

# CUET (UG) Question Paper - 2023

National Testing Agency

24<sup>th</sup> MAY 2023 – SHIFT 3

## Section - III (General Test)

### General Instructions:

Marking scheme of the test:

- (a) There are 60 questions asked in the section - III. But there are 50 questions to be attempted in the section - III.
- (b) Correct answer or the most appropriate answer will be given five marks (+5).
- (c) Any incorrect option marked will be given minus one mark (-1).
- (d) Unanswered/Marked for review will be given no mark (0).

1. If arithmetic mean and geometric mean of roots of a quadratic equation are 8 and 5 respectively, then the quadratic equation is:

- (A)  $x^2 + 8x + 5 = 0$       (B)  $x^2 - 8x + 25 = 0$   
(C)  $x^2 - 16x + 25 = 0$       (D)  $2x^2 - 8x + 25 = 0$

Ans. Option (C) is correct.

#### Explanation:

Let the roots of quadratic equation are  $\alpha$  and  $\beta$ . Given that:

Arithmetic mean of roots = 8

$$\therefore \frac{\alpha + \beta}{2} = 8 \text{ or } \alpha + \beta = 16$$

Geometric mean of roots = 5

$$\therefore \sqrt{\alpha\beta} = 5 \Rightarrow \alpha\beta = 25$$

Using, formula for quadratic equation

$$\Rightarrow x^2 - (\alpha + \beta)x + \alpha\beta = 0$$

$$\Rightarrow x^2 - 16x + 25 = 0$$

2. If the average weight of 10 students is 25 kg and that of other 10 students is 35 kg, then the average weight of these 20 students is:

- (A) 30 kg    (B) 35 kg    (C) 25 kg    (D) 20 kg

Ans. Option (A) is correct.

#### Explanation:

Given that average weight of 10 students = 25 kg and average weight of 10 students = 35 kg

$\therefore$  Average weight of 20 students

$$= \frac{10 \times 25 + 10 \times 35}{10 + 10}$$

$$= \frac{250 + 350}{20} = \frac{600}{20} = 30$$

3. An interior angle of a regular polygon is  $135^\circ$ . The polygon is a/an:

- (A) hexagon      (B) square  
(C) pentagon      (D) octagon

Ans. Option (D) is correct.

#### Explanation:

Given:

An interior angle of a regular polygon =  $135^\circ$

Let the number of sides in this polygon =  $n$

$$\text{Using, } \frac{(n-2)180^\circ}{n} = 135^\circ$$

$$\Rightarrow (n-2)180^\circ = 135n$$

$$\Rightarrow 180n - 360 = 135n$$

$$\Rightarrow 45n = 360 \Rightarrow n = 8$$

So, given polygon is a octagon.

4. Match List - I with List - II.

	List - I (Boundary Lines)		List - II (Countries Sharing borders)
(1)	38 <sup>th</sup> Parallel Line	(I)	Between U.S.A and Canada
(2)	Durand Line	(II)	Between India and China
(3)	MacMohan Line	(III)	Between North and South Korea
(4)	49 <sup>th</sup> Parallel Line	(IV)	Between India and Afghanistan

Choose the **most appropriate** answer from the options given below:

(A) (1)-(II), (2)-(III), (3)-(IV), (4)-(I)

(B) (1)-(III), (2)-(IV), (3)-(II), (4)-(I)

(C) (1)-(IV), (2)-(III), (3)-(II), (4)-(I)

(D) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)

Ans. Option (B) is correct.

#### Explanation:

Boundary Lines	Countries sharing boundaries
38 <sup>th</sup> Parallel Line	Between North Korea and South Korea
Durand Line	India and Afghanistan
MacMohan Line	India and China
49 <sup>th</sup> Parallel Line	USA and Canada

5. 44% of a number is 2288. What will be 87% of the number?

- (A) 3614    (B) 4524    (C) 4815    (D) 3928

Ans. Option (B) is correct.

**Explanation:**

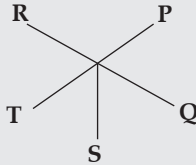
Let the number =  $x$ .  
 According to the question,  
 $\frac{44}{100} \times x = 2288$   
 $\Rightarrow x = 5200$   
 So,  $\frac{87}{100} \times 5200 = 4524$

6. P, Q, R, S, T are sitting around a circular table and all are facing the centre of table. R is to the right of P and second of the left of S. T is not between P and S. Who is second to the left of R?

(A) P (B) Q (C) S (D) T

Ans. Option (B) is the correct.

**Explanation:**



So, Q is second to the left of R.

7. Who amongst the following was shocked by Chauri-Chaura incident which took place in Gorakhpur and withdrew Non-Cooperation movement on 5<sup>th</sup> Feb 1922?

(A) Mohandas Karamchand Gandhi  
 (B) Sardar Vallabhbhai Patel  
 (C) Motilal Nehru  
 (D) Lala Lajpat Rai

Ans. Option (A) is correct.

**Explanation:** Mohandas Karamchand Gandhi was shocked by the Chauri Chaura incident and withdrew from the Non-Cooperation movement. After the Chauri Chara incident, Mahatma Gandhi called off the Non-Cooperation movement. Chauri Chaura Incident took place on 4<sup>th</sup> February 1922 at Chauri Chaura in the Gorakhpur district of Uttar Pradesh. The police fired on the protestors participating in the Non-Cooperation movement and in retaliation the protestors had set the police station on fire. This led to the halt of the Non-Cooperation movement on a national level.

