RRC Group D Previous Year Paper 30 (Held On: 28 Sept 2018 Shift 2)

RRB Group D • 2018 • 100 questions • 90 minutes • Answer key and solutions

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

yourmocktest.com/pyq/rrb-group-d/rrc-group-d-previous-year-paper-30-held-on-28-sept-2018-s…

Scan the QR code or click the link to open it.

CBT

Q1. {20 – (25 – 33)} ÷ {- 5 × 4 – (- 6)} + 56 ÷ (- 27 + 13) = ?

(a) -4
(b) -2
(c) 4
(d) -6

Q2. Durga Puja is the main festival of _____

(a) Kashmir
(b) West Bengal
(c) Kerala
(d) Rajashtan

Q3. A statement is followed by two arguments. Decide which of the arguments is are strong with respect to statement.

Statement:

There should be strict penalty for people using mobile phone while driving.

Arguments:

I. Yes, it will ensure that the number of accident due to mobile phone usage gets avoided.

II. No, it is difficult to implement as people are used to using cell phones anywhere.

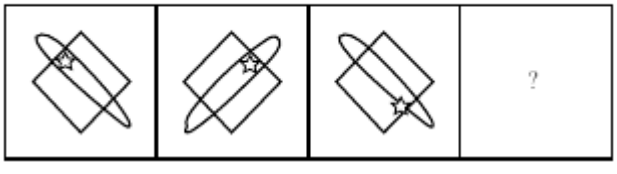
(a) Only argument I is strong.
(b) Both I and II are strong
(c) Only argument II is strong
(d) Neither I nor II is strong

Q4. Car is related to Tyre in the same way Chair is related to:

(a) Back
(b) Sit
(c) Rest
(d) Legs

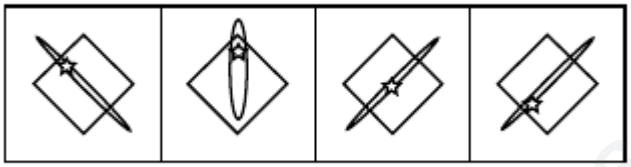
Q5. Select the option figure that will complete the series of question figures.

Question Figures



YourMockTest.com — Free Study Material

Option Figures



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

Q6. Read the given statement and conclusions carefully and select which of the conclusions logically follow(s) from the statement.

Statement:

Mr. X says that he gets good thought in the morning.

Conclusions:

1. Thoughts come to Mr. X only in the morning.
2. Thoughts does not come to Mr. X in the evening.

(a) Only conclusion 2 follows
(b) Neither 1 nor 2 follows
(c) Either 1 or 2 follows
(d) Only conclusion 1 follows

Q7. _____ is an alkali metal.

(a) Sodium
(b) Manganese
(c) Aluminium
(d) Magnesium

Q8. If √45 + √20 = 11.180 find the value of √180 + 4√5

(a) 22.360
(b) 24.595
(c) 20.124
(d) 17.888

Q9. If an object with a mass of 25 kg is moving with a uniform acceleration of 8ms^(-2), then the force exerted by the body is _____.

(a) 200 N
(b) 200 J
(c) 200 ms^(-2)
(d) 200 ms^2

Q10. The LCM of 60 and 54 is

(a) 6 × 5 × 9
(b) 6 × 10 × 3
(c) 6 × 10 × 9
(d) 60 × 54

Q11. Based on the following table, what is the average number (in thousands) of screws manufactured in the unit over the given 6 months?

Months	No. of screws Manufactured, in Thousand
Jan	200

Feb	300
Mar	250
Apr	250
May	250
Jun	250

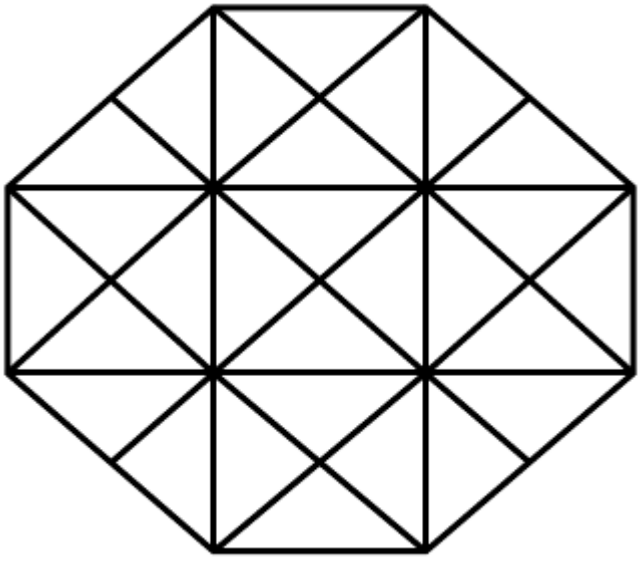
(a) 200
(b) 250
(c) 300
(d) 150

Q12. Grey revolution is related to _____.
(a) leather
(b) silk
(c) fish
(d) fertilizers

Q13. Convert 0.overline6 into a fraction:
(a) 2/3
(b) 4/3
(c) 6/3
(d) 2/6

Q14. In ethane, each carbon atom is bonded to _____ hydrogen atoms.:
(a) One
(b) Three
(c) Five
(d) Four

Q15. What is the minimum number of lines required to make the following figure?



(a) 18
(b) 13
(c) 20
(d) 16

YourMockTest.com — Free Study Material

Q16. The formula of Lithium Nitride is

(a) Li2N
(b) LiN
(c) Li3N2
(d) Li3N

Q17. Kautilya's Arthashatra given us information about the ___administration.

(a) Gupta
(b) Rashtrakuta
(c) Pratihara
(d) Maurya

Q18. When two equal force are acting on a body and opposite in direction, the net force acting on the body becomes _____.

(a) three-times
(b) two-times
(c) zero
(d) four-times

Q19. _____ promote(s) cell division.

(a) Abscisic acid
(b) Cytokinins
(c) Gibberellins
(d) Auxin

Q20. Which of the following lies on the reflecting surface of a spherical mirror?

(a) Centre of curvature
(b) Focus
(c) Pole
(d) Focal length

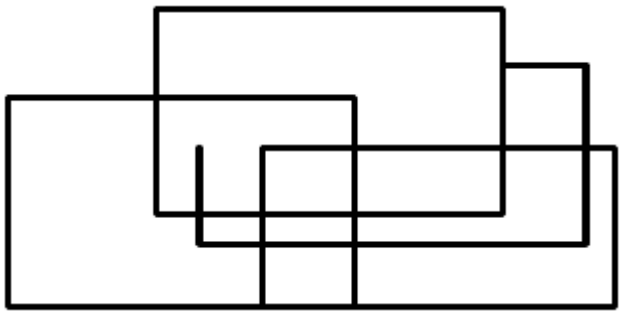
Q21. White phosphorous is stored in:

(a) Oxygen
(b) Alcohol
(c) Hydrogen
(d) water

Q22. The mean of the 8 smallest numbers from a group is 17, while the mean of all the numbers of the group taken together is 20. If the mean of the numbers leaving the smallest eight out is 22, how many numbers were present in group in all?

(a) 22
(b) 20
(c) 18
(d) 19

Q23. How many rectangles are there in this figure?



YourMockTest.com — Free Study Material

(a) 9
(b) 14
(c) 17
(d) 16

Q24. A jeweller made a piece of uniquely designed diamond necklace and the selling price was fixed at Rs. 10,00,000. In making this piece, on the raw material, the jeweller had invested Rs. 3,00,000 and had paid a labour charge of Rs. 2,00,000. If 20% of the raw material cost was of gold, what is the actual amount the jeweller had spent in procuring the gold?

(a) Rs. 1,60,000
(b) Rs. 1,08,000
(c) Rs. 3,60,000
(d) Rs. 60,000

Q25. Complete the number series by choosing the missing terms from the options.

11, 20, 27, 36, 43, ?, ?, 68, 75

(a) 50, 61
(b) 52, 61
(c) 50, 59
(d) 52, 59

Q26. The sum of all interior angles of a polygon is 1260°. Find the number of sides of the polygon.

(a) 11
(b) 8
(c) 10
(d) 9

Q27. As of May 2018, what is the portfolio held by the current Union Minister Smriti Irani?

(a) Information and Broadcasting
(b) Science and Technology
(c) Health and Family Welfare
(d) Women and Child Development

Q28. A and B together can complete a task in 1.2 days. However, if A works alone, completes half of the job and leaves, then B works alone and completes the rest of the work, it takes 2.5 days in all to complete the work. If B is more efficient than A, Then how many days would B have taken to complete the work herself?

(a) 1.5
(b) 1.8
(c) 2.0
(d) 2.2

Q29. In a shopping mall, a handbag was sold for Rs. 2990 after giving a discount of P%, If the marked price of the handbag was Rs. 4600, find the value of P?

(a) 40
(b) 45
(c) 35
(d) 72

Q30. In _____, cells are loosely packed so that large intercellular spaces are found.

(a) Parenchyma
(b) Tracheids
(c) Sclerenchyma
(d) Collenchyma

YourMockTest.com — Free Study Material

Q31. Name the director of the blockbuster movie 'Baahubali'

(a) Madhur Bhandarkar
(b) Prabhu Deva
(c) Karan Johar
(d) S. S. Rajamouli

Q32. Insert mathematical symbols in the place of To get the result.

((10 ? 10) ? 25) ? 10 = 10

(a) -, ×, ÷
(b) ×, ×, +
(c) +, ÷, ÷
(d) -, ×, +

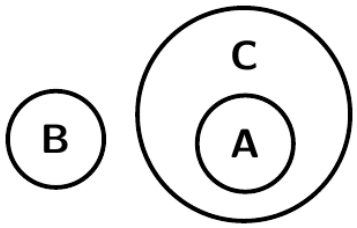
Q33. Which of the following correctly represents the relationship between?

A) Metal
B) Glass
C) Vessels

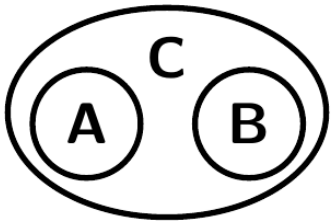
(a)



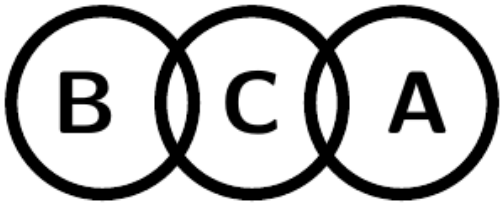
(b)



(c)



(d)



Q34. Who was honoured with the prestigious 2018 Padma Bhushan award in the field of Sports-Billiards/Snooker?

