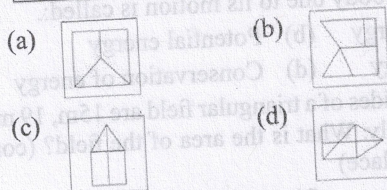
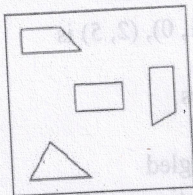


CUET General Test Solved Paper-2023

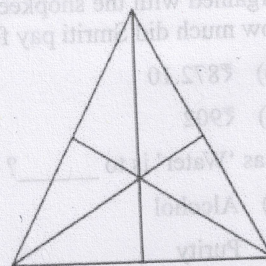
Held on 8 June 2023 (Shift-I)

1. In the question given below. Find out which of the figures can be formed from the pieces given in the problem figure.
Problem figure



2. Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A) : The Filament in an electric bulb does not burn up although its temperature is about 2700°C when it glows.
Reason (R) : Bulb filament is made of tungsten.
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 and (R) is NOT the correct explanations of (A)
(c) (A) is correct but (R) is not correct
(d) (A) is not correct but (R) is correct
3. Find the compound interest on ₹ 64000 at 10% per annum for 9 months when interest is compounded quarterly.
(a) ₹ 2791 (b) ₹ 4912
(c) ₹ 4921 (d) ₹ 6615.70
4. A man moves to east side then turn left, then right and then further turn right again and then moves left. Now man is in which direction?
(a) East (b) West
(c) South (d) North
5. Given below are two statements:
Statement I : Arithmetic Progression is a sequence in which addition of any two consecutive terms is a constant.
Statement II : In a Geometric Progression the ratio of any term to its preceding term is a constant.
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
6. Simple interest on a certain sum at 8% per annum for 5 years is ₹ 2400. What will be the compound interest on the same sum at the same rate for 2 years?
(a) ₹ 990 (b) ₹ 998.40
(c) ₹ 960 (d) ₹ 1015.50
7. Heavy water is used as coolant in Nuclear Reactors because heavy water is:
(a) Water rich in minerals
(b) Water containing minerals with heavy metal
(c) Ozonised water
(d) Water containing heavy isotopes of hydrogen
8. Six persons A, B, C, D, E and F are sitting in two parallel rows of three persons in each row and they all are facing in north direction. C is sitting to the right E. B is sitting to the right of D who is sitting opposite to A. F is sitting diagonally opposite to A. who is at the left to E. Who is sitting opposite to B?
(a) F (b) C
(c) E (d) A
9. Find the next term in the alpha numeric series:
C4X, F9U, I16R?
(a) K25P (b) L25P
(c) L25O (d) L27P
10. How many solid spherical balls each of diameter 1.5 cm can be made by melting a solid cylinder with height 36cm and base radius 8cm?
(a) 4,096 (b) 1,458
(c) 729 (d) 5,832
11. Find the number of triangle in the given figure.



- (a) 7 (b) 9
(c) 13 (d) 16
12. In which year 'Panchayati Raj' was passed by Lok Sabha and Rajya Sabha?
(a) 1992 (b) 1993
(c) 1994 (d) 1995

13. Find missing term in given series.

AZ, GT, MN, ?, YB

- (a) JH (b) TS
(c) SK (d) SH

14. Which of the following country is NOT a G20 member?

- (a) Indonesia (b) Turkey
(c) Mexico (d) Singapore

15. Match List I with List II

List I

(President of India)

List II

(Tenure)

(A) Dr. Zakir Husain (I) 25 July 1997 - 25 July 2002

(B) Shri V.V. Giri (II) 25 July 1982 - 25 July 1987

(C) Shri K.R. Narayanan (III) 25 August 1969 -

24 August 1974

(D) Giani Zail Singh (IV) 13 May 1967 - 3 May 1969

Choose the correct answer from the options given below:

(a) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(b) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

(c) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

(d) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

16. Shyam said Deepak's Mother is the mother of my father's wife. How is Deepak related to Shyam?

- (a) Mother's brother (b) Grand father
(c) Father's brother (d) Brother

17. Who is known as the 'Grand old man of India'?

- (a) Mahatma Gandhi
(b) Sardar Patel
(c) Bal Gangadhar Tilak
(d) Dada Bhai Naoroji