8. Lift was invented by \_\_\_\_\_.

(A) Richard Gatling (B) E.G. Otis  
 (C) K.G. Jhonson (D) J.C. Perier

Ans. Option (B) is correct.

**Explanation:**

Invention	Inventor
Gatling gun, Screw Driver	Richard Gatling
Otis elevator company	Elisha Graves Otis
Centrifugal pump	JC Perier

9. Match List - I with List - II.

List - I (Sobriquets)		List - II (Names)	
(1)	Sorrow of Bengal	(I)	Udaipur
(2)	Venice of East	(II)	River Kosi
(3)	Sorrow of Bihar	(III)	Ahmedabad
(4)	Boston of India	(IV)	River Damodar

Choose the most appropriate answer from the options given below:

- (A) (1)-(III), (2)-(II), (3)-(I), (4)-(IV)  
 (B) (1)-(IV), (2)-(I), (3)-(III), (4)-(II)  
 (C) (1)-(IV), (2)-(I), (3)-(II), (4)-(III)  
 (D) (1)-(I), (2)-(IV), (3)-(II), (4)-(III)

Ans. Option (C) is correct.

**Explanation:**

Sobriquets	Names
Sorrow of Bengal	River Damodar
Venice of East	Udaipur
Sorrow of Bihar	River Kosi
Boston of India	Ahmedabad

10. A and B working together can do a work in 10 days. If A can do the work in 15 days, then how many days will B take to do the same work?

(A) 40 (B) 30 (C) 20 (D) 25

Ans. Option (B) is correct.

**Explanation:**

Given that  
 $A+B(10)$        $A(15)$   
 Efficiency 3      2  
 $30$  [total work = LCM (10, 15)]  
 efficiency of B =  $3 - 2 = 1$   
 Total time taken by B alone to complete the task alone =  $\frac{30}{1} = 30$  days

11. Who is known as the Father of "Indian Space Program"?

(A) Dr. C.V. Raman  
 (B) Vikram Sara Bhai  
 (C) Subramanyan Chandrasekhar  
 (D) Dr. A.P.J. Abdul Kalam

Ans. Option (B) is correct.

**Explanation:** Vikram Sarabhai was an Indian physicist and astronomer. He is regarded as the Father of the Indian Space Program. He was the first chairman of the Indian Space Research Organisation (ISRO).

CV Raman was an Indian Physicist. He is known for the discovery of the Raman effect for which he was awarded with Nobel Prize in Physics in the year 1930.

APJ Abdul Kalam was the 11<sup>th</sup> President of India and an aerospace engineer. He is known as 'Missile Man of India.' His autobiography is by the name 'Wings of Fire' and was co-authored by 'Arun Tiwari.'

Subrahmanyan Chandrasekhar was an Indian-American Physicist. He was awarded the Nobel Prize in 1983 along with William A. Fowler for theoretical studies of the physical processes of importance to the structure and evolution of the stars. Some of the famous inventions named after him are the Chandrasekhar limit and the Chandra X-Ray Observatory.

12. The digits and numbers from 1 to 12 represented by the dial of a clock are replaced by the letter of English alphabet. The replacement is started with the letter C. Find the letter which is represented by 9 O'clock. Consider hour hand only.

(A) N (B) H (C) J (D) K

Ans. Option (D) is correct.

**Explanation:** According to the question,

1 → C	7 → I
2 → D	8 → J
3 → E	9 → K
4 → F	10 → L
5 → G	11 → M
6 → H	12 → N

Hence, the 9' O clock is represented by K.

13. Given below are two statements:

**Statement (I):** All natural numbers are rational numbers.

**Statement (II):** 1 is the smallest prime number.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (A) Both **Statement I** and **Statement II** are correct  
 (B) Both **Statement I** and **Statement II** are incorrect  
 (C) **Statement I** is correct but **Statement II** is incorrect  
 (D) **Statement I** is incorrect but **Statement II** is correct

Ans. Option (C) is correct.

**Explanation:** Statement I is correct but statement II is incorrect.

14. According to Indian literatures who is known as father of Plastic Surgery?

(A) Charka (B) Sushruta  
 (C) Panini (D) Patanjali

Ans. Option (B) is correct.

**Explanation:** Sushruta is known as the 'Father of Plastic Surgery.' He was an Indian physician and is known for 'Sushruta Samhita'. The 'Sushruta Samhita' was written in Sanskrit and explicitly talks about anatomical knowledge and surgical procedural descriptions.

Charaka was a physician of ancient India. He is also known as 'Father of Indian medicine.' He is known to be the author of 'Charaka Samhita,' which was written in Sanskrit and is one of the ancient texts on Ayurveda.

Panini was a grammarian and scholar of ancient India. He was referred to as 'the father of linguistics.'

'Patanjali' was a Hindu author, mystic and philosopher. He is believed to be the author of 'Yoga Sutras' and 'Patanjalatantra.'

15. Find the missing term?

20160	4
?	4
480	8
96	24

(A) 1140 (B) 2880 (C) 3240 (D) 860

Ans. Option (B) is correct.

**Explanation:**

20160	4
?	4
480	8
96	24

**Logic:**

The sequence is as follows in a clockwise direction:

$$4 \times 1 = 4$$

$$4 \times 2 = 8$$

$$8 \times 3 = 24$$

$$24 \times 4 = 96$$

$$96 \times 5 = 480$$

$$480 \times 6 = 2880$$

$$2880 \times 7 = 20160$$

So, the missing number is 2880.

