequence, from amongst the alternatives provided below each question.

**129. (1) Key (2) Door (3) Lock (4) Room**

- (a) 1, 2, 3, 4  
(b) 1, 2, 4, 3  
(c) 1, 3, 2, 4  
(d) 4, 2, 1, 3

**130. Find the missing number**



- (a) 94  
(b) 74  
(c) 84  
(d) 104

**131. If '+' means 'divided by', '-' means 'add', 'x' means 'minus' and '÷' means 'multiplied by', what will be the value of the following expression?**

$$[ \{ (17 \times 12) - (4 \div 2) + (23 - 6) \} ] \div 0$$

- (a) 0  
(b) 100  
(c) 118  
(d) 218

**DIRECTIONS (132):** In the following questions a series is given with one term missing. Choose the correct alternative from the given options that will complete the series.

**132. 6, 12, 20, 30, 42, ?**

- (a) 56  
(b) 52  
(c) 64  
(d) 50

**DIRECTION (133):** In each of the following questions, select the word from the given alternatives, which can replace the question mark (?) in such a way that the third and the fourth words are related in the same way as the first and the second words.



133. Yard: Inch :: Quart:?

- (a) Gallon
- (b) Ounce
- (c) Milk
- (d) Liquid

**DIRECTIONS (134):** In each of the following questions, four words are given, out of which three are alike in some manner and the fourth one is different. Choose the odd one out.

134.

- (a) Grapefruit
- (b) Lemon
- (c) Orange
- (d) Apple

135. Choose the group of letters which is different from the others in the group? [Addition]

- (a) GLQ
- (b) BGL
- (c) JNR
- (d) OTY

136. Sai walks 550 m towards south direction and he then took left and walked 200 m. Again he took left and walked 200 m. Which direction is he now from the starting point?

- (a) North
- (b) South
- (c) South east
- (d) West

137. 'A' and 'B' are brothers. 'C' and 'D' are sisters. A's son is D's brother. How is B related to C?

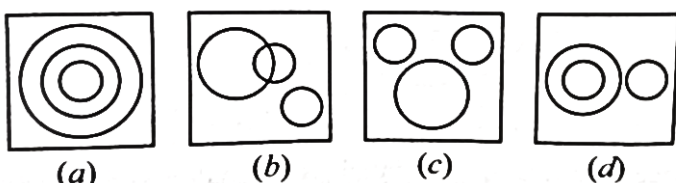
- (a) Father
- (b) Brother
- (c) Grandfather
- (d) Uncle

138. Shivam ranks 17th from the top and 19th from bottom in a class. Find the total number of students in the class.

- (a) 35
- (b) 36
- (c) 38
- (d) 40

**DIRECTIONS (139):** Identify the diagram that best represents the relationship among classes given below:

139. Stationery items, Pencils and Potatoes



140. Which among the following is a century leap year?

- (a) 1600

(b) 1900

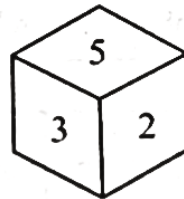
(c) 1800

(d) All of these

141. How many degrees second hand rotates in 27 seconds?

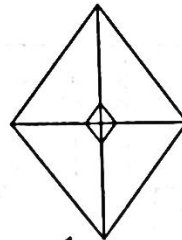
- (a)  $144^\circ$
- (b)  $150^\circ$
- (c)  $156^\circ$
- (d)  $162^\circ$

142. The position of a dice is shown below. Which number is on the face opposite to 3 in this dice?



- (a) 4
- (b) 1
- (c) 6
- (d) Can't be determined

143. Count the number of triangles in the figure.

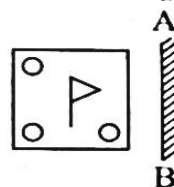


- (a) 15
- (b) 16
- (c) 17
- (d) 18

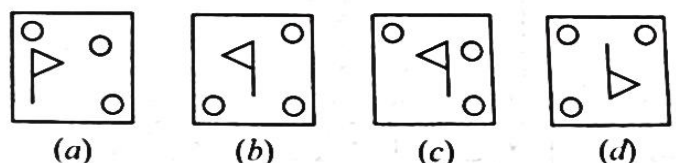
**DIRECTIONS (144):** In each of the following questions choose the correct mirror image of the given question image from amongst the four alternatives (a), (b), (c) and (d) give along with it.