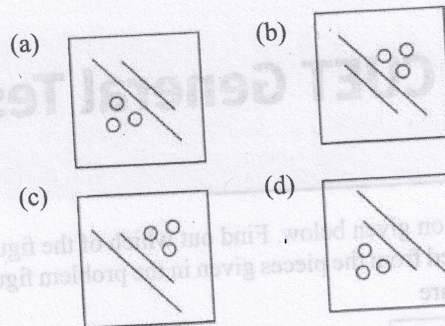
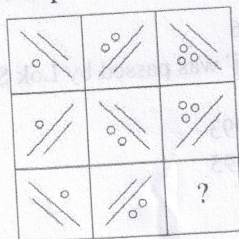
18. During festival season, an item was available for ₹ 918 after 15% discount. Smriti bargained with the shopkeeper and availed 20% discount, how much did Smriti pay for it?

- (a) ₹ 864 (b) ₹ 872.10
(c) ₹ 888 (d) ₹ 902

19. 'Exercise' is to 'Obesity' as 'Water' is to _____?

- (a) Thirst (b) Alcohol
(c) Drink (d) Purity

20. Complete the figure.



21. A triangle with vertices (3, 1), (-1, 0), (2, 5) is

- (a) Isosceles and right angled
(b) Right angled but not isosceles
(c) Isosceles but not right angled
(d) Neither isosceles nor right angled

22. The energy of a body due to its motion is called:

- (a) Kinetic energy (b) Potential energy
(c) Static energy (d) Conservation of energy

23. Length of three sides of a triangular field are 15m, 19 m and 22 m respectively. What is the area of the field? (correct to one decimal place)

- (a) 138.5 m² (b) 140.2 m²
(c) 150.8 m² (d) 150.5 m²

24. India's 1st Gold ATM that dispenses gold coins is launched in which city?

- (a) Warangal (b) Hyderabad
(c) Gurugram (d) Delhi

25. The position of how many digits in the number 726801 will remain unchanged after the digits within the number are rearranged in descending order (from left to right)

- (a) One (b) Two
(c) Three (d) Zero

26. Who wrote the famous book- "My Experiments with Truth"?

- (a) Lala Lajpat Rai (b) M. K. Gandhi
(c) Sarojini Naidu (d) V. S. Naipal

27. Ascorbic Acid is the correct chemical name of:

- (a) Vitamin D (b) Vitamin C
(c) Vitamin E (d) Vitamin B12

28. If the base radius of a cone is doubled and its height is halved, then volume of the new cone will be:

- (a) Same as of the original cone
(b) 1.5 times of the original cone
(c) 2 times of the original cone
(d) 4 times of the original cone

29. Taj Mahal (Agra U.P) was declared as one of the UNESCO's World Heritage sites in _____

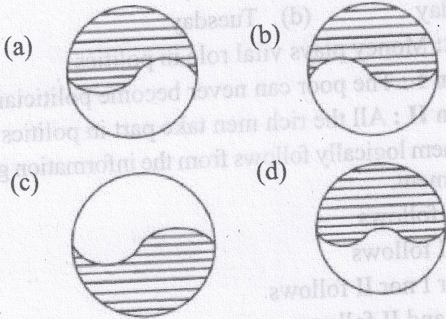
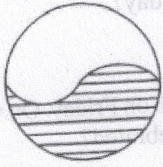
- (a) 1975 (b) 1980
(c) 1983 (d) 1990

30. Find the mean of prime numbers between 1 and 30.

- (a) 15 (b) 12.9
(c) 16 (d) 15.5

31. The Union Government launched "Bharat Nirman Yojana" on:

- (a) December 2005 (b) February 2006
(c) May 2015 (d) April 2016
32. In this question choose the correct water image of given figure:



33. Match List I with List II

List I

(Players Name)

(A) MC Mary Kom

(B) Dipika Pallikal

(C) Deepika Kumari

(D) Smriti Mandhana

List II

(Sports)