16. In the following question, select the related number pair from the given alternatives:

$$15: 256 :: 18: ?$$

(A) 360 (B) 361 (C) 261 (D) 461

Ans. Option (B) is correct.

**Explanation:**

**Given sequence:**

$$15 : 256 :: 18 : ?$$

**Logic:**

$$(15 + 1)^2 = 256$$

$$\text{So, } (18 + 1)^2 = 361$$

17. Match List - I with List - II.

List - I (Vitamin)		List - II (Deficiency Disease)	
(1)	Vitamin - A	(I)	Scurvy
(2)	Vitamin - C	(II)	Rickets
(3)	Vitamin - D	(III)	Non-clotting of blood
(4)	Vitamin - K	(IV)	Colour blindness

Choose the **most appropriate** answer from the options given below:

- (A) (1)-(I), (2)-(IV), (3)-(II), (4)-(III)  
 (B) (1)-(IV), (2)-(I), (3)-(II), (4)-(III)  
 (C) (1)-(IV), (2)-(I), (3)-(III), (4)-(II)  
 (D) (1)-(I), (2)-(IV), (3)-(III), (4)-(II)

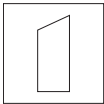
Ans. Option (B) is correct.

**Explanation:**

Vitamin	Deficiency Disease
Vitamin A	Colour blindness
Vitamin C	Scurvy
Vitamin D	Rickets
Vitamin K	Non-clotting of blood

18. Choose the alternative figure in which the problem figure is embedded?

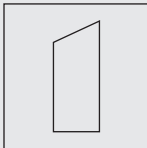
Problem Figure



- (A) (B)   
 (C) (D)

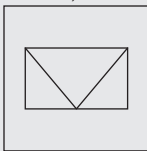
Ans. Option (B) is correct.

**Explanation:**



**Logic:**

Follow the pattern and the symmetry. Hence,



19. How many languages are presently scheduled in the Indian Constitution?

- (A) 14 (B) 21 (C) 22 (D) 18

Ans. Option (C) is correct.

**Explanation:** The eighth schedule of the Indian constitution lists 22 official languages. These are- Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Odia, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri. There is no fixed criteria for a language to be included in the eighth schedule of the constitution. Initially, there were 14 languages in the Indian constitution. Subsequently, Sindhi was added in 1967, followed by Konkani, Manipuri, and Nepali in 1992, and Bodo, Dogri, Maithili, and Santhali in 2004.

20. The age of a tree can be calculated by

- (A) Measuring its height  
 (B) Measuring the thickness of the trunk  
 (C) Measuring the width of the tree  
 (D) Measuring the number of annual rings

Ans. Option (D) is correct.

**Explanation:** The age of a tree is calculated by measuring the number of annual rings by a method known as Dendrochronology. It is also known as tree-ring dating. Each year the tree produces a ring that changes according to the environment and these rings are visible when the tree trunk is cut horizontally

The lighter and wider part in the ring is the spring wood and a darker and narrower part is the summer wood. Climate, temperature, precipitation, and soil quality also have a direct impact on the rings.

21. Here are some words translated from an artificial language

hirpa nig means bat ball

kirpa nig means foot ball

kirpa nad means foot mark

Which word would mean "mark sheet" ?

- (A) hirpa kirpa (B) nad tyan  
 (C) hirpa nad (D) kirpa nad

Ans. Option (B) is correct.

**Explanation:** From the given coding

The word kirpa means foot.

That means nad is mark.

According to the question,

Hirpa means bat. So, from the given options Nad Tyan means marksheet.

22. A shop and a car were sold for ₹ 2,70,000 each. Due to increased scope of business, shop was sold at a profit of 20% but due to depreciation, car could be sold at a loss of 10%. How much profit or loss resulted in the entire transaction?

- (A) Loss ₹ 5,000 (B) Loss ₹ 10,000  
 (C) Profit ₹ 15,000 (D) Profit ₹ 15,480

Ans. Option (C) is correct.

**Explanation:** Given that the selling price of shop and car each = ₹ 270000

According to the question,

$$\text{The cost price of shop} = \frac{270000 \times 100}{120} = ₹ 225000$$

$$\text{and the cost price of car} = \frac{270000}{90} \times 100 = ₹ 300000$$

So, total cost price of both articles

$$= 225000 + 300000 = 525000$$

$$\text{and selling price of both} = 2 \times 270000 = 540000$$

$$\text{So, profit} = 540000 - 525000 = ₹ 15000$$

23. For a certain period, simple interest on ₹ 1000 at 10% per annum is ₹ 100 more than that on ₹ 800. Find the period (in years).

- (A) 4 (B) 10 (C) 5 (D) 2

Ans. Option (C) is correct.

**Explanation:**

Let the time period = T years.

$$\text{Using, } SI = \frac{P \times R \times T}{100}$$

According to the question:

$$\frac{1000 \times 10 \times T}{100} - \frac{800 \times 10 \times T}{100} = 100$$

$$\Rightarrow 20T = 100 \Rightarrow T = 5.$$

Hence required time period = 5 years.

24. Find the missing term in given series:

1, 9, 25, 49, 81,    , 169

- (A) 91 (B) 144 (C) 121 (D) 64

Ans. Option (C) is correct.

**Explanation:**

**Given series:** 1, 9, 25, 49, 81,    , 169

**Logic:**

- |              |                |
|--------------|----------------|
| $(1)^2 = 1$  | $(9)^2 = 81$   |
| $(3)^2 = 9$  | $(11)^2 = 121$ |
| $(5)^2 = 25$ | $(13)^2 = 169$ |
| $(7)^2 = 49$ |                |

So, the missing number is 121.