(a) Ashok Shandilya
(b) Geet Sethi
(c) Pankaj Advani

YourMockTest.com — Free Study Material

(d) Michael Ferreira

Q35. In an alloy of German silver, the ratio of copper to zinc was 21 : 16 while that of nickel to zinc was 7 : 24 What was the ratio of copper to zinc to nickel in the alloy?

(a) 21 : 16 : 7
(b) 17 : 21 : 4
(c) 63 : 48 : 14
(d) 68 : 28 : 21

Q36. Ram swims in an 80 m long pool. He covers 160 m in one minute by swimming from one end to the other and back, along the same straight path. Find his average speed.

(a) 2.07 ms^(-1)
(b) 2.60 ms-1
(c) 3.67 ms^(-1)
(d) 2.67 ms^(-1)

Q37. The focal length of a lens is 50 centimetre. Its power is:

(a) 50 Diopter
(b) 1 Diopter
(c) 10 Diopter
(d) 2 Diopter

Q38. The host city for the 8^(th) annual Global Entrepreneurship Summit (GES – 2017) was:

(a) Mysore
(b) Banglore
(c) Chennai
(d) Hyderabad

Q39. The mass of the earth is _____.

(a) 6×10^{23} kg
(b) 6 × 10^(24) kg
(c) 6 × 10^(25) kg
(d) 6×10^{22} kg

Q40. In a code language, FLUTE is written as 62105. What is the code for HARMONICA?

(a) 918354931
(b) 818254931
(c) 818354931
(d) 818354932

Q41. If a bicycle of mass 10 kg moves at a speed of 20 m/s then the kinetic energy of the bicycle is:

(a) 2000 J
(b) 400 J
(c) 4000 J
(d) 200 J

Q42. Variable valency is exhibited by _____.

(a) Valence elements
(b) Transition element
(c) Group elements
(d) Alkaline elements

Q43. According to the World Bank, what is India's position among the world economies based on the year 2017?

(a) 7
(b) 9
(c) 6

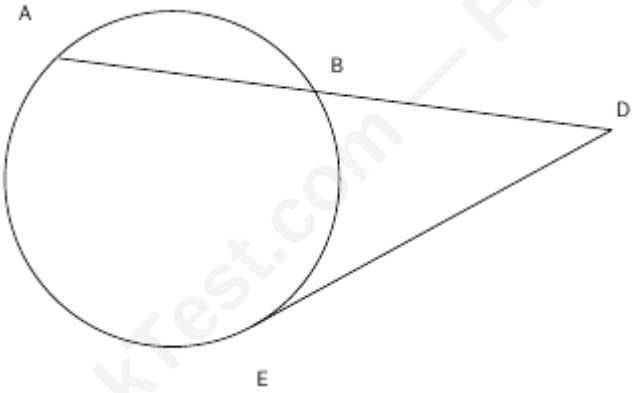
YourMockTest.com — Free Study Material

(d) 4

Q44. The Chief Minister of Goa as of March 2018. Manohar Parrikar, belongs to:

(a) Janta Dal Party
(b) Indian National Congress
(c) Bharatiya Janata Party
(d) CPI

Q45. In the circle below, chord AB is extended to meet the tangent DE at D. If AB = 24 cm DE = 9 cm, what is the length of BD ?



(a) 4√6 cm
(b) 3 cm
(c) 5 cm
(d) 4 cm

Q46. Vessels are the major water conducting cells in:

(a) Fungi
(b) Angiosperms
(c) Bryophyta
(d) Thallophyta

Q47. If YELL is coded as 2551212, then what will be the code of LENT?

(a) 1251421
(b) 1251420
(c) 1251620
(d) 1351420

Q48. Sarathi deposited Rs. 3,125 in a bank which promised 8% simple interest per annum. If Sarathi kept the money with the bank for 5 years, he will earn an interest of:

(a) Rs. 1,280
(b) Rs. 1,290
(c) Rs. 1,250
(d) Rs. 1,240

Q49. Which of the following numbers is divisible by 12?

(a) 73508
(b) 63508
(c) 83508
(d) 93508

Q50. Who among the following was appointed as the UN Environment's Goodwill Ambassador for India in November 2017?

(a) Vidya Balan
(b) Dia Mirza

YourMockTest.com — Free Study Material

(c) Sonakshi Sinha
(d) Rekha

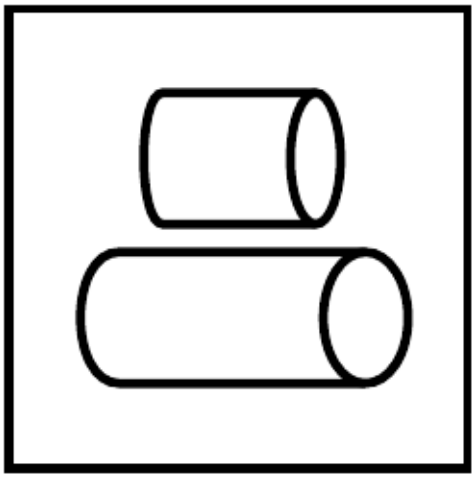
Q51. _____ is not the same as reproduction.
(a) Budding
(b) Fission
(c) Multiple fission
(d) Regeneration

Q52. Who is the proponent and propagandist of the “Art of Living”:?
(a) Sri Sri Ravi Shankar
(b) Swaminarayan
(c) Sahajanand Swami
(d) Pandit Ravi Shankar

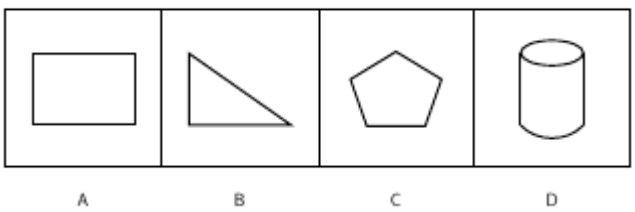
Q53. Where was the 48^(th) International Film Festival of India held in 2017?
(a) Delhi
(b) Goa
(c) Mumbai
(d) Hyderabad

Q54. Which of the following shapes are combined to form this shape?

Question Figure



Option Figures



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

YourMockTest.com — Free Study Material

Q55. Who among the following won a gold medal at 2017 World Para Swimming Championship?

(a) Curtis Lovejoy
(b) Tucker Dupree
(c) Jessica Long
(d) Kanchanmala Pande

Q56. Pipe A can fill an empty cistern in 5 hours while Pipe B takes 6.25 hours to fill it. The two pipes are opened simultaneously when the cistern is empty, but Pipe B is turned off after some time as a result of which the cistern is filled in 3.4 hours. For how many hours was Pipe B opened?

(a) 1.5
(b) 1
(c) 2
(d) 2.5

Q57. A 112 ft tall Shiva statue (Adiyogi) was unveiled on 24th February 2017 in Tamil Nadu by

(a) Ramvilas Paswan
(b) Ram Nath Kovind
(c) Rajnath Singh
(d) Narendra Modi

Q58. The ____ in India are generally known as 'Tidal Forests'.

(a) desert forests
(b) mountain forests
(c) dry lands
(d) wetlands

Q59. The ratio of chairs to tables in an office is 9 : 7 If there are 42 more chairs than tables, find the number of chairs in the office.

(a) 189
(b) 215
(c) 147
(d) 200

Q60. A ball thrown up vertically returns to ground after 12 seconds. Find the velocity with which it was thrown up. (g = 10ms^(-2))

(a) 10 ms^(-1)
(b) 125 ms^(-1)
(c) 12.5 ms^(-1)
(d) 60 ms^(-1)

Q61. 'Alum' is an example of:

(a) Flake salt
(b) Table salt
(c) Single salt
(d) Double salt

Q62. Sunny and Paula can complete a piece of work together in 12 hours. Paula takes 18 hours to complete work alone, another individual, Jane, takes 45 hours to complete the same piece of work alone. How many hours would it take sunny and Jane to complete the same work together?

(a) 18
(b) 16
(c) 15
(d) 20

YourMockTest.com — Free Study Material

Q63. Who is the Director of the movie 'Padmavaat' released in 2018?

(a) Rajkumar Hirani
(b) Sanjay Leela Bhansali
(c) Karan Johar
(d) S. S. Rajamouli

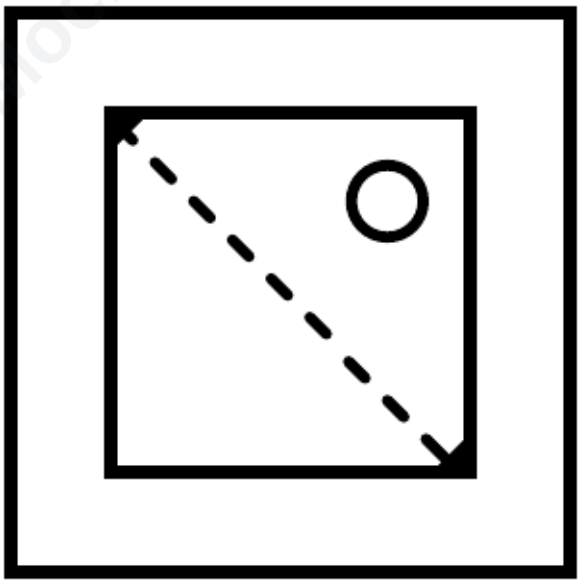
Q64. Who among the following is the Union Minister of Human Resource Development, Government of India, as of 1 March 2018?

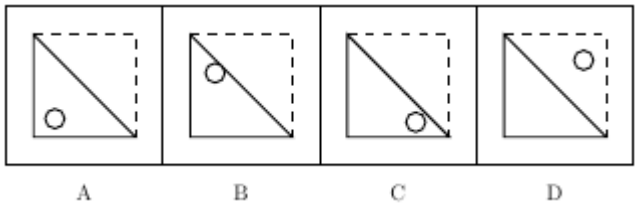
(a) Radha Mohan Singh
(b) Prakash Javadekar
(c) Harsha Vardhan
(d) Smriti Irani

Q65. Name the Indian sportsperson who won gold in the Girls Under 12 category at the World Cadets Chess Championship, in 2017

(a) Padmini Rout
(b) Divya Deshmukh
(c) Abhimanyu Puranik
(d) Aryan Chopra

Q66. Which pattern will the given transparent sheet resemble when it is folded at the dotted line?



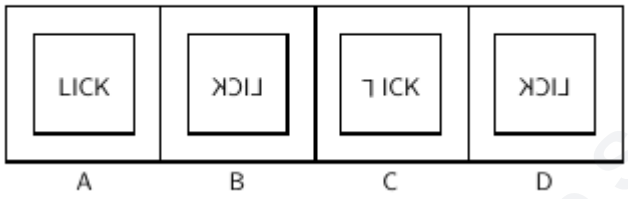


(a) D
(b) B
(c) C
(d) A

Q67. Select the horizontal mirror image of LICK from option figures.