(I) Cricket

(II) Archery

(III) Squash

(IV) Boxing

Choose the correct answer from the options given below:

- (a) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)
(b) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
(c) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
(d) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)

34. If $2\cos\theta = \sqrt{3}$, then what is the value of $\tan 2\theta$?

- (a) $\frac{1}{\sqrt{3}}$ (b) $\sqrt{3}$
(c) $\frac{\sqrt{3}}{2}$ (d) $\frac{2}{\sqrt{3}}$

35. India's first experimental remote sensing satellite carrying TV and microwave cameras was:

- (a) Aryabhata (b) Bhaskar-1
(c) Rohini RS-1 (d) Rohini RS-2

36. Elephanta caves is located in:

- (a) Gwalior (b) Mumbai
(c) Jodhpur (d) Bhubaneswar

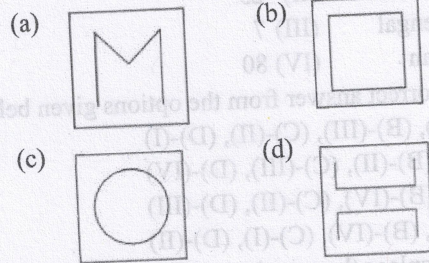
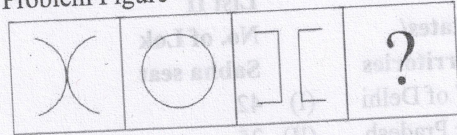
37. The average salary of employees of a factory is ₹15,000. The average salary of 250 of the employees is ₹16,000 and that of remaining employees is ₹13,750. Total number of the employees in the factory is:

- (a) 420 (b) 450
(c) 456 (d) 475

38. In _____ Indian National Congress passed a resolution of Poorna Swaraj (complete independence) as its ultimate goal.

- (a) Madras Session (1927 AD)
(b) Lahore Session (1929 AD)
(c) Karachi Session (1931 AD)
(d) Calcutta Session (1928 AD)

39. Find the missing figure
Problem Figure



40. The value of $0.1^8 \div 0.01^5$ is:

- (a) $\frac{1}{10}$ (b) $\frac{1}{1000}$
(c) 10 (d) 100

41. If E and F are events such that $P(E) = \frac{5}{8}$, $P(F) = \frac{1}{2}$ and

$P(E \text{ and } F) = \frac{1}{4}$, then what is $P(\text{not } E \text{ and not } F)$?

- (a) $\frac{1}{8}$ (b) $\frac{3}{16}$
(c) $\frac{3}{4}$ (d) $\frac{7}{8}$

42. The angles of a cyclic quadrilateral, taken in order are x° , $(3x - 30)^\circ$, $(y + 30)^\circ$ and $(2x - y)^\circ$. Find the measure of the smallest angle of the quadrilateral.

- (a) 20° (b) 30°
(c) 40° (d) 50°

43. If $a = 12$, $b = -8$ and $c = -4$, then find the value of $a^3 + b^3 + c^3$

- (a) 384 (b) 1152
(c) -1448 (d) 2304

44. Which terms comes next in sequence : AC, FH, KM, PR?

- (a) TV (b) UX
(c) VW (d) UW

45. Consider the following events and arrange them in ascending order

- (A) Gandhi-Irwin Pact
(B) First Round Table Conference
(C) Simon Commission
(D) Quit India Movement
(E) Poona Pact

Choose the correct answer from the options given below:

- (a) B, C, A, D, E (b) C, B, A, E, D
(c) A, B, C, D, E (d) B, D, A, C, E
46. What should be subtracted from 20% of 450 to get 25% of 240?
(a) 50 (b) 40
(c) 30 (d) 20
47. Match List I with List II

List I	List II
Indian States/ Union Territories	No. of Lok Sabha seat
(A) NCT of Delhi	(I) 42
(B) Uttar Pradesh	(II) 25
(C) West Bengal	(III) 7
(D) Rajasthan	(IV) 80

Choose the correct answer from the options given below:

- (a) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
(b) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
(c) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)
(d) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
48. What would replace the question mark in the given series?