25. A cuboidal slab of copper having dimensions 22 cm × 10 cm × 5 cm is melted and recasted in the form of a wire of 1 mm diameter. The wire is rubber coated at the rate of Rs. 1.50 per meter. Find the cost of rubber coating (in ₹)  $\left(\text{Use } \pi = \frac{22}{7}\right)$ .

- (A) 525 (B) 650 (C) 2100 (D) 2600

Ans. Option (C) is correct.

**Explanation:**

Given that the dimension of cuboid = 22 cm × 10 cm × 5 cm

$$\therefore \text{Volume of cuboid} = 22 \times 10 \times 5 = 1100 \text{ cm}^3$$

Also given that radius of wire

$$= \frac{1}{2} \text{ mm} = \frac{1}{20} \text{ cm}$$

Let the length of wire =  $l$  using, volume of cylinder =  $\pi r^2 h$

According to the question,

$$1100 = \frac{22}{7} \times \frac{1}{20} \times \frac{1}{20} \times l$$

$$l = 140000 \text{ cm or } 1400 \text{ m}$$

So, the cost of rubber coating =  $1400 \times 1.5$   
₹ 2100

26. If 1<sup>st</sup> January 2001 was Monday. Then which day of week was it on 31<sup>st</sup> December 2001?

- (A) Monday (B) Wednesday  
(C) Friday (D) Saturday

Ans. Option (A) is correct.

**Explanation:**

1<sup>st</sup> January 2001 = Monday

No. of days between 1<sup>st</sup> Jan 2001 to 31<sup>st</sup> Dec 2001 = 364 days.

So,  $364 / 7 = 52$  weeks, which implies there are no odd days.

Hence, 31<sup>st</sup> Dec 2001 will also be a Monday.

27. The difference between two numbers P and Q ( $P > Q$ ) is 40% of their sum. The ratio P : Q is:

- (A) 6: 4 (B) 7: 3 (C) 8: 5 (D) 5: 4

Ans. Option (B) is correct.

**Explanation:**

According to the question,

$$(P - Q) = \frac{40}{100}(P + Q)$$

$$\Rightarrow 100P - 100Q = 40P + 40Q$$

$$\Rightarrow 60P = 140Q$$

$$\Rightarrow \frac{P}{Q} = \frac{140}{60} \Rightarrow \frac{P}{Q} = \frac{7}{3}$$

or P : Q = 7 : 3

28. The value of  $\sqrt[4]{(625)^3}$  is:

- (A) 110 (B) 25 (C) 125 (D) 115

Ans. Option (C) is correct.

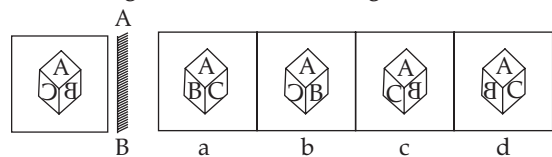
**Explanation:**

$$\begin{aligned} \text{Given expression} &= \sqrt[4]{(625)^3} \\ &= ((625)^3)^{1/4} = (5^{4 \times 3})^{1/4} \\ &= 5^3 = 125 \end{aligned}$$

29. In the following question, if a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure?

**Problem figure**

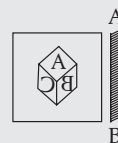
**Answers figure**



- (A) a (B) b (C) c (D) d

Ans. Option (A) is correct.

**Explanation:**



**Logic:**

In the mirror image left becomes right and right becomes left. Hence,



30. A 110 m long train takes 3 seconds to pass a pole. How long is the platform if the train passes it in 15 seconds?

(A) 440 m (B) 400 m (C) 550 m (D) 450 m

Ans. Option (A) is correct.

**Explanation:**

Given that:

Length of the train = 110 m

time = 3 second

$$\therefore \text{speed of train} = \frac{110}{3}$$

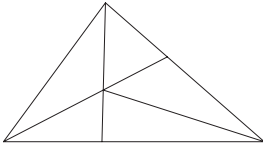
Let the length of platform =  $x$  m

According to the question,

$$\Rightarrow \frac{(110 + x)}{\frac{110}{3}} = 15$$

$$\Rightarrow 330 + 3x = 1650 \Rightarrow 3x = 1320 \Rightarrow x = 440$$

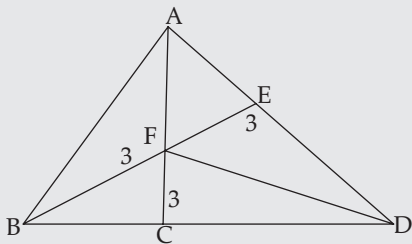
31. Find how many triangle are there in the given figure?



(A) 12 (B) 11 (C) 16 (D) 10

Ans. Option (A) is correct.

**Explanation:**



Triangles formed are:

ABC, ACD, ABD, ABE, AFE, AFD, FCD, FBC, EFD, EBD, FBD, ABE.

Hence, there are total 12 triangles in the given figure.

32. Find the wrong number in given series:

89, 78, 86, 80, 85, 82, 83

(A) 78 (B) 86 (C) 82 (D) 83

Ans. Option (B) is correct.