YourMockTest.com — Free Study Material

Option Figures



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

Q68. The volume of right circular cone, whose radius of the base is one-third of its altitude, and the volume of a hemisphere are equal. The ratio of the radii of the cone and the hemisphere is;

(a) cbrt3 : cbrt2
(b) 2 : 3
(c) cbrt2 :1
(d) cbrt2 : cbrt3

Q69. Consider the statement(s) and decide which of the given assumption(s) is/are implicit in the statement.

Statement:

"Shortage in rainfall results in crop failure" said the meteorologist

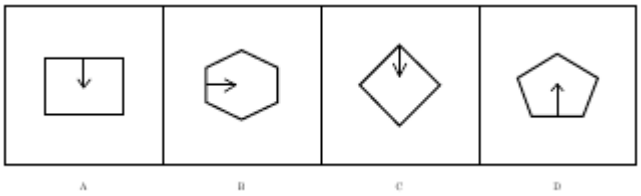
Assumptions:

I. Rainfall is a must for crop success.

II. Irrigation is much dependent on Rainfall

(a) Neither I nor II is implicit
(b) Both I and II are implicit
(c) Only I is implicit
(d) Only II is implicit

Q70. Find the odd one out.



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

Q71. Pipes A and B, when working together can fill an empty tank in 24 hours. They work together for 8 hours and then B is stopped but A continued to work. It took a total of 28 hours to fill the tank. How long would it take A to fill the empty tank alone?

(a) 30 hours
(b) 29 hours
(c) 28 hours
(d) 31 hours

YourMockTest.com — Free Study Material

Q72. Consider the given statement(s) and decide which of the given assumption(s) are implicit in the statement.

Statement:

Earlier there were many birds in the bird sanctuary.

Assumptions:

I. Birds migrate and come to the sanctuary during a particular period of the year

II. There were good water bodies in that area

(a) Only II is implicit
(b) Only I is implicit
(c) Both I and II are implicit
(d) Neither I nor II is implicit

Q73. Vandana is the daughter of Vishal and Vanita. Amit is the son of Vanita's brother. Who is Vandana to Amit?

(a) Brother
(b) Cousin
(c) Father
(d) Nephew

Q74. Monika's father was 38 years of age when she was born while her mother was 36 years old when her sister four years younger to her was born. What is the difference between the ages of her parents?

(a) 8 years
(b) 4 years
(c) 6 years
(d) 2 years

Q75. _____Theory of Evolution tells us how life evolved from simple to more complex forms.

(a) Darwin's
(b) Wallace
(c) Mendel's
(d) Lamarck's

Q76. A wooden crate 1.8 m long, 1.5 m wide and 1.2 m in height is filled with iron cubes that are 6 cm wide. Find the maximum number of iron cubes that can be fitted in the crate.

(a) 13,500
(b) 15,000
(c) 14,500
(d) 14,000

Q77. What is the next term in the given series?

22C, 42F, 62I, ___

(a) 82L
(b) 82N
(c) 82M
(d) 82O

Q78. A boy standing at the top of a 20-metre-high tower drops a stone. Assuming g = 10 m/s^(2,)the velocity with which the stone hit the ground is:

(a) 10 m/s
(b) 20 m/s
(c) 15 m/s
(d) 25 m/s

YourMockTest.com — Free Study Material

Q79. The Government of India has tied up with which of the following companies to support Skill India in the automobile industry?

(a) Ashok Leyland
(b) Tata Motors
(c) Maruti Suzuki
(d) Mahindtra & Mahindra Ltd.

Q80. Which of the following effects is NOT produced by current?

(a) Chemical effect
(b) Contraction effect
(c) Heating effect
(d) Magnetic effect

Q81. _____ element has two orbits that are completely filled.

(a) He
(b) Ar
(c) Kr
(d) Ne

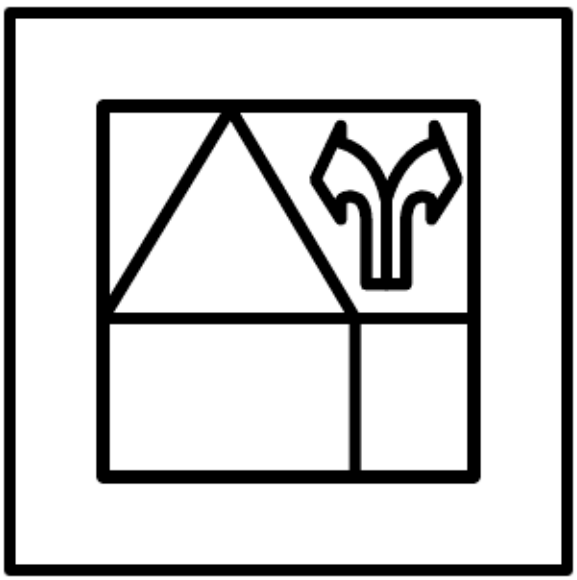
Q82. Mark had to travel 220 km in 4.5 hours, using a train that travels at the speed 60 km/h or a bus that travels at the speed of 40 km/h, or any combination of the two modes of transport. For how long did he travel by bus?

(a) 1 hour
(b) 1 hour 30 minutes
(c) 2 hours 30 minutes
(d) 2 hours

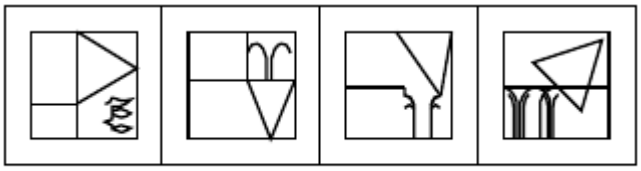
Q83. In the modern periodic table, periods ___ and ___ contain Lanthanoides and actinoides

(a) 3 and 4
(b) 6 and 7
(c) 4 and 5
(d) 5 and 6

Q84. Which pattern most closely resembles the following figure?



YourMockTest.com — Free Study Material



A B C D

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

Q85. Which of the following does not belong to this group?

A. Circle
B. Volume
C. Square
D. Rectangle

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

Q86. Meenu goes to the grocery shop just adjacent to her home on the right side. Her home's and shop's entrance faces East. After entering the shop she turns to her right to start walking towards an aisle that has fresh produce. Which direction is she walking?

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

Q87. The square of a natural number (other than 1) is either a multiple of 3 or exceeds a multiple of 3 by: _____

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

Q88. $3 + [32 \div 8 \times 52 \div (4 + 9)] = ?$

(a) 19
(b) 20
(c) 21
(d) 18

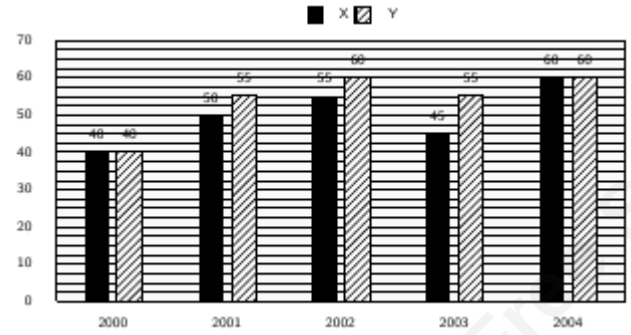
Q89. _____ reaction occurs when Sodium Sulphate reacts with Barium Chloride.

(a) Single combination
(b) Single displacement
(c) Double displacement
(d) Double combination

Q90. Below is the volume of production of sugar by company X and Y over 5 years.

The production volume denoted in lakh tones

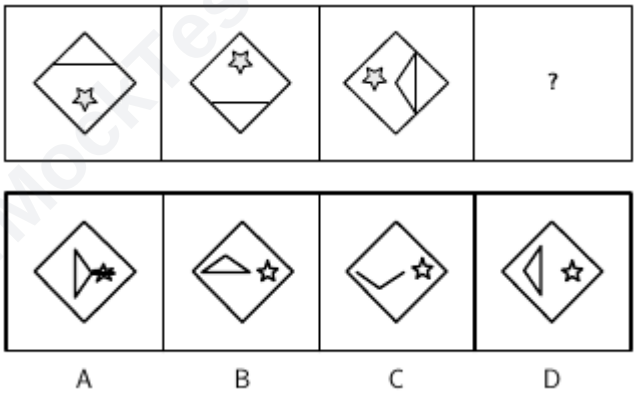
YourMockTest.com — Free Study Material



What is the difference in the total production of company X and Y together in the years 2000 and 2004?

(a) 20,000 tones
(b) 20,00,000 tones
(c) 40,00,000 tones
(d) 40,000 tones

Q91. Select the option that can replace the question mark (?) in the following series.



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

Q92. The operating costs of a company are given below.

	2016	2017
Loan Interest	25%	25%
Salary	50%	55%
Tax	25%	20%

The total money spent on operations in 2016 is Rs. 120 lakhs and the total money spent in 2017 is Rs. 150 lakhs. By how much was the salary in 2017 higher than that of 2016?

(a) Rs. 5 lakhs
(b) Rs. 10 lakhs
(c) Rs. 22.5 lakhs
(d) Rs. 20 lakhs

Q93. In a code language, VEIL is written as 2592. What is the code for MEET?

(a) 4550
(b) 3660
(c) 3551
(d) 3550

Q94. Fatehpur Sikri or the 'City of Victory' was _____ capital for 12 years.

(a) Bahadur Shah's
(b) Babur's
(c) Akbar's
(d) Aurangzeb's

Q95. _____ is the metal used for making filaments of electric bulbs.

(a) Iron
(b) Tungsten
(c) Silver
(d) Nickel

Q96. A girl can cycle at 16 km/h and walk at 7 km/h. To cover a distance of 109 km, she takes 8.5 hours. How much distance did she cover on foot?

(a) 17.5 km
(b) 24.5 km
(c) 21 km
(d) 28 km

Q97. A statement is followed by two arguments. Decide which of the arguments is are strong with respect to the statement.

Statement:

Every week schools should allow a free, full day of physical activity and games

Arguments:

I. Yes, giving them freedom will help them to interact with others and explore new avenues

II. No, there wouldn't be discipline.

(a) Neither I nor II is strong
(b) Only argument II is strong
(c) Only argument I is strong
(d) Both I and II are strong

Q98. $144 \div [40 - \{37 - (25 - 112 \div 7 \text{ of } 4)\}] = ?$

(a) 4
(b) 2
(c) 8
(d) 6

Q99. The mean of three numbers is 20. The range of this data set is 12 while the difference between the two smallest numbers is 3. The greatest of the three natural numbers is:

(a) 27
(b) 28
(c) 24
(d) 25

Q100. If '+' indicates mathematical action '-' and '×' indicates mathematical action '÷' then what is the value of $((75 + 25) \times 5) \times 10$?