ADG, BEH, CFI, ____, EHK

- (a) DEH (b) DFH
(c) DGJ (d) DFI
49. Find missing term in given pattern
 $12 : 36 :: 15 : ?$
(a) 99 (b) 45
(c) 60 (d) 39

50. Arrange the following, according to their increasing order, with which India shares longest boundary:
(A) Nepal (B) Pakistan
(C) China (D) Bhutan
(E) Myanmar

Choose the correct answer from the options given below:

- (a) A, B, C, D, E (b) D, E, A, C, B
(c) D, E, C, A, B (d) D, E, A, B, C
51. Find two numbers such that their mean proportional is 6 and third proportional is 20.25:
(a) 4 and 9 (b) 5 and 10.15
(c) 2 and 18 (d) 9 and 13.5
52. At what angle the hour and minute hands of a clock are inclined at 15min past 5?

- (a) 64° (b) $58\frac{1}{2}^\circ$
(c) $72\frac{1}{2}^\circ$ (d) $67\frac{1}{2}^\circ$

53. A man, a woman and a boy can do a work in 6, 9 and 18 days respectively. How many boys must assist one man and one woman to do the work in 1 day?

- (a) 13 (b) 9
(c) 5 (d) 1

54. If Republic day was celebrated in 1996 on Friday. On which day 2000 independence day was celebrated?

- (a) Saturday (b) Sunday
(c) Monday (d) Tuesday

55. Statement: Money plays vital role in politics.

Conclusion I : The poor can never become politicians

Conclusion II : All the rich men take part in politics

Which of them logically follows from the information given in the statement.

- (a) Only I follows
(b) Only II follows
(c) Neither I nor II follows
(d) Both I and II follows

56. Choose the correct option for the missing term
 $27 : 18 :: 102 : ?$

- (a) 54 (b) 68
(c) 76 (d) 84

57. Manu started his journey at 10:45 am with a speed of 45km/h. At what time will he reach his destination 150km away?

- (a) 1:45 pm (b) 1:55 pm
(c) 2:05 pm (d) 2:45 pm

58. Which of the Super Computers is not developed in India?

- (a) Flosolver (b) Pace
(c) Param - 10000 (d) Deep Blue

59. The relation between velocity of light (C), Frequency (v) and Wavelength (λ) is:

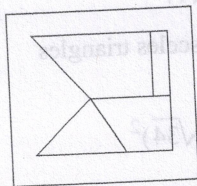
- (a) $C = v\lambda$ (b) $v = c\lambda$
(c) $\lambda = cv$ (d) $c = c\lambda^2$

60. Find the value of $\frac{5x+1}{3}$, if $25^{4x-3} = 5^{6x+8}$

- (a) $\frac{11}{3}$ (b) 27
(c) 12 (d) $\frac{17}{6}$

Hints & Explanations

1. (b)



2. (b) The bulb filament has high melting point so it does not burn up. Bulb filament is made of tungsten. Hence, both A and R are correct and R is not the correct explanation of A.

3. (c) Rate = 10% annually $\Rightarrow \frac{10}{4} = 2.5\%$ quarterly

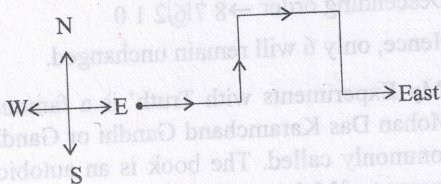
$$\text{Time} = 9 \text{ months} \Rightarrow 4 \times \frac{9}{12} = 3 \text{ quarterly}$$

$$\therefore \text{Compound interest} = 64000 \times \left(1 + \frac{2.5}{100}\right)^3 - 64000$$

$$= 64000 \times \frac{41}{40} \times \frac{41}{40} \times \frac{41}{40} - 64000$$

$$= 68921 - 64000 = ₹ 4921$$

4. (a)



5. (d) Arithmetic progression is a sequence of numbers such that the difference from any succeeding term to its preceding term remains constant throughout the sequence.

Hence, statement I is incorrect but statement II is correct.