**Explanation:**

89, 78, 86, 80, 85, 82, 83

The pattern followed here is:

$$89 - 11 = 78$$

$$78 + 9 = 87$$

$$87 - 7 = 80$$

$$80 + 5 = 85$$

$$85 - 3 = 82$$

$$82 + 1 = 83$$

Hence, 86 is wrong and must be replaced by  $(78 + 9)$  i.e. 87.

33. Match List - I with List - II.

List - I (Quantities)		List - II (Units)	
(1)	Force	(I)	coulomb
(2)	Charge	(II)	hertz
(3)	Heat	(III)	newton
(4)	Frequency	(IV)	joule

Choose the **most appropriate** answer from the options given below:

(A) (1)-(IV), (2)-(II), (3)-(I), (4)-(III)

(B) (1)-(II), (2)-(IV), (3)-(III), (4)-(I)

(C) (1)-(III), (2)-(I), (3)-(IV), (4)-(II)

(D) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)

Ans. Option (C) is correct.

**Explanation:**

Quantities	Units
Force	Newton
Charge	Coulomb
Heat	Joule
Frequency	Hertz

34. Match List - I with List - II.

List - I (Name of Sanctuaries)		List - II (Locations)	
(1)	Achanakmar	(I)	Jammu and Kashmir
(2)	Dachigam	(II)	Karnataka
(3)	Chandraprabha	(III)	Uttar Pradesh
(4)	Bhadra	(IV)	Chattisgarh

Choose the **most appropriate** answer from the options given below:

(A) (1)-(IV), (2)-(I), (3)-(III), (4)-(II)

(B) (1)-(IV), (2)-(I), (3)-(II), (4)-(III)

(C) (1)-(I), (2)-(IV), (3)-(II), (4)-(III)

(D) (1)-(I), (2)-(IV), (3)-(III), (4)-(II)

Ans. Option (A) is correct.

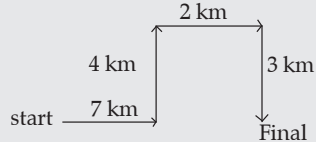
**Explanation:**

Name of sanctuaries	Location
Achanakmar	Kota district, Bilaspur, Chattisgarh.
Dachigam	Srinagar, Jammu and Kashmir
Chandraprabha	Chandauli district, Uttar Pradesh
Bhadra	Shivamogga and Chikmagalur districts, Karnataka

35. Pratap starts from school and walk 7 km towards East. He takes left and walks 4 km then takes a right and walk 2 km. Again takes a right and walks 3 km. Which direction is he facing now?

(A) West (B) East (C) North (D) South

Ans. Option (D) is correct.

**Explanation:**  
 According to the question,  
  
 Hence, he is facing towards South.

36. The largest Salt Water Lake in India is \_\_\_\_\_.  
 (A) Wular Lake (B) Chilka Lake  
 (C) Loktak Lake (D) Dal Lake

Ans. Option (B) is correct.

**Explanation:** The largest salt water lake in India is Chilka lake. It is the largest water lagoon in Asia and second largest in the world. It mainly covers Puri, Khordha and Ganjam districts of Odisha. It flows into the Bay of Bengal and covers an area of 1,100 square kilometers (approx.) during the monsoon season. It is known for its rich biodiversity of flamingos, fish, crustaceans, and bird species. Endangered species such as the Irrawaddy dolphin is found in the lake. Wular lake is the largest freshwater lake of India and is situated in the Bandipora district, Jammu and Kashmir. Loktak lake is a freshwater lake situated in Manipur, India. Keibul Lamjao National Park, which is the world's only floating national park, is situated on this lake. Dal lake is situated in Srinagar, Jammu & Kashmir. It is also known as 'Lake of Flowers', 'Jewel in crown of Kashmir', or 'Srinagar's Jewel.'

37. Who among the following won the best actress award in the 69<sup>th</sup> National Films award?  
 (A) Alia Bhatt (B) Kriti Sanon  
 (C) Both (1) and (2) (D) Pallavi Joshi

Ans. Option (C) is correct.

**Explanation:**

Category	Name
Best Feature Film	Rocketry
Best Actor	Allu Arjun, Pushpa
Best Actress	Alia Bhatt, Gangubai Kathiawadi and Kriti Sanon, Mimi
Best Supporting Actor	Pankaj Tripathi, Mimi
Best Supporting Actress	Pallavi Joshi, The Kashmir Files
Nargis Dutt Award for Best Film on National Integration	The Kashmir Files
Best Popular Film Providing Wholesome Entertainment	RRR

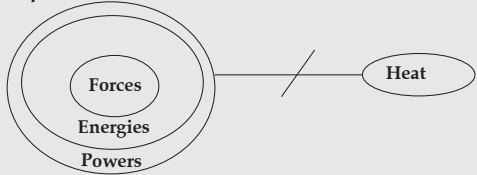
38. Statements:  
 (I) All Forces are energies  
 (II) All energies are powers

(III) No power is heat

**Conclusions:**

- (I) Some forces are definitely not powers  
 (II) No heat is force  
 Which of the following conclusions can be definitely drawn from the statements given in the question.  
 (A) If only (I) follows  
 (B) If only (II) follows  
 (C) If both (I) and (II) follows  
 (D) If neither (I) nor (II) follows

Ans. Option (B) is correct.

**Explanation:**  
  
 From the Venn diagram, only conclusion II follows.

39. By knowing to pH value of a liquid we can find the:  
 (A) density of the liquid  
 (B) viscosity of the liquid  
 (C) acidity of the liquid  
 (D) pressure of the liquid

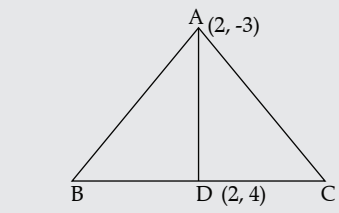
Ans. Option (C) is correct.