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

YourMockTest.com — Free Study Material

ANSWER KEY

1	d	2	b	3	a	4	d	5	d	6	b	7	a	8	a	9	a	10	c
11	b	12	d	13	a	14	b	15	a	16	d	17	d	18	c	19	b	20	c
21	d	22	b	23	c	24	d	25	d	26	d	27	a	28	c	29	c	30	a
31	d	32	d	33	d	34	c	35	c	36	d	37	d	38	d	39	b	40	c
41	a	42	b	43	c	44	c	45	b	46	b	47	b	48	c	49	c	50	b
51	d	52	a	53	b	54	a	55	d	56	c	57	d	58	d	59	a	60	d
61	d	62	d	63	b	64	b	65	b	66	d	67	a	68	d	69	c	70	c
71	a	72	b	73	b	74	c	75	a	76	b	77	a	78	b	79	c	80	b
81	d	82	c	83	b	84	b	85	b	86	b	87	d	88	a	89	c	90	c
91	c	92	c	93	d	94	c	95	b	96	c	97	c	98	d	99	a	100	a

SOLUTIONS

Q1. Answer: (d) -6

Simplify using BODMAS: Bracket – Of – Division – Multiplication – Addition – Subtraction

{20 – (25 – 33)} ÷ {- 5 × 4 – (- 6)} + 56 ÷ (- 27 + 13)

=> {20 – (–8)} ÷ {- 5 × 4 + 6)} + 56 ÷ (- 14)

=> {20 + 8} ÷ {- 20 + 6} + 56 ÷ (-14)

=> {28} ÷ {- 14} + 56 ÷ (-14)

=> −2 – 4

=> −6

Q2. Answer: (b) West Bengal

The Correct Answer is West Bengal.

State	Festival Name
Kashmir	• Lohri is the main festival of Kashmir. - This occasion is celebrated on 13^(th) of January in the month of Magh, a day before Makar Sankranti. - It celebrates fertility and the spark of life.
West Bengal	• Durga Puja is the main festival of West Bengal - This festival is celebrated in honour of Goddess Durga's triumph over the demon 'Mahisasura'. - This festival falls during the month of September/October every year.
Kerala	• Onam is the main state festival of Kerala. - It falls in the beginning of month of Chigam, the first month of Malayalam calendar. - It is mainly a harvest festival but it also celebrates the asura King Mahabali from Patala (the Underground).
Rajasthan	• Teej is the main festival of Rajasthan. - It falls on third day of the month of Shravan (July/August). - It is celebrated for the women of the household who apply mehendi or henna on their hands and wear new clothes.

Q3. Answer: (a) Only argument I is strong.

The first argument claims that the benefit of issuing penalty would be the reduced number of accidents caused by mobile phone usage while driving.

Thus, it is able to strongly support the given statement.

Therefore, argument I is strong.

Having a habit of using mobile phones everywhere does not justify the need to use it while driving. Therefore, this argument is not strong enough to reject the idea of penalising such offenders.

YourMockTest.com – Free Study Material

Therefore, argument II is not strong.

Hence, only argument I is strong.

Q4. Answer: (d) Legs

The logic followed here is:

Tyre is a part of Car.

Similarly,

Legs are a part of Chair.

Hence, 'legs' is the correct answer.

Q5. Answer: (d) D

The logic followed here is:

In each figure the complete central image turns 90 degrees in clockwise direction.

Hence, the option figure D will complete the series.

Q6. Answer: (b) Neither 1 nor 2 follows

The statement does not imply that Mr. X fails to get thoughts at other periods of time besides morning.

Hence, neither conclusion I nor conclusion II follows.

Q7. Answer: (a) Sodium

The Correct Answer is Option 1 i.e Sodium.

Alkali Metal	**• Sodium is a Group 1 element which is a member of Alkali Metal group. - Group 1 elements of Periodic table is called as Alkali Metal. - Sodium has its symbol called 11Na with Atomic number 11.**
Transition Metal	• Manganese is a Group 7 element which is a member of Transition Metal. - Group 7 elements of Periodic table is called as Transition Metal - Manganese has its symbol called 25Mn with Atomic number 25.
Post Transition Metal	• Aluminium is a Group 13 element which is a member of Boron group. - The elements which are located right of transition metals and to the left of metalloids is called as Post Transition Metal. - Aluminium has its symbol called 13Al with Atomic number 13.
Alkaline Earth Metal	• Magnesium is a Group 2 element which is member of Alkaline Earth Metal. - Group 2 elements of Periodic table is called as Alkaline Earth Metal - Magnesium has its symbol called 12Mg with Atomic number 12.

Q8. Answer: (a) 22.360

According to the problem,

$\sqrt{45} + \sqrt{20} = 11.180$

$\Rightarrow \sqrt{(9 \times 5)} + \sqrt{(4 \times 5)} = 11.180$

$\Rightarrow 3\sqrt{5} + 2\sqrt{5} = 11.180$

$\Rightarrow 5\sqrt{5} = 11.180$

$\Rightarrow \sqrt{5} = 11.180/5 = 2.236$ ...i)

Therefore The value of $\sqrt{180} + 4\sqrt{5} = \sqrt{(9 \times 5 \times 4)} + 4\sqrt{5}$

$\Rightarrow 6\sqrt{5} + 4\sqrt{5}$

$\Rightarrow 10\sqrt{5}$

$\Rightarrow 10 \times 2.236$ [value of $\sqrt{5} = 2.236$ we get from (1)]

$\Rightarrow 22.36$

Q9. Answer: (a) 200 N

The Correct Answer is Option 1 i.e 200 N.

CONCEPT:

• Force: The interaction which after applying on a body changes or try to change the state of rest or state of motion of the body is

called force.
Force (F) = Mass (m) × acceleration (a)
CALCULATION:
Given that:
Mass, m = 25 kg and
Acceleration, a = 8 ms^(-2)
Force (F) = 25 × 8
Force = 200 N

Q10. Answer: (c) 6 × 10 × 9

Shortcut Trick
Identify the Highest Common Factor (HCF) of 60 and 54, which is 6.
Express both numbers as multiples of 6: 60 = 6 × 10 and 54 = 6 × 9.
The LCM is the product of the common factor and the remaining unique factors: 6 × 10 × 9.
Therefore The correct answer is 6 × 10 × 9.
Alternate Method
Given: Numbers 60 and 54.
Formula Used: LCM × HCF = Product of two numbers.
Calculations:
=> Prime factorization of 60 = 2 × 2 × 3 × 5 = 2^2 × 3 × 5
=> Prime factorization of 54 = 2 × 3 × 3 × 3 = 2 × 3^3
=> LCM = 2^2 × 3^3 × 5 = 4 × 27 × 5 = 540
=> Now check the options provided:
=> Option 1: 6 × 5 × 9 = 270
=> Option 2: 6 × 10 × 3 = 180
=> Option 3: 6 × 10 × 9 = 540
=> Since 540 matches Option 3, the expression is 6 × 10 × 9.
Therefore The correct answer is 6 × 10 × 9.
Additional Information
LCM (Least Common Multiple)
The smallest positive integer that is divisible by both 'a' and 'b'.
HCF (Highest Common Factor)
The greatest common divisor of two or more integers, which are not all zero.
Relationship Formula
For any two numbers a and b: LCM(a, b) × HCF(a, b) = a × b.

Q11. Answer: (b) 250

Total number of screws manufactured in the unit over the given 6 months,
=> (200 + 300 + 250 + 250 + 250 + 250) thousand = 1500 thousand
Therefore Average number of screws manufactured in the unit over the given 6 months,
=> 1500 thousand/6 = 250 thousand

Q12. Answer: (d) fertilizers

The Correct Answer is Option 4 i.e Fertilizers.
Important Points
• Grey Revolution
• Grey Revolution is associated with increased fertilizer production, which basically means it is related to the main effects of India's green revolution.
• But only zeroing down to fertilizer won't be an appropriate thing.
• Because the grey revolution includes everything that would take place due to the excessive green revolution.
• It is actually a glimpse of what can happen if the new agricultural equipment turns things wrong.
• White Revolution
• White Revolution in India also known as Operation Flood.

YourMockTest.com — Free Study Material

• Operation Flood started in the year 1970 and was aimed to create a nationwide milk grid.

• It was a rural development program initiated by NDDB – National Dairy Development Board of India.

• White revolution period intended to make India a self-dependent nation in milk production.

• Today, India is the world's largest producer of milk.

• Dr. Verghese Kurien is known as the father of the White Revolution in India.

• Blue Revolution

• The Blue Revolution in India was launched during the 7th Five Year Plan(1985-1990) during the sponsorship of the Fish Farmers Development Agency(FFDA) by the Central Government of India.

• The main objective is to develop, manage, and promote fisheries to double the farmers' income.

• Dr. Arun Krishnsan and Dr. Hiralal Chaudhari, are known as the fathers of the Blue Revolution.

• Green Revolution

• Green Revolution is associated with agricultural production.

• It is the period when agriculture of the country was converted into an industrial system due to the adoption of modern methods and techniques like the use of high-yielding variety seeds, tractors, irrigation facilities, pesticides, and fertilizers.

• The term green revolution was first used by William Gaud and Norman Borlaug is the Father of the Green Revolution.

• In the year 1965, the government of India launched the Green Revolution with help of M.S. Swaminathan, now known as the father of the Green revolution(India).

Q13. Answer: (a) 2/3

Any number in the form of a/b is called fraction.

Let, x = 0.overline6 = 0.6666 ---- (1)

Multiplying above equation by 10, we get

10x = 6.6666 ---- (2)

Subtracting equation (1) from equation (2), we get

10x - x = 6.6666 - 0.6666

=> 9x = 6

=> x = 6/9

Therefore x = 2/3

Q14. Answer: (b) Three

The Correct Answer is Option 2 i.e Three Atoms.

• The chemical formula of ethane is C2H6.

• In Ethane, each carbon atom is bonded to three hydrogen atoms.

• In the structural formula, each dash (-) represents a single covalent bond, in which two atoms share one pair of valence electrons.

Some suffix says

Ane - Single bond

Ene - Double bond

Yne - Triple bond

Additional Information

Hydrocarbons

• Compounds made of carbon and hydrogen atoms only are called hydrocarbons.

• Saturated hydrocarbons:

• The hydrocarbons in which carbon atoms are singly bonded are called saturated hydrocarbons.

• Saturated hydrocarbons are also called alkanes or paraffin.

• The general formula of alkane– CnH2n+2.

• Unsaturated hydrocarbons:

• The hydrocarbons in which carbon atoms are either doubly or triply bonded are called unsaturated hydrocarbons.

• Doubly bonded (carbon atoms) hydrocarbons are called alkenes.

• The general formula of alkene is CnH2n.

• Triply-bonded carbon:

• Hydrocarbons containing at least one carbon-carbon triple bond between two carbon atoms are called alkynes.

• The general formula of alkynes is CnH2n-2.

Q15. Answer: (a) 18

Hence, the minimum 18 lines are required to make the given figure.