144.

**Question Figure**

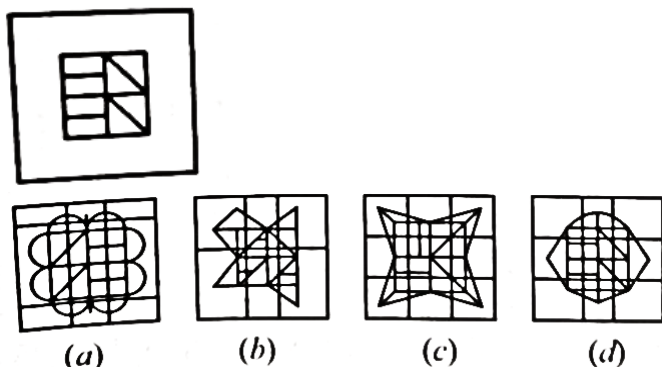


**Answer Figures**



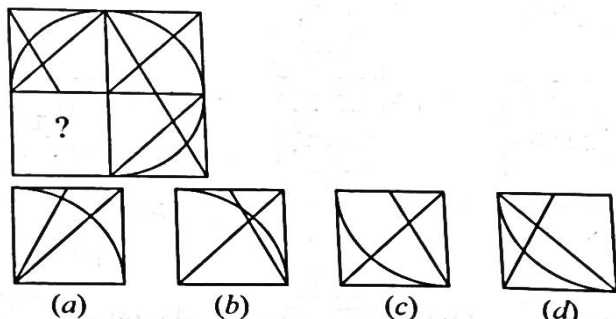
**DIRECTIONS (145):** From the given answer figures, select the one in which the question figure is hidden/embedded.

145.



**DIRECTIONS (146):** Which answer figure will complete the pattern in the question figure?

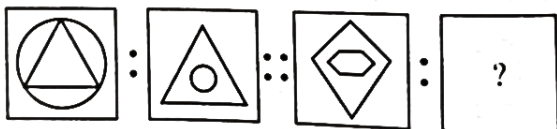
146.



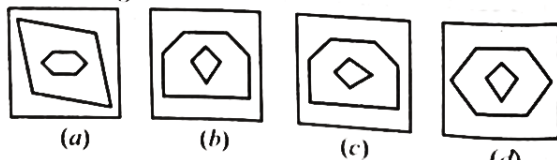
**DIRECTIONS (147):** there are two sets of two question figures each. The second set has an interrogation mark (?). There exists a relationship between the first two question figures. Similar relationship should exist between the third and fourth question figures. Select one of the answer figures which replaces the mark of interrogation.

147.

Question Figure

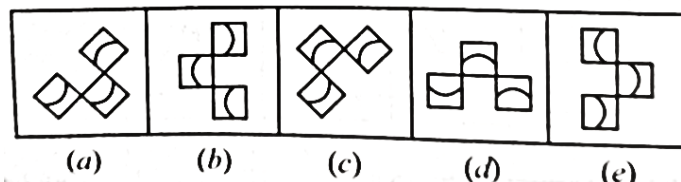


Answer Figures



**DIRECTIONS (148):** In the following questions, out of the five figures marked (a), (b), (c), (d) and (e), four are similar in a certain manner. However, one figure is not like the other four. Choose the figure which is different from the rest.

148.



**DIRECTIONS (149):** In each of the following questions, select the group of alphabets from the alternatives which can replace the question mark (?) in such a way that the third and the fourth groups are related in the same way as the first and the second groups.

149. ZXVT: ACEG :: SQOM: ?

- (a) IKMO
- (b) JLMO
- (c) FHJL
- (d) HJLN8

150. A watch reads 4:30. If the minute-hand points East, then in which direction will the hour-hand point?

- (a) North
- (b) South-West
- (c) South
- (d) North-East