**Explanation:** By knowing pH, we can find the acidity of the liquid. pH is the measure of acidity and alkalinity of a given solution. It measures the concentration of Hydrogen Ion in a given solution. Acidic solutions have a lower pH whereas the basic solutions have a higher pH. The range of pH scale is from 0-14 where 0-6 signifies acidic nature, 7 is neutral, and 8-14 represents the alkaline nature. Numerically, it can be represented as  $pH = \text{Log} [H^+]$ . With the increase in temperature, the pH of the solution starts dropping and the solution starts turning to alkaline.

40. Find the coordinates of centroid of  $\Delta ABC$  if the mid point of BC is D(2, 4) and vertex A is (2, -3).

- (A) (1, 0) (B)  $(0, -\frac{2}{5})$  (C) (2, 5) (D)  $(2, \frac{5}{3})$

Ans. Option (D) is correct.

**Explanation:**  


Using property of centroid that it divides AD into a ratio of 2 : 1.

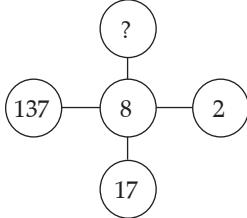
So, coordinates of centroid

$$= \left[ \frac{2 \times 2 + 1 \times 2}{2+1}, \frac{2 \times 4 + 1(-3)}{2+1} \right]$$

$$= \left[ \frac{6}{3}, \frac{5}{3} \right]$$

$$= \left[ 2, \frac{5}{3} \right]$$

41. Find missing term:

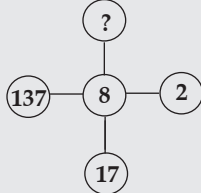


- (A) 9107 (B) 907 (C) 1097 (D) 97

Ans. Option (C) is correct.

**Explanation:**

**Given that:**



**Logic:**

$$2 \times 8 + 1 = 17$$

$$17 \times 8 + 1 = 137$$

$$137 \times 8 + 1 = 1097$$

So, the missing term is 1097.

42. A pair of dice is thrown. What is the probability of getting the sum of numbers on the two faces an odd-prime number?

- (A)  $\frac{7}{18}$  (B)  $\frac{1}{6}$  (C)  $\frac{1}{2}$  (D)  $\frac{5}{12}$

Ans. Option (A) is correct.

**Explanation:** Total possible outcome when a pair of dice thrown = 36

According to the question, possible

Outcomes = (1, 2), (1, 4), (2, 1), (2, 3), (2, 5), (3, 2), (3, 4), (4, 1), (4, 3), (5, 2), (5, 6), (6, 1), (6, 5), (1, 6)

$$\text{So required probability} = \frac{14}{36} = \frac{7}{18}$$

43. Rahul told Anand "yesterday I defeated the only brother of the daughter of my grandmother". Whom did Rahul Defeated?

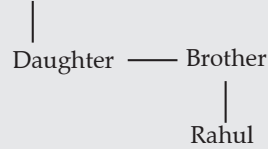
- (A) Son (B) Brother  
(C) Father-in-Law (D) Father

Ans. Option (D) is correct.

**Explanation:**

**According to the question:**

Grandmother



Hence, Rahul defeated his father.

44. The central rice research station is situated in

- (A) Raipur (B) Chennai  
(C) Bangalore (D) Cuttak

Ans. Option (D) is correct.

**Explanation:** The Central Rice Research Institute is situated in Cuttack, Odisha. It was established on 23<sup>rd</sup> April 1946 at Bidyadharpur, Cuttack, Odisha with an experimental farm land of 60 hectares provided by the Government of Odisha. Its founder Director was Dr. K Ramiah, who was an eminent rice breeder. In 1966, the administrative control of the Institute was transferred to the Indian Council of Agricultural Research (ICAR). CRRRI has two research stations- rice research on rainfed upland ecologies at Hazaribag, Jharkhand and rice research on flood prone rainfed lowland ecologies at Gerua, Assam.

45. In  $\triangle ABC$  with  $AB = 5$  cm,  $BC = 12$  cm,  $AC = 13$  cm and  $\angle B = 90^\circ$ , which of the following is/are not correct?

- (a)  $\tan C = \frac{12}{13}$  (b)  $\operatorname{cosec} A = \frac{13}{12}$   
(c)  $\sin B = \frac{5}{13}$  (d)  $\tan A = \frac{12}{15}$   
(e)  $\cos C = \frac{12}{13}$

Choose the **correct** answer from the options given below:

- (A) (a), (b) and (c) only (B) (a) and (b) only  
(C) (a), (c) and (d) only (D) (b), (c) and (d) only

Ans. Option (C) is correct.

**Explanation:**

By using right angle triangle property:

$$\tan C = \frac{5}{12}$$

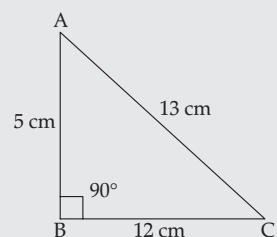
$$\operatorname{cosec} A = \frac{13}{12}$$

$$\sin B = 1,$$

$$\sin C = \frac{5}{13}$$

$$\tan A = \frac{12}{5}$$

$$\cos C = \frac{12}{13}$$



46. The sides of a triangle are in the ratio  $\frac{1}{3} : \frac{1}{4} : \frac{1}{5}$ . If the semi-perimeter of the triangle is 47 cm, then what is the length of the longest side?