Q16. Answer: (d) Li3N

The Correct Answer is Option 4 i.e Li3N.

• The formula of Lithium Nitride is Li3N.

• Lithium nitride is the only stable alkali metal nitride.

• It has high melting point of about 813 ^oC.

• Other anions: Lithium oxide

• Solubility in water: reacts

Q17. Answer: (d) Maurya

The correct answer is Option 4, i.e Mauryan.

• The Arthashastra is an Indian treatise on politics, economics, military strategy, the function of the state, and social organization attributed to the philosopher Kautilya.

• The Arthashastra is thought to have been written by Kautilya as a kind of handbook for Chandragupta instructing him in how to reign over a kingdom and encouraging direct action in addressing political concerns without regard for ethical considerations.

• Hence, the correct answer is Mauryan Administration.

Q18. Answer: (c) zero

The Correct Answer is Option 3 i.e Zero.

• When two equal force are acting on a body and opposite in direction, the net force acting on the body becomes zero.

• A two forces of equal size, acting on body, in opposite direction is known as Balanced Force.

• Force can be defined as the pull or push applied on an object.

Q19. Answer: (b) Cytokinins

The Correct Answer is Option 2 i.e Cytokinins.

Plant Hormones	Description
Abscisic acid	• It is a plant hormone. - It promotes dormancy in seeds and buds in plants.
Cytokinins	• It is a plant hormone. - It promotes cell division in plants.
Gibberellins	• It is a plant hormone. - It promotes stem elongation in plants.
Auxin	• It is a plant hormone. - It promotes cell elongation in plants.

Q20. Answer: (c) Pole

CONCEPT:

The systematic diagram of reflection through the spherical mirror is given by:

• Pole: The center of the reflecting surface of a spherical mirror is called the pole.

• Centre of curvature (C): The reflecting surface of the spherical mirror forms a part of the sphere. The center of this sphere is called the center of curvature of the mirror.

• Focus (F): Rays which are coming parallel to the principal axis falling on spherical mirror intersect or meet at the point on the principal axis is called as the principal focus.

• Focal length (f): The distance between pole and principal focus is called the principal focal length.

EXPLANATION:

• The distance between focal and pole is termed as focal length, outside the mirror.

• The center of curvature is not a part of the mirror and lies outside its reflecting surface.

• Pole lies on the reflecting surface of the mirror.

Q21. Answer: (d) water

The Correct Answer is Option 4 i.e Water

• White phosphorous is stored in water.

• White phosphorous is insoluble in water so it is stored underwater to prevent oxidation.

• Also white phosphorous is highly reactive, flammable and igniting naturally in the air unless it is stored underwater.

YourMockTest.com — Free Study Material

Q22. Answer: (b) 20

Shortcut Trick

Using the Alligation Method to find the ratio of the two groups:

Group 1 (8 smallest): 17 | Group 2 (Remaining): 22 | Overall Mean: 20

Ratio of (Group 1) : (Group 2) = (22 − 20) : (20 − 17) = 2 : 3

According to the question, 2 units = 8 numbers => 1 unit = 4 numbers.

Therefore, Total numbers (2 + 3 = 5 units) = 5 × 4 = 20.

Therefore The correct answer is 20.

Alternate Method

Given:

Mean of 8 smallest numbers = 17

Mean of the remaining numbers = 22

Mean of the entire group = 20

Let the total numbers in the group be n.

=> Total Sum of numbers = n × 20

=> Sum of 8 smallest numbers = 8 × 17 = 136

=> Count of remaining numbers = (n − 8)

=> Sum of remaining numbers = (n − 8) × 22

=> Total Sum = Sum of smallest + Sum of remaining

=> 20n = 136 + 22(n − 8)

=> 20n = 136 + 22n − 176

=> 20n = 22n − 40

=> 22n − 20n = 40

=> 2n = 40

=> n = 20

Therefore The correct answer is 20.

Additional Information

Weighted Average

Used to find the overall mean when two or more groups with different averages are combined. Formula: A_(total) = (n1A1 + n2A2) ÷ (n1 + n2).

Alligation Rule

The ratio of the quantities is the inverse of the differences between their individual values and the mean value: n1/n2 = (A2 − A_m) / (A_m − A1).

Property of Mean

The algebraic sum of deviations of a set of observations from their arithmetic mean is always zero.

Q23. Answer: (c) 17

The rectangles are XUON, UVTO, XVTN, PRVU, OTHI, PRHI, PDSU, RYWT, REGH, CFED, PEGI, LQVM, ABSM, KQHJ, PRTO, UVHI, RDVS.

Hence, 17 is the correct answer.

Q24. Answer: (d) Rs. 60,000

Shortcut Trick

Gold cost is directly calculated as 20% of the raw material investment.

Gold cost = 20% × Rs. 3,00,000

Gold cost = 0.2 × 3,00,000 = Rs. 60,000

Therefore The correct answer is Rs. 60,000.

Alternate Method

Given:

Selling Price (SP) = Rs. 10,00,000

Raw Material Cost = Rs. 3,00,000

Labour Charge = Rs. 2,00,000

Gold Cost % = 20% of Raw Material

Calculations:

=> Amount spent on gold = 20% of Raw Material Cost

=> Amount = (20 ÷ 100) × 3,00,000

=> Amount = 0.20 × 3,00,000

=> Amount = Rs. 60,000

Therefore The correct answer is Rs. 60,000.

Additional Information

Total Cost Price (CP)

Total CP = Raw Material Cost + Labour Charges + Other Overheads. In this case, CP = 3,00,000 + 2,00,000 = Rs. 5,00,000.

Profit Calculation

Profit = Selling Price − Total Cost Price. Here, Profit = 10,00,000 − 5,00,000 = Rs. 5,00,000.

Percentage Component

To find a specific component value: Value = (Component % ÷ 100) × Base Value.

Q25. Answer: (d) 52, 59

11 + 9 = 20;

20 + 7 = 27;

27 + 9 = 36;

36 + 7 = 43;

43 + 9 = 52;

52 + 7 = 59;

59 + 9 = 68;

68 + 7 = 75;

Hence, 52 and 59 are the missing term in the given series.

Q26. Answer: (d) 9

Shortcut Trick

To find the number of sides (n) of a polygon, divide the sum of interior angles by 180° and add 2.

n = (1260 ÷ 180) + 2

n = 7 + 2 = 9

Therefore The correct answer is 9.

Alternate Method

Given:

Sum of interior angles of the polygon = 1260°

Formula Used:

The sum of all interior angles of a polygon with n sides is given by: (n − 2) × 180°

Calculations:

=> (n − 2) × 180° = 1260°

=> n − 2 = 1260 ÷ 180

=> n − 2 = 7

=> n = 7 + 2

=> n = 9

The polygon is a nonagon.

Therefore The correct answer is 9.

Additional Information

Sum of Exterior Angles

The sum of the exterior angles of any convex polygon is always 360°.

Number of Diagonals

The number of diagonals in a polygon with n sides is given by the formula: n(n − 3) ÷ 2.

Regular Polygon Interior Angle

Each interior angle of a regular polygon is [(n − 2) × 180°] ÷ n.

YourMockTest.com — Free Study Material

Q27. Answer: (a) Information and Broadcasting

The correct answer is Option 1, i.e Information and Broadcasting Ministry.

• Smriti Irani held the porfolio of Information and Broadcasting Ministry till May 2018.

• The Ministry of Information and Broadcasting (Ministry of I&B) is responsible for the formulation and administration of rules, regulations and laws in the areas of information, broadcasting, the press and the Cinema of India.

• The Ministry is responsible for the administration of Prasar Bharati.

• The Central Board of Film Certification is the other important statutory body under this ministry being responsible for the regulation of motion pictures broadcast in India.

Q28. Answer: (c) 2.0

Shortcut Trick

Let Total Work = 1 unit. Given 1/x + 1/y = 1/1.2 => (x + y)/xy = 5/6.

Condition 2: 0.5x + 0.5y = 2.5 => x + y = 5.

Substituting x + y = 5 in first eq: 5/xy = 5/6 => xy = 6.

We need two numbers whose sum is 5 and product is 6. The numbers are 2 and 3.

Since B is more efficient, B takes less time. Therefore Time for B = 2 days.

Therefore The correct answer is 2.0 days.

Alternate Method

Person	Days Taken	Total Work	Efficiency
A + B	1.2 days	W	W/1.2
A alone	x days	W/x	

Given: A and B together take 1.2 days.

=> 1/x + 1/y = 1/1.2 = 5/6 ... (Eq 1)

=> 0.5x + 0.5y = 2.5 => x + y = 5 ... (Eq 2)

=> From (Eq 2), y = 5 − x. Put this in (Eq 1):

=> 1/x + 1/(5 − x) = 5/6

=> (5 − x + x) / (x(5 − x)) = 5/6

=> 5 / (5x − x^2) = 5/6

=> 5x − x^2 = 6 => x^2 − 5x + 6 = 0

=> (x − 2)(x − 3) = 0 => x = 2 or x = 3

=> Since B is more efficient than A, B must take the lesser number of days.

=> B = 2.0 days and A = 3.0 days.

Therefore The correct answer is 2.0 days.

Additional Information

Efficiency and Time Relationship

Efficiency is inversely proportional to the time taken. If Efficiency ratio is a:b, then Time ratio is b:a.

Combined Work Formula

If two people take x and y days respectively, together they take (xy) ÷ (x + y) days.

Work-Rate Concept

Total Work = Time × Efficiency. For a constant work, Efficiency1 × Time1 = Efficiency2 × Time2.

Q29. Answer: (c) 35

Shortcut Trick

The Marked Price (MP) is 4600 and the Selling Price (SP) is 2990.

Ratio of MP to SP = 4600 : 2990 = 460 : 299.

Divide both by 23: 20 : 13.

Discount units = 20 − 13 = 7 units.

Discount % (P) = (7 ÷ 20) × 100 = 35%.

Therefore The correct answer is 35.

Alternate Method

Given: Marked Price (MP) = Rs. 4600, Selling Price (SP) = Rs. 2990.

Formulas: Discount = MP − SP | Discount % = (Discount ÷ MP) × 100

=> Discount = 4600 − 2990 = 1610

=> P% = (1610 ÷ 4600) × 100

=> P = 161 ÷ 4.6 = 35

Therefore The correct answer is 35.

Additional Information

Marked Price & Discount

The Marked Price is the price printed on the product. Discount is always calculated on the Marked Price unless otherwise specified.

Selling Price Calculation

Selling Price = Marked Price × (100 − Discount%) ÷ 100. This is useful for finding the final price after a single or successive discount.

Q30. Answer: (a) Parenchyma

The Correct Answer is Option 1 i.e Parenchyma.