6. (b) Let sum is P.

$$\therefore 2400 = \frac{P \times 8 \times 5}{100}$$

$$\Rightarrow P = 60 \times 100 = ₹ 6000$$

$$\text{Hence, compound interest} = 6000 \left(1 + \frac{8}{100}\right)^2 - 6000$$

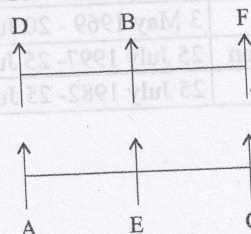
$$= 6000 \times \frac{27}{25} \times \frac{27}{25} - 6000$$

$$= 6998.4 - 6000 = ₹ 998.40$$

7. (d) Heavy Water (D_2O) or deuterium oxide is made up of two atoms of deuterium and one atom of oxygen. Deuterium is a stable isotope of hydrogen with double the mass of hydrogen due to the presence of an extra neutron in its nucleus. It acts as a moderator in a nuclear reactor and slows down the neutrons which

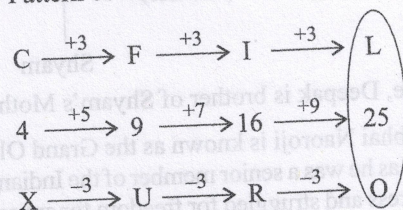
are produced during the fission reaction, so that chain reaction can sustain.

8. (c)



Hence, E is sitting opposite to B.

9. (c) Pattern of the series-



10. (a) Number of solid spherical balls = $\frac{\pi r^2 h}{4\pi r^3}$

$$= \frac{3 \times 8 \times 8 \times 36}{4 \times \frac{1.5}{2} \times \frac{1.5}{2} \times \frac{1.5}{2}}$$

$$= \frac{2 \times 3 \times 64 \times 36}{15 \times 15 \times 15} \times 1000$$

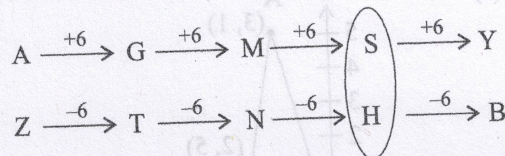
$$= 2 \times 64 \times 4 \times 8$$

$$= 64 \times 64 = 4096$$

11. (d) Number of triangles = $1 + 6 + 3 + 6 = 16$

12. (a) The Panchayati Raj system was introduced in India with the 73rd Amendment of the Indian constitution in 1973. This amendment introduced decentralisation in a legal way and established a 3 tier system of government.

13. (d) Pattern of the series.

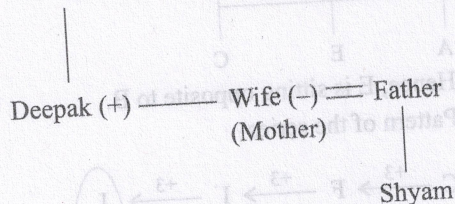


14. (d) G 20 is an international organisation which aims to secure global financial stability by formulating plans and discussing strategies to maintain financial stability. The Group of 20 consists of Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom and United States and the European Union.

15. (d) The President of India is the de-facto head of state, although a lot of powers are vested in President, the position is highly ceremonial in nature. The first President of India is Dr. Rajendra Prasad.

President of India	Tenure
Dr Zakir Hussain	13 May, 1967 – 3 May, 1969
Shri V.V Giri	3 May 1969 – 20 July 1969
Shri K.R. Narayanan	25 July 1997– 25 July 2002
Giani Zail Singh	25 July 1982– 25 July 1987

16. (a) Mother (–)



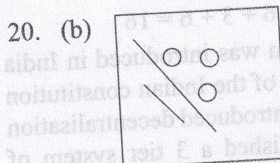
Hence, Deepak is brother of Shyam's Mother.

17. (d) Dadabhai Naoroji is known as the Grand Old Man of India, as he was a senior member of the Indian National Congress and struggled for freedom for approximately 6 decades. He was a patriot, a great social and political reformer and a prominent nationalist of progressive nature.