(A) 20 cm (B) 40 cm (C) 44 cm (D) 30 cm

Ans. Option (B) is correct.

**Explanation:**

Given that,  
 The ratio of sides of triangle =  $\frac{1}{3} : \frac{1}{4} : \frac{1}{5}$   
 $= 20 : 15 : 12$   
 Let the sides of triangle =  $20x, 15x$  and  $12x$   
 Using, semi-perimeter =  $\frac{a+b+c}{2}$   
 $\Rightarrow 47 = \frac{20x+15x+12x}{2}$   
 $\Rightarrow 47x = 47 \times 2 \Rightarrow x = 2$   
 Length of longest side =  $20 \times 2 = 40$  cm

47. Correct the following equation by Interchanging the two signs:

$$4 \times 2 + 6 \div 2 - 12 = 2$$

- (A)  $\div$  and  $\times$  (B)  $+$  and  $-$   
 (C)  $\times$  and  $+$  (D)  $\div$  and  $-$

Ans. Option (A) is correct.

**Explanation:**

Interchange  $\div$  and  $\times$   
 LHS =  $4 \div 2 + 6 \times 2 - 12$   
 $= 2 + 12 - 12 = 2$

48. The area of four walls of a rectangular hall having length 18 m and height 8 m is 448 m<sup>2</sup>. What is the breadth of the hall (in m)?

- (A) 10 (B) 9 (C) 8 (D) 7

Ans. Option (A) is correct.

**Explanation:**

Given that:  
 length of wall = 18 m  
 height of wall = 8 m  
 let the breadth of wall =  $x$   
 According to the question:  
 $2(18 \times 8) + 2(x \times 8) = 448$   
 $\Rightarrow 36 \times 8 + 16x = 448$   
 $\Rightarrow 16x = 160 \Rightarrow x = 10$   
 So, breadth of wall = 10 m

49. The mean of scores obtained by 50 students is found to be 79.5. Later on, it was found that the score of one student was read as 94 in place of 49 and the score of another student was read as 69 in place of 89. Find the correct mean.

- (A) 85.52 (B) 79.35  
 (C) 79 (D) 78

Ans. Option (C) is correct.

**Explanation:**

Given that:  
 Average score of 50 students = 79.5  
 $\therefore$  Total score of 50 students =  $79.5 \times 50 = 3975$   
 According to the question,  
 Correct means =  $\frac{3975 - (94 + 69) + (49 + 89)}{50}$   
 $= 79$

50. Among A, B, C, D and E having a different amount of money, C has more money than only E, B and A. Who among them has the highest amount of money?

- (A) C (B) D (C) E (D) A

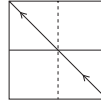
Ans. Option (B) is correct.

**Explanation:**

According to the question:

D  
 C  
 E/B/A  
 So, D has the highest money.

51.

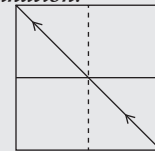


After folding the above figure along the dotted line, which figure will be obtained:

- (A) (B)
- (C) (D)

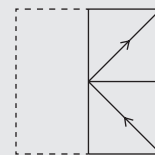
Ans. Option (A) is correct.

**Explanation:**



**Logic:**

Follow the pattern and the symmetry. Hence,



52. One of the Harappan site known as Kalibangan is located in which state of India?

- (A) Rajasthan (B) Gujarat  
 (C) Madhya Pradesh (D) Punjab

Ans. Option (\*) is correct.

**Explanation:**

Kalibangan is an ancient site of Indus valley civilization and is situated in Hanumangarh, Rajasthan. The site had remains of both pre-Harappan and post-Harappan remains which included copper and produced pottery, and use of baked bricks etc. It is also the site of the earliest recorded earthquake in 2600 BC. The seven most important sites of Indus Valley Civilization at-Mohenjo Daro, Harappa, Kalibangan, Lothal, Chanhudaru, Dholavira, and Banawali.

53. Match List - I with List - II.

List - I (Alloys)		List - II (Composition)	
(1)	Amalgam	(I)	Cu + Zn
(2)	Brass	(II)	Pb + Sn
(3)	Bronze	(III)	Cu + Sn
(4)	Solder	(IV)	Metal + Hg

Choose the **most appropriate** answer from the options given below:

- (A) (1)-(IV), (2)-(I), (3)-(III), (4)-(II)  
 (B) (1)-(III), (2)-(II), (3)-(I), (4)-(IV)  
 (C) (1)-(III), (2)-(I), (3)-(II), (4)-(IV)  
 (D) (1)-(IV), (2)-(III), (3)-(II), (4)-(I)

Ans. Option (A) is correct.

*Explanation:*

Alloys	Composition
Amalgam	Metal + Mercury (Hg)
Brass	Copper (Cu) + Zinc (Zn)
Bronze	Copper (Cu) + Tin (Sn)
Solder	Lead (Pb) + Tin (Sn)

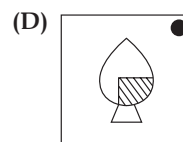
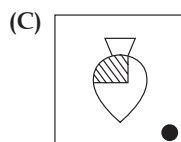
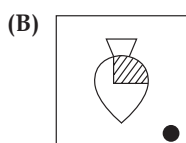
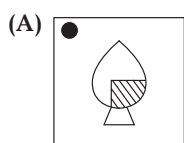
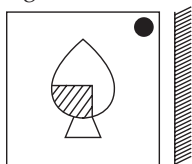
54. Which of the following fundamental right has been removed from our Constitution?