Types of Cells	Description
Parenchyma	• It is type of cell in plants. - In this cells are loosely packed so that large inter cellular spaces are found. - It helps in absorption of light and for regulating gas exchange in plant.
Tracheids	• It is type of conducting cell in plants. - It transports water and minerals to all parts of plants.
Sclerenchyma	• It is type of cell in plants. - In this cells are very closely packed. - It helps in anchoring of plants.
Collenchyma	• It is type of cell in plants. - In this cells are closely packed. - These cells are irregular in shape. - It helps in elongation and growth of plants.

Q31. Answer: (d) S. S. Rajamouli

The Correct Answer is Option 4 i.e S. S. Rajamouli.

• The Director of the blockbuster movie "Baahubali" is S. S. Rajamouli.

• It was written by K. V. Vijayendra Prasad.

• Screen Play was done by K. V. Vijayendra Prasad and S. S. Rajamouli.

• It was produced by Shoba Yarlagadda and Prasad Devineni.

• It was released on 10^(th) July 2015.

• Baahubali was one of the highest grossing movie in India and 3^(rd) highest grossing Indian film across the world.

Q32. Answer: (d) -, ×, +

Shortcut Trick

Option Elimination Method: Check the last symbol to reach 10.

Using Option (4): -, ×, +

((10 − 10) × 25) + 10 => (0 × 25) + 10 => 0 + 10 = 10.

Therefore The correct answer is -, ×, +.

Alternate Method

Given Expression: ((10 ? 10) ? 25) ? 10 = 10

Formula Used: VBODMAS rule (Vinculum, Bracket, Of, Division, Multiplication, Addition, Subtraction).

Checking Option (4) symbols: −, ×, +

=> ((10 − 10) × 25) + 10

=> (0 × 25) + 10 (Solving the innermost bracket first)

=> 0 + 10 (Solving the multiplication)

=> 10

LHS = RHS. The equation is satisfied.

Checking Option (1): ((10 − 10) × 25) ÷ 10 => 0 ÷ 10 = 0 (Incorrect)

YourMockTest.com — Free Study Material

Checking Option (2): ((10 × 10) × 25) + 10 => 2500 + 10 = 2510 (Incorrect)
Checking Option (3): ((10 + 10) ÷ 25) ÷ 10 => (20 ÷ 25) ÷ 10 = 0.08 (Incorrect)
Therefore The correct answer is -, ×, +.
Additional Information
VBODMAS Rule
Operations must be performed in the order: Bracket, Of, Division, Multiplication, Addition, and Subtraction.
Mathematical Equality
The goal is to make the Left Hand Side (LHS) equal to the Right Hand Side (RHS) by substituting operators.
Zero Property
Any number multiplied by 0 results in 0 (a × 0 = 0), which is a key shortcut in simplification problems.

Q33. Answer: (d) [figure]

Glass and Metal are not the only material used to make a vessel. Clay, plastic and other materials are also used to make vessels.
Hence, the figure given above is the correct diagram that represents the given relationship.

Q34. Answer: (c) Pankaj Advani

The Correct Answer is Option 3 i.e Pankaj Advani.
• Pankaj Advani was honoured with the prestigious 2018 Padma Bhushan award in the field of Sports-Billiards / Snooker.
• Padma Bhushan is an 4^(th) highest civilian award which is awarded by Government of India.

Awardee	Award	Category	Year
Geet Sethi is an professional player in the field of Billiards who was born in Delhi.	Padma Bhushan	Sports	1986
Pankaj Advani is an professional player in the field of Billiards and Snooker who was born in Maharastra.	Padma Bhushan	Sports	2009
Michael Joseph Ferreira is an professional player in the field of Billiards who was born in Mumbai	Padma Bhushan	Sports	1984

Q35. Answer: (c) 63 : 48 : 14

Shortcut Trick
Identify the common element: Zinc. In first ratio, Zinc = 16. In second, Zinc = 24.
Balance Zinc by finding LCM(16, 24) = 48.
Multiply first ratio by 3 and second ratio by 2.
Copper : Zinc : Nickel = (21 × 3) : (16 × 3) : (7 × 2) = 63 : 48 : 14.
Therefore The correct answer is 63 : 48 : 14.
Alternate Method
Given:
Ratio of Copper to Zinc = 21 : 16
Ratio of Nickel to Zinc = 7 : 24
Formula Used:
To combine two ratios with a common term, the value of the common term must be equal in both ratios.
=> Let the common value of Zinc be the LCM of 16 and 24.
=> LCM(16, 24) = 48
=> Scaling Copper : Zinc → (21 × 3) : (16 × 3) = 63 : 48
=> Scaling Nickel : Zinc → (7 × 2) : (24 × 2) = 14 : 48
=> Combined Ratio of Copper : Zinc : Nickel = 63 : 48 : 14
Therefore The correct answer is 63 : 48 : 14.
Additional Information
German Silver

It is an alloy of Copper, Zinc, and Nickel. Despite its name, it contains no Silver unless plated.

Compound Ratio

If ratios are a : b and c : d, the compound ratio is (a × c) : (b × d).

Ratio Scaling Property

The ratio a : b remains unchanged if both terms are multiplied or divided by the same non-zero constant k, i.e., a : b = ak : bk.

Q36. Answer: (d) 2.67 ms^(-1)

Shortcut Trick

Average Speed = Total Distance ÷ Total Time

Total Distance = 160 m

Total Time = 1 minute = 60 seconds

Average Speed = 160 ÷ 60 = 8 ÷ 3 = 2.67 ms^(−1)

Therefore The correct answer is 2.67 ms^(−1).

Alternate Method

Given:

Length of the pool = 80 m

Total distance covered (D) = 160 m

Total time taken (T) = 1 minute

Formula Used:

Average Speed = Total Distance ÷ Total Time

Calculations:

=> Total Time in seconds = 1 × 60 = 60 s

=> Average Speed = 160 m ÷ 60 s

=> Average Speed = 16 ÷ 6

=> Average Speed = 2.666... ms^(−1)

=> Average Speed ≈ 2.67 ms^(−1)

Therefore The correct answer is 2.67 ms^(−1).

Additional Information

Average Velocity

It is defined as Total Displacement divided by Total Time. In this case, since Ram returns to the starting point, displacement is 0, so average velocity is 0 ms^(−1).

Unit Conversion

To convert kmph to ms^(−1), multiply by 5/18. To convert ms^(−1) to kmph, multiply by 18/5.

Average Speed for Equal Distances

If an object covers two equal distances at speeds v1 and v2, then Average Speed = 2v1v2 ÷ (v1 + v2).

Q37. Answer: (d) 2 Diopter

The Correct Answer is Option 4 i.e 2 Diopter.

The Focal length of a lens is 50 centimetre then its power is 2 Diopter.

Formula for Power of Lens:

P = 1 / f

where P is a power of lens measured in Diopters (D)

f is a focal length which is given in centimeter (m).

50 cm = 50*10^(-2) m

Calculation:

P = 1 / f

P = 1 / (50*10^(-2))

$P=10^2/50$

P = 2

Power, P = 2 Diopter.

YourMockTest.com — Free Study Material

Q38. Answer: (d) Hyderabad

The Correct Answer is Option 4 i.e Hyderabad.

• The host city for the 8th annual Global Entrepreneurship Summit (GES – 2017) was Hyderabad.

Global Entrepreneurship Summit	Year	Host City
1st Annual Global Entrepreneurship Summit	2010	Washington D.C
2nd Annual Global Entrepreneurship Summit	2011	Istanbul, Turkey
3rd Annual Global Entrepreneurship Summit	2012	Dubai, UAE
4th Annual Global Entrepreneurship Summit	2013	Kuala Lumpur, Malaysia
5th Annual Global Entrepreneurship Summit	2014	Marrakesh, Morocco
6th Annual Global Entrepreneurship Summit	2015	Nairobi, Kenya
7th Annual Global Entrepreneurship Summit	2016	Palo Alto, California
8th Annual Global Entrepreneurship Summit	2017	Hyderabad, India
9th Annual Global Entrepreneurship Summit	2019	The Hague, Netherlands

Q39. Answer: (b) 6 × 10^(24) kg

The Correct Answer is Option 2 i.e 6 × 1024 kg.

The Mass of the Earth is 5.972 x 10^(24) kg and it gets converted to 6 x 10^(24) kg because of decimal point greater than 5.

Mass of the Earth	6 x 1024 kg
Radius of the Earth	6,371 km
Earth Distance from the Sun	151.85 million km
Surface Area of the Earth	510.1 million km²
Density of the Earth	5.51 g / cm³

Q40. Answer: (c) 818354931

The logic followed here is that each alphabet is coded as second number of its positional value.

F (06) → 6;

L (12) → 2;

U (21) → 1;

T (20) → 0;

E (05) → 5;

Similarly,

H (08) → 8;

A (01) → 1;

R (18) → 8;

M (13) → 3;

O (15) → 5;

N (14) → 4;

I (09) → 9;

C (03) → 3;

A (013 → 1;

YourMockTest.com — Free Study Material

Hence, 'HARMONICA' is coded as '818354931'

Q41. Answer: (a) 2000 J

The Correct Answer is Option 1 i.e 2000 J

Formula of Kinetic Energy:

Kinetic Energy = 1 / 2 × m × v^2

Calculation:

Mass, m = 10 kg

Speed, v = 20 m/s

Kinetic Energy = 1 /2 × 10 × $(20)^2$

K.E = 1 / 2 × 10 × 400

K.E = 5 × 400

Kinetic Energy = 2000 J

Q42. Answer: (b) Transition element

The correct answer is Option 2, i.e Transition Elements.

Important Points

• There are elements which differ in the capacity to combine with other elements.

• This depends on the nature of the reaction.

• The property of such kind of elements is called variable valency.

• For example, the iron in ferrous oxide exhibits a valency of +2, whereas in ferric oxide, it has a valency of +3.

• The transition elements are those elements having a partially filled d or f subshell in any common oxidation state.

• The term "transition elements" most commonly refers to the d-block transition elements.

• Variable valency is thus exhibited by the Transition elements due to partially filled subshells.

Q43. Answer: (c) 6

The correct answer is Option 3, i.e 6.

• In 2017, India had emerged as the sixth largest economy, while France was pushed to the seventh place in the global GDP league table.

• India became the fifth-largest economy in 2019, overtaking the United Kingdom and France.

• India ranks third when GDP is compared in terms of purchasing power parity at $11.33 trillion.

Q44. Answer: (c) Bharatiya Janata Party

The Correct Answer is Option 3 i.e Bharatiya Janta Party.

• The Chief Minister of Goa as of March 2018. Manohar Parrikar, belongs to Bharatiya Janata Party.

• Here is the list of Chief Ministers of Goa with respective party and year of their administration.