18. (a) Marked price of item = $918 \times \frac{100}{85} = ₹ 1080$

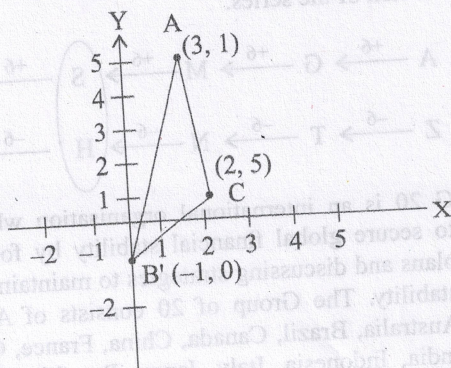
Hence, the amount Smriti paid = $1080 \times \frac{80}{100}$
= ₹ 864

19. (a) First one used to eliminate the second.
Hence, the answer is first.



Follow the same pattern as in two column.

21. (a)



By using distance formula,

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$= \sqrt{16+1} = \sqrt{17}$$

$$BC = \sqrt{9+25} = \sqrt{34}$$

$$CA = \sqrt{(-1)^2 + (4)^2} = \sqrt{17}$$

AB = CA so ABC is isosceles triangles
and $AB^2 + CA^2 = BC^2$

$$\text{So, } (\sqrt{17})^2 + (\sqrt{17})^2 = (\sqrt{34})^2$$

$$34 = 34$$

So, ABC is also a right angled triangle.

22. (a) The energy acquired by the body in motion is called as Kinetic Energy, while the energy possessed by a body due to its position is termed as Potential energy.

23. (b) Given, $a = 15, b = 19, c = 22$

$$\therefore S = \frac{15+19+22}{2} = 28$$

$$\text{Hence, area of field} = \sqrt{28(28-15)(28-19)(28-22)}$$

$$= \sqrt{28 \times 13 \times 9 \times 6}$$

$$= \sqrt{19656} = 140.2 \text{ m}^2$$

24. (b) India's first Gold ATM which dispenses Gold coins is launched in Hyderabad. India's first Gold ATM

25. (a)

7 2 6 8 0 1
Descending order $\rightarrow 8 7 6 2 1 0$

Hence, only 6 will remain unchanged.

26. (b) 'My Experiments with Truth' is a famous work of Mohan Das Karamchand Gandhi or Gandhi ji as he commonly called. The book is an autobiographical account of Mahatma Gandhi.

27. (b) The chemical name of Vitamin C is Ascorbic Acid. Moreover, the chemical name of Vitamin D is Calciferol, Vitamin E is tocopherol and B12 is Cyanocobalamin.

28. (c) Volume of original cone = $\frac{1}{3} \pi r^2 h$

$$\text{When } r = 2r, h = \frac{h}{2}$$

$$\therefore \text{Volume of new cone} = \frac{1}{3} \pi (2r)^2 \times \frac{h}{2}$$

$$= \frac{1}{3} \pi \times 4r^2 \times \frac{h}{2} = 2 \left(\frac{1}{3} \pi r^2 h \right)$$

Hence, volume of new cone = 2 × volume of original cone.

29. (c) Taj Mahal was declared UNESCO's World Heritage site in 1983. World Heritage Sites are designated by UNESCO for having cultural, historical, scientific or other forms of significance and they are provided legal protection under international convention.

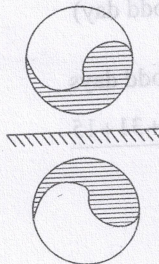
30. (b) Prime numbers between 1 and 30
= 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

Hence, mean = $\frac{2+3+5+7+11+13+17+19+23+29}{10}$

$= \frac{129}{10} = 12.9$

31. (a) Six sections make up Bharat Nirman as a whole. The Indian government will make an effort to upgrade the infrastructure in each of these six areas, which will lead to the improvement of the nation's infrastructure as a whole.

32. (b)



33. (c)

Players Name	Sports
MC Mary Kom	Boxing
Dipika Pallikal	Squash
Deepika Kumari	Archery
Smriti Mandhana	Cricket

34. (b)

$2 \cos \theta = \sqrt{3}$

$\Rightarrow \cos \theta = \frac{\sqrt{3}}{2} = \cos 30^\circ$

$\Rightarrow \theta = 30^\circ$

Hence, $\tan 2\theta = \tan 2 \times 30^\circ = \tan 60^\circ$

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

35. (b)

36. (b) Elephanta Caves is a network of sculpted caves situated on Elephanta Island, or Gharapuri (literally "the city of caves") in Mumbai Harbour, 10 kilometers east of Mumbai city in Maharashtra Indian state.