- (A) Right against exploitation  
 (B) Right to Constitutional remedies  
 (C) Right to Property  
 (D) Right to freedom of religion

Ans. Option (C) is correct.

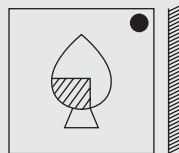
*Explanation:* Right to Property was removed from the list of fundamental rights recognised by the constitution of India. This was done through the 44<sup>th</sup> Constitutional Amendment Act of India in 1978. This was done to remove the excessive possession of land in the hands of few people. A new article 300 A was added to the constitution that made Right to Property a legal right. This allows the state to acquire property under two conditions when the acquisition should be made for a public purpose and it should provide for payment of compensation to the owner.

55. Choose the **most appropriate** Mirror-Image of the figure.



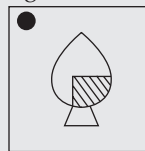
Ans. Option (A) is correct.

*Explanation:*



**Logic:**

In the mirror image left becomes right and right becomes left.



56. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

**Assertion (A):** Leakages in house hold gas cylinders can be detected.

**Reason (R):** LPG has a strong smell.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (A) Both (A) and (R) are correct and (R) is the correct explanation of (A)  
 (B) Both (A) and (R) are correct but (R) is not the correct explanation of (A)  
 (C) (A) is correct but (R) is not correct  
 (D) (A) is not correct but (R) is correct

Ans. Option (C) is correct.

*Explanation:* Assertion: Leakages in household gas cylinders can be detected. It is true.

Household gas cylinders have LPG in them but it is odorless. For leak detection in household cylinders, ethyl mercaptan is added to it as it has a smell of rotten cabbages which help in the detection of leaks.

Reason: LPG has a strong smell. It is false as it is odorless

57. 64 solid iron spheres of radius  $r$  are melted to form a sphere of radius  $R$ . Find  $R : r$ .

- (A) 2 : 1 (B) 3 : 1 (C) 8 : 1 (D) 4 : 1

Ans. Option (D) is correct.

*Explanation:*

$$\text{Volume of 64 iron sphere} = 64 \times \frac{4}{3} \pi r^3$$

$$\text{and volume of one big sphere} = \frac{4}{3} \pi R^3$$

According to the question:

$$\Rightarrow \frac{4}{3} \pi R^3 = 64 \times \frac{4}{3} \pi r^3$$

$$\Rightarrow \frac{R^3}{r^3} = \frac{64}{1} \Rightarrow \frac{R}{r} = \sqrt[3]{\frac{64}{1}}$$

$$\Rightarrow \frac{R}{r} = \frac{4}{1} \Rightarrow R : r = 4 : 1$$

58. Match List - I with List - II.

List - I		List - II	
(1)	Bharatnatyam	(I)	Sonal Mansingh
(2)	Kathak	(II)	Lakshmi Narayan Shastri
(3)	Odissi	(III)	Krishna Iyer
(4)	Kuchipudi	(IV)	Sitara Devi

Choose the **most appropriate** answer from the options given below:

- (A) (1)-(II), (2)-(III), (3)-(I), (4)-(IV)
- (B) (1)-(IV), (2)-(III), (3)-(II), (4)-(I)
- (C) (1)-(I), (2)-(II), (3)-(IV), (4)-(III)
- (D) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)

Ans. Option (D) is correct.

*Explanation:*

List I	List II
Bharatnatyam	Krishna Iyer
Kathak	Sitara Devi
Odissi	Sonal Mansingh
Kuchipudi	Lakshmi Narayan Shastri

59. Consider the following pairs:

- (A) International Women’s Day - 08 March
- (B) World Earth Day - 22 March
- (C) International Labour Day - 01 May
- (D) International Yoga Day - 21 May
- (E) World Health Day - 07 April

Choose the **most appropriate** answer from the options given below:

- (A) (a), (b) and (d) only
- (B) (a), (c) and (e) only
- (C) (b) and (d) only
- (D) (a), (b), (d) and (e) only

Ans. Option (D) is correct.

*Explanation:*

Days	Dates
International Women’s Day	8 March
World Earth Day	22 March
International labour Day	1 May
International Yoga Day	21 June
World Health Day	7 April

60. Match List - I with List - II.

List - I		List - II	
(1)	$14 - \frac{x-1}{10} = \frac{x+5}{6} - 3$	(I)	4
(2)	$(x - 5)2 - (x + 3)^2 = 48$	(II)	$-\frac{23}{2}$
(3)	$6(x - 4) = 4(x - 3) - (3x - 8)$	(III)	61
(4)	$(2x - 1)(2x + 3) = (2x - 7)(2x + 7)$	(IV)	-2

Choose the **correct** answer from the options given below:

- (A) (1)-(I), (2)-(II), (3)-(III), (4)-(IV)
- (B) (1)-(II), (2)-(I), (3)-(III), (4)-(IV)
- (C) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)
- (D) (1)-(III), (2)-(IV), (3)-(II), (4)-(I)

Ans. Option (C) is correct.

*Explanation:*

Checking by options.

for equation A :  $14 - \frac{x-1}{10} = \frac{x+5}{6} - 3$

$\Rightarrow x = 61$

for equation C :  $6(x - 4) = 4(x - 3) - (3x - 8)$

$\Rightarrow x = 4$