Party	Chief Minister of Goa	Year
Indian National Congress	Pratapsingh Rane	Jan 1980 - Jan 1985, Jan 1985 - May 1987, May 1987 - Jan 1990, Jan 1990 - Mar 1990, Dec 1994 - Jul 1998, Feb 2005 - Mar 2005, Jun 2005 - Jun 2007.
Ravi S Naik	Jan 1991 - May 1993, Apr 1994 - Apr 1994	
Wilfred de Souza	May 1993 - Apr 1994, Apr 1994 - Dec 1994.	
Luizinho Faleiro	Nov 1998 - Feb 1999, Jun 1999 - Nov 1999.	
Digambar Kamat	Jun 2007 - Mar 2012.	
Bharatiya Janata Party	Manohar Parrikar	Oct 2000 - Jun 2002, Jun 2002 - Feb 2005, Mar 2012 - Nov 2014, Mar 2017 - Mar 2019.
Laxikant Parsekar	Nov 2014 - Mar 2017.	
Pramod Sawant	Mar 2019 - Present	

YourMockTest.com — Free Study Material

Q45. Answer: (b) 3 cm

Shortcut Trick

Apply the Tangent-Secant Theorem: $DE^2 = BD \times AD$.

Given DE = 9 cm and AB = 24 cm, let BD = x.

Then AD = x + 24. The equation becomes: $9^2 = x \times (x + 24)$.

$81 = x^2 + 24x \Rightarrow x^2 + 24x - 81 = 0$.

Identify factors of 81 that differ by 24: 27 and 3. Thus, x = 3.

Therefore The correct answer is 3 cm.

Alternate Method

Given:

Length of chord AB = 24 cm

Length of tangent DE = 9 cm

Formula Used:

According to the Tangent-Secant Theorem, if a tangent segment and a secant segment are drawn to a circle from an exterior point, then the square of the measure of the tangent segment is equal to the product of the measures of the entire secant segment and its external part.

$DE^2 = BD \times DA$

Calculations:

=> Let the length of BD be x cm.

=> Then, the length of DA = BD + AB = x + 24 cm.

=> Using the theorem: $DE^2 = BD \times DA$

=> $9^2 = x \times (x + 24)$

=> $81 = x^2 + 24x$

=> $x^2 + 24x - 81 = 0$

=> $x^2 + 27x - 3x - 81 = 0$

=> $x(x + 27) - 3(x + 27) = 0$

=> $(x + 27)(x - 3) = 0$

=> $x = 3$ or $x = -27$

=> Since length cannot be negative, x = 3 cm.

Therefore The correct answer is 3 cm.

Additional Information

Tangent-Secant Theorem

For an external point D, the square of the tangent DE is equal to the product of the external secant segment BD and the total secant segment DA ($DE^2 = BD \times DA$).

Intersecting Chords Theorem

If two chords AB and CD intersect at a point P inside a circle, then $PA \times PB = PC \times PD$.

Tangent-Radius Property

The radius of a circle is always perpendicular to the tangent at the point of contact (OE perpendicular to DE).

Q46. Answer: (b) Angiosperms

The Correct Answer is Option 2 i.e Angiosperms.

• Wood vessels are the chief water-conducting elements of angiosperms.

• In contrast to the tracheids the final walls of the single vessels are perforated or, much more so, completely resolved.

Fungi	**• It is a single cell or multicellular organism. - Example: Ascomycota.**
Angiosperms	• It is a flowering plants. - Vessels are the major water conducting cells in Angiosperms. - Example: Maize.
Bryophyta	• They are non - vascular land plants. - Vessels are absent in Bryophyta. - Example: Mosses.
Thallophyta	• They are undifferentiated algae. - Vessels are absent in Thallophyta. - Example: Spirogyra.

YourMockTest.com — Free Study Material

Q47. Answer: (b) 1251420

Y → 25;
E → 5;
L → 12;
L → 12;
Similarly,
L → 12;
E → 5;
N → 14;
T → 20
Hence, 'LENT' will be coded as '1251420'.

Q48. Answer: (c) Rs. 1,250

Shortcut Trick
Total interest percentage = Rate × Time
Total Interest % = 8% × 5 = 40%
Simple Interest = 40% of Rs. 3,125
SI = 0.4 × 3,125 = 1,250
Therefore The correct answer is Rs. 1,250.
Alternate Method
Given:
Principal (P) = Rs. 3,125
Rate of interest (R) = 8% per annum
Time period (T) = 5 years
Formula Used:
Simple Interest (SI) = (P × R × T) ÷ 100
Calculations:
=> SI = (3125 × 8 × 5) ÷ 100
=> SI = (3125 × 40) ÷ 100
=> SI = 125000 ÷ 100
=> SI = 1,250
Therefore The correct answer is Rs. 1,250.
Additional Information
Amount in Simple Interest
The total amount (A) is the sum of the principal and the interest earned: A = P + SI = P × (1 + RT/100).
Constant Interest Property
In Simple Interest, the interest earned remains the same every year because it is always calculated on the original Principal.
Rate and Time Calculation
To find the Rate (R), use R = (SI × 100) ÷ (P × T). To find Time (T), use T = (SI × 100) ÷ (P × R).

Q49. Answer: (c) 83508

Shortcut Trick
A number is divisible by 12 if it is divisible by both 3 and 4.
Check divisibility by 4: Last two digits must be divisible by 4. All options end in 08, so all are divisible by 4.
Check divisibility by 3: Sum of digits must be divisible by 3.
For 83508: 8 + 3 + 5 + 0 + 8 = 24. Since 24 is divisible by 3, the number is divisible by 12.
Therefore The correct answer is 83508.
Alternate Method
Given: Numbers 73508, 63508, 83508, 93508.
Rule: Number must satisfy divisibility of co-prime factors of 12, which are 3 and 4.
=> Divisibility by 4: Last two digits are 08. 08 ÷ 4 = 2 (Valid for all).
=> Divisibility by 3 (Sum of digits):

YourMockTest.com — Free Study Material

=> Option 1: 7 + 3 + 5 + 0 + 8 = 23 (Not divisible by 3)

=> Option 2: 6 + 3 + 5 + 0 + 8 = 22 (Not divisible by 3)

=> Option 3: 8 + 3 + 5 + 0 + 8 = 24 (Divisible by 3 because 24 ÷ 3 = 8)

=> Option 4: 9 + 3 + 5 + 0 + 8 = 25 (Not divisible by 3)

Therefore The correct answer is 83508.

Additional Information

Divisibility Rule of 3

A number is divisible by 3 if the sum of its digits is a multiple of 3.

Divisibility Rule of 4

A number is divisible by 4 if the last two digits form a number that is divisible by 4.

Composite Divisibility

To check divisibility by a composite number N, check divisibility by its co-prime factors (e.g., for 15 check 3 and 5).

Q50. Answer: (b) Dia Mirza

The Correct Answer is Option 2 i.e Dia Mirza.

• Dia Mirza was appointed as the UN Environment's Goodwill Ambassador for India in November 2017.

• On 29^(th)November 2017, Former Miss Asia Pacific, Actor, Producer, Entrepreneur and Environmentalist, Dia Mirza was appointed as UN Environment's Goodwill Ambassador for India.

• Dia has supported her efforts in the field of social change, conservation and environment.

• As a Goodwill Ambassador, Dia will work with the United Nations to expand areas including clean air, clean seas, wildlife protection and climate change.

Q51. Answer: (d) Regeneration

The Correct Answer is Option 4 i.e Regeneration.

Budding	**• A new organism developed from the mother plant or a bud due to cell division is called as Budding. Example: Hydra.**
Fission	• Some cells in plants undergoes mitotic cell division to produce new organisms is called as Fission. Example: Bacteria.
Multiple Fission	• Some cells in plants undergoes several mitotic cell division to produce new organisms is called as Fission. Example: Protozoa
Regeneration	• All parts of plant can be regenerated through cell division is called as Regeneration. - Regeneration is not same as reproduction. - Example: Jelly Fish.

Q52. Answer: (a) Sri Sri Ravi Shankar

The Correct Answer is Option 1 i.e Sri Sri Ravi Shankar.

Sri Sri Ravi Shankar is the proponent and propagandist of the "Art of Living".

Sri Sri Ravi Shankar	**• Gurudev Sri Sri Ravi Shankar founded the Art of Living as an international, non-profit, educational and humanitarian organization. - Ravi Shankar co-funded the International Association for Human Values (IAHV) a sister organization of Art of Living.**
Swaminarayan / Sahajanand Swami	• Swaminarayan is also known as Sahajanand Swami. - He was the founder of Swaminarayan Sampradav.
Pandit Ravi Shankar	• He was an Bengali Indian Musician and a composer of Hindustani Classical Music.

Q53. Answer: (b) Goa

The Correct Answer is Option 2 i.e Goa.

• The 48th International Film Festival of India held at Goa in 2017.

Delhi	**• International Film Festival of India was held in New Delhi in 2^(nd)to 12^(th), 24^(th), 27^(th), 29^(th), 31^(st), 33^(rd) and 34^(th) Year of International Film Festival of India.**

YourMockTest.com — Free Study Material

Goa	• Since 2004, starting from the 35^(th) edition of International Film Festival of India was held at Goa as permanent venue.
Mumbai	• International Film Festival of India was held in Mumbai in 1^(st)and 26^(th) Year of International Film Festival of India.
Hyderabad	• International Film Festival of India was held in Hyderabad in 30^(th) Year of International Film Festival of India.

Q54. Answer: (a) D

Hence, answer figure D is combined to form the given shape.

Q55. Answer: (d) Kanchanmala Pande

The correct answer is Option 4, i.e Kanchanmala Pande.

• Kanchanmala Pande, who hails from Amravati, won a gold medal at 2017 and thus became the first Indian to win gold at World Para Swimming Championship.

• Curtis Lovejoy was inducted into the Atlanta Sports Hall of Fame in the United States of America.

• Tucker Dupree is an American swimmer who has won three medals at the 2012 Paralympic Games and one at the 2016 Paralympic Games.

• Jessica Long has held multiple world records and has won multiple gold medals over four Summer Paralympics.

Q56. Answer: (c) 2

Shortcut Trick

Let Total Capacity of the cistern be the LCM of 5 and 6.25 (i.e., 25/4), which is 25 units.

Efficiency of Pipe A = 25 ÷ 5 = 5 units/hour.

Efficiency of Pipe B = 25 ÷ 6.25 = 4 units/hour.

Since Pipe A worked for the entire 3.4 hours, work done by A = 5 × 3.4 = 17 units.

Remaining work done by B = 25 − 17 = 8 units => Time for which B was open = 8 ÷ 4 = 2 hours.

Therefore The correct answer is 2 hours.

Alternate Method

Given:

Time taken by Pipe A = 5 hours

Time taken by Pipe B = 6.25 hours = 25/4 hours

Total time to fill the cistern = 3.4 hours

Formula Used:

Work done = Efficiency × Time

Calculations:

Person	Days	Total Work	Efficiency
Pipe A	5	25	5
Pipe B	6.25	4	

=> Let Pipe B be open for t hours.