37. (b) Let number of employees in the factory is x .

According to question,

$250 \times 16000 + (x - 250) \times 13750 = x \times 15000$

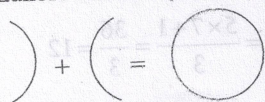
$\Rightarrow 250 \times (16000 - 13750) = x \times (15000 - 13750)$

$\Rightarrow x \times 1250 = 250 \times 2250$

$\Rightarrow x = \frac{2250}{5} = 450$ employees

38. (b) The Indian National Congress passed many resolutions of social as well as national importance in its course of discussion and deliberations. The resolution of Poorna Swaraj (Complete Independence) was passed in Lahore Session (1929 AD)

39. (b) As



Similarly,

$\frac{1}{10} + \frac{1}{10} = \frac{2}{10}$

40. (d)

$\frac{(0.1)^8}{(0.01)^5} = \frac{(0.1)^8}{\left(\frac{0.1}{10}\right)^5} = (0.1)^3 \times (10)^5$

$\Rightarrow \frac{(10)^5}{(10)^3} = 10^2 = 100$

41. (a) $P(E \cup F) = P(E) + P(F) - P(E \cap F)$

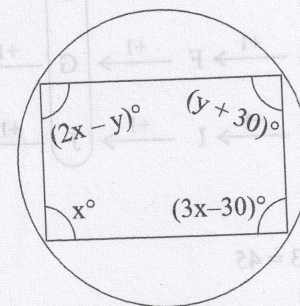
$= \frac{5}{8} + \frac{1}{2} - \frac{1}{4} = \frac{5+4-2}{8} = \frac{7}{8}$

$\Rightarrow P(E \cup F) = \frac{7}{8}$

Hence, $P(\text{not } E \text{ and not } F) = 1 - P(E \cup F)$

$= 1 - \frac{7}{8} = \frac{1}{8}$

42. (b)



As we know that in cyclic quadrilateral sum of opposite angles is always 180° .

$\therefore x + y + 30 = 180^\circ$

$\Rightarrow x + y = 150^\circ$... (i)

And $2x - y + 3x - 30 = 180^\circ$

$\Rightarrow 5x - y = 210^\circ$... (ii)

By solving eqn. (i) and (ii),

$\Rightarrow x = 60^\circ$ and $y = 90^\circ$

$\therefore$ Angles $x = 60^\circ$, $3x - 30 = 150^\circ$, $y + 30 = 120^\circ$, $2x - y = 30^\circ$

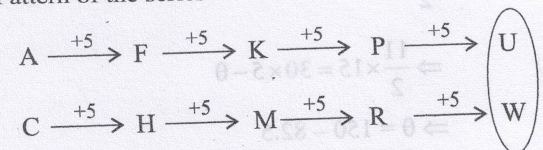
Hence, smallest angle is 30° .

43. (b) As $a + b + c = 12 - 8 - 4 = 0$

$\therefore a^3 + b^3 + c^3 = 3abc = 3 \times 12 \times (-8) \times (-4)$

$\Rightarrow a^3 + b^3 + c^3 = 1152$

44. (d) Pattern of the series-



45. (b) The events in history in ascending order are as follows:
Simon Commission : November 1927

First Round Table Conference : November 1930
 Gandhi Irwin Pact: March 1931
 Poona Pact : 1932

Quit India Movement : 1942

46. (c) According to question:

Let the number is x .

$$\frac{20}{100} \times 450 - x = \frac{25}{100} \times 240$$

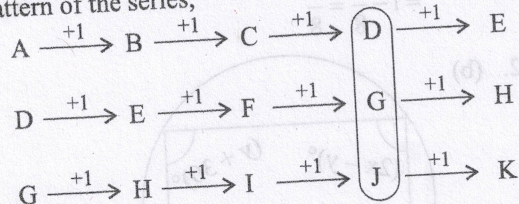
$$\Rightarrow 90 - x = 60 \Rightarrow x = 90 - 60 = 30$$

Hence, the number is 30.

47. (d)

Indian States/ UT	No. of Lok Sabha Seats
NCT of Delhi	7
Uttar Pradesh	80
West Bengal	25
Rajasthan	42

48. (c) Pattern of the series,



49. (b) Pattern is that-
 $12 \times 3 = 36$

Similarly, $15 \times 3 = 45$

50. (d) Bhutan: 699 km

Myanmar: 1643 km

Nepal: 1751 km

Pakistan: 3233 km

China: 3488 km

51. (a) Mean proportional = 6 $\Rightarrow \sqrt{ab} = 6$

$$\Rightarrow ab = 36$$

Third proportional = 20.25

$$\Rightarrow \frac{b^2}{a} = 20.25$$

By solving eqn. (i) and (ii),

$$a = 4 \text{ and } b = 9$$

52. (d) $\frac{11}{2} M = 30H \pm \theta$

$$\Rightarrow \frac{11}{2} \times 15 = 30 \times 5 - \theta$$

$$\Rightarrow \theta = 150 - 82.5$$

$$\Rightarrow \theta = 67.5 = 67 \frac{1}{2}^\circ$$

53. (a) $\text{boy} \times 18 = \text{man} \times 6 \Rightarrow \text{man} = 3 \text{ boy}$
 $\text{boy} \times 18 = \text{woman} \times 9 \Rightarrow \text{woman} = 2 \text{ boy}$
 Let the number of boys = x

According to question,

$$\text{boy} \times 18 = (x \text{ boy} + \text{man} + \text{woman}) \times 1$$

$$\Rightarrow 18 \text{ boy} = x \text{ boy} + 3 \text{ boy} + 2 \text{ boy}$$

$$\Rightarrow x \text{ boy} = 18 \text{ boy} - 5 \text{ boy} = 13 \text{ boy} \Rightarrow x = 13$$

54. (d) 26 Jan 1996 = Friday (Leap year $\therefore$ 2 odd days)

26 Jan 1997 = Sunday (1 odd day)

26 Jan 1998 = Monday (1 odd day)

26 Jan 1999 = Tuesday (1 odd day)

26 Jan 2000 = Wednesday

$\therefore$ Till 15 Aug 2020 no. of odd days

$$= \frac{5 + 29 + 31 + 30 + 31 + 30 + 31 + 15}{7}$$

$$= \frac{202}{7} = 6 \text{ odd days}$$

Hence, day on 2000 independence
 = Wednesday + 6 = Tuesday

55. (c) Both the conclusions are not related to statement.
 Hence, neither I nor II follows.

56. (b) Pattern is that-

$$\frac{27}{18} = \frac{3}{2}$$

$$\text{So, } \frac{102}{x} = \frac{3}{2}$$

$$\Rightarrow x = 102 \times \frac{2}{3} = 68$$

57. (c) Time taken to reach destination = $\frac{150}{45} = 3 \frac{15}{45}$

$$= 3 \text{ hrs} + \frac{1}{3} \times 60 = 3 \text{ hrs} + 20 \text{ min}$$

Hence, required time = 10 : 45 am + 3 hrs + 20 min
 = 2 : 05 pm

58. (d) PARAM Siddhi-AI, Pratyush, and Mihir are some of the names of supercomputers in India, with a high level of performance in comparison to a general-purpose computer.

59. (a) $c = v\lambda$

The frequency (v), wavelength (λ) and velocity of light (c) related as follows

$$c = v\lambda$$

60. (c) $25^{(4x-3)} = 5^{(6x+8)}$

$$\Rightarrow 25^{(4x-3)} = 25^{(3x+4)}$$

It base is same than power will be same,

$$4x - 3 = 3x + 4$$

$$\Rightarrow x = 7$$

$$\text{Hence, } \frac{5x+1}{3} = \frac{5 \times 7 + 1}{3} = \frac{36}{3} = 12$$