=> Work done by Pipe A in 3.4 hours + Work done by Pipe B in t hours = Total Work

=> (5 × 3.4) + (4 × t) = 25

=> 17 + 4t = 25

=> 4t = 8

=> t = 2 hours

Therefore The correct answer is 2 hours.

Additional Information

Pipes and Cisterns Efficiency Rule

The efficiency of an inlet pipe is positive, whereas the efficiency of an outlet or leak pipe is negative. Total work is the LCM of individual times.

Alternate Operation of Pipes

If two pipes operate alternately hour by hour, the combined cycle work is computed as the sum of their individual efficiencies per

cycle of 2 hours.

Q57. Answer: (d) Narendra Modi

The Correct Answer is Option 4 i.e Narendra Modi.

• A 112 ft tall Shiva statue (Adiyogi) was unveiled on 24th February 2017 in Tamil Nadu by Narendra Modi.

• It is funded by Isha Foundation and founded by popular yoga guru Jaggi Vasudev.

• The Main reason behind the statue for 112 feet tall because there are 112 chakras in the human system in which we work to explore 112 dimension of Life.

Q58. Answer: (d) wetlands

The correct answer is Option 4, i.e Wetlands.

• The mangrove forests or wetlands are called by various names like tidal forests, coastal woodlands, walking forests in the sea, roots of the sea or oceanic rainforests.

• Wetlands occur where water meets land.

• They include mangroves, peatlands and marshes, rivers and lakes, deltas, floodplains and flooded forests, rice-fields, and even coral reefs.

• Wetlands exist in every country and in every climatic zone, from the polar regions to the tropics, and from high altitudes to dry regions.

Q59. Answer: (a) 189

Shortcut Trick

Ratio of Chairs : Tables = 9 : 7

Difference in ratio units = 9 − 7 = 2 units

Given, 2 units = 42 chairs

=> 1 unit = 21

Number of Chairs = 9 units = 9 × 21 = 189

Therefore The correct answer is 189 chairs.

Alternate Method

Given:

Ratio of chairs to tables = 9 : 7

Difference between chairs and tables = 42

Calculations:

Let the number of chairs be 9x and tables be 7x.

=> 9x − 7x = 42

=> 2x = 42

=> x = 42 ÷ 2

=> x = 21

=> Number of chairs = 9x = 9 × 21

=> Number of chairs = 189

Therefore The correct answer is 189 chairs.

Additional Information

Ratio and Proportion

A ratio compares two quantities by division. If a : b = c : d, then ad = bc (Product of extremes = Product of means).

Unitary Method in Ratios

To find the total or specific parts, first find the value of one 'unit' by dividing the given numerical difference or sum by the corresponding ratio difference or sum.

Q60. Answer: (d) 60 ms^(-1)

The correct answer is Option 4, i.e 60 ms-1

• Time to reach Maximum height = 12/2 = 6 s

• v = 0 (at the maximum height)

• a = 10 m s^(-2)

• Using, v = u + at, we get

• 0 = u - 10 × 6 s

• or, u = 60 ms^(-1)

Q61. Answer: (d) Double salt

The Correct Answer is Option 4 i.e Double salt.

Flake Salt	**• Flake salt is also called as Flaked Sea Salt. - It has less minerals so that it has more salt flavour.**
Single Salt / Table Salt	• The salt which has only one cation or one anion is called as Single Salt. Example: - Sodium Chloride is also called as Simple salt. - Chemical formula of Sodium Chloride is NaCl.
Double Salt	• The salt which has more than one cation or anion is called as Double Salt. Example: - Alum is also called as Potash Alum. - Chemical formula of Potash Alum is KAI(SO4)2.12H2O - It is mostly used in medicine and water treatment processes.

Q62. Answer: (d) 20

Shortcut Trick

Efficiency of Sunny + Paula = 1/12

Efficiency of Paula = 1/18

Efficiency of Sunny = 1/12 − 1/18 = (3 − 2)/36 = 1/36

Efficiency of Sunny + Jane = 1/36 + 1/45 = (5 + 4)/180 = 9/180 = 1/20

Therefore The correct answer is 20 hours.

Alternate Method

Given: Time taken by (Sunny + Paula) = 12 hours, Paula = 18 hours, Jane = 45 hours.

Formula Used: Total Work = LCM of individual times; Efficiency = Total Work ÷ Time.

Person	**Days/Hours**	**Total Work**	**Efficiency**
Sunny + Paula	12	180	180 ÷ 12 = 15
Paula	18	180 ÷ 18 = 10	
Jane	45	180 ÷ 45 = 4	

=> Efficiency of Sunny = (Sunny + Paula) − Paula = 15 − 10 = 5

=> Combined Efficiency of Sunny and Jane = 5 + 4 = 9

=> Time taken by (Sunny + Jane) = Total Work ÷ Combined Efficiency = 180 ÷ 9 = 20 hours

Therefore The correct answer is 20 hours.

Additional Information

Total Work Concept

Work is always considered as 1 unit or the LCM of the time taken by individuals to simplify calculations.

Efficiency Relation

Efficiency is inversely proportional to Time. If A is twice as efficient as B, A will take half the time of B.

Combined Work Formula

For two people A and B, the time taken together is (T_A × T_B) ÷ (T_A + T_B).

Q63. Answer: (b) Sanjay Leela Bhansali

The Correct Answer is Option 2 i.e Sanjay Leela Bhansali.

• Sanjay Leela Bhansali is the Director of the movie ‘Padmavaat’ released in 2018.

Director Name	**Movies released in 2018**
Rajkumar Hirani	• Sanju is the movie which was directed by Rajkumar Hirani in 2018. - He was directed 5 movies from 2003 to present.
Sanjay Leela Bhansali	• Padmaavat is the movie which was directed by Sanjay Leela Bhansali in 2018. - He was directed 10 movies from 1996 to present.

YourMockTest.com — Free Study Material

Karan Johar	• Lust Stories, Raazi, Dhadak,Simmba are movies which was directed by Karan Johar in 2018. - He was directed 9 movies from 1998 to present.
S. S. Rajamouli	• There is no movies was directed by S. S. Rajamouli in 2018. - He was directed 12 movies from 2001 to present.

Q64. Answer: (b) Prakash Javadekar

The Correct Answer is Option 2 i.e Prakash Javadekar.

Prakash Javadekar is the Union Minister of Human Resource Development, Government of India, as of 1 March 2018.

Radha Mohan Singh	**• Radha Mohan Singh was the Minister of Agriculture and Farmers Welfare from 2014 to 2019.**
Prakash Javadekar	• Prakash Javadekar was the Minister of State for Parliamentary Affairs in 2014. - Prakash Javadekar was the Minister of Human Resource Development from 2016 to 2019. - Prakash Javadekar is currently Minister of Information & Broadcasting, Environment, Forest & Climate Change and Heavy Industries & Public Enterprises from 2019 to present. - The current HRD minister is Ramesh Pokhriyal.
Harsh Vardhan	• Harsh Vardhan was the Minister of Environment, Forest and Climate Change from 2017 to 2019. - Harsh Vardhan is currently serving in these following departments: 1. Chairman of WHO Executive board from 2020 to present, 2. Minister of Health and Family Welfare from 2019 to present, 3. Minister of Science and Technology from 2014 to present and 4. Minister of Earth Sciences from 2014 to present
Smriti Irani	• Smriti Irani was the Minister of Human Resource Development from 2014 to 2016. - Smriti Irani was the Minister of Information and Broadcasting from 2017 to 2018. - Smriti Irani is currently serving as Minster of Women and Child Development from 2019 and Minister of Textiles from 2016 to present.

Q65. Answer: (b) Divya Deshmukh

The Correct Answer is Option 2 i.e Divya Deskmukh.

Padmini Rout	**• Padmini Rout is an Indian Chess player. - She won Gold in Girls under 12 category at the Asian in 2006. - She won Gold in Girls under 14 category at the World Cadets Chess Championship in 2008.**
Divya Deshmukh	• Divya Deshmukh is an Indian Chess player. - She won Gold in the Girls under 12 and under 10 category at the World Cadets Chess Championship in 2017 and 2014 respectively.
Abhimanyu Puranik	• Abhimanyu Puranik is an Indian Chess player. - He won Silver in under 20 category at the World Junior Boys and Girls in 2018.
Aryan Chopra	• Aryan Chopra is an Indian Chess player. - He is the India's fifth youngest Grandmaster. - He has won Abu Dhabi Chess Championship Masters Tournament.

Q66. Answer: (d) A

Hence, answer figure A is the pattern that the given transparent sheet will resemble when it is folded at the dotted line.

Q67. Answer: (a) C

Hence, answer figure C is the correct horizontal mirror image of LICK.

Q68. Answer: (d) cbrt2 : cbrt3

Shortcut Trick

Let radius of cone be r_c and altitude be h. Given $r_c = h/3 \Rightarrow h = 3r_c$.

Equating volumes: $(1/3)\pi r_c^2(3r_c) = (2/3)\pi r_h^3$.

$\pi r_c^3 = (2/3)\pi r_h^3 \Rightarrow r_c^3/r_h^3 = 2/3$.

Taking cube root: $r_c : r_h = \sqrt[3]{2} : \sqrt[3]{3}$.

Therefore The correct answer is $\sqrt[3]{2} : \sqrt[3]{3}$.

Alternate Method

Given:

Radius of cone (r_c) = (1/3) × Altitude (h)

Volume of Cone = Volume of Hemisphere

Formula Used:

Volume of Cone = $(1/3)\pi r^2 h$

Volume of Hemisphere = $(2/3)\pi R^3$

=> Let altitude of cone be h. Then base radius $r_c = h/3 \Rightarrow h = 3r_c$.

=> Volume of cone = $(1/3) \times \pi \times r_c^2 \times (3r_c) = \pi r_c^3$

=> Volume of hemisphere = $(2/3) \times \pi \times r_h^3$

=> $\pi r_c^3 = (2/3) \times \pi \times r_h^3$

=> $r_c^3 / r_h^3 = 2 / 3$

=> $r_c / r_h = (2/3)^{(1/3)} = \sqrt[3]{2} / \sqrt[3]{3}$

Therefore The correct answer is $\sqrt[3]{2} : \sqrt[3]{3}$.

Additional Information

Right Circular Cone

Slant height $l = \sqrt{(r^2 + h^2)}$. Total Surface Area = $\pi r(l + r)$.

Sphere and Hemisphere

Volume of Sphere = $(4/3)\pi r^3$. Curved Surface Area of Hemisphere = $2\pi r^2$.

Ratio of Volumes

If two solids have equal volumes, their dimensions are inversely proportional to the cube root of the constant coefficients in their volume formulas.

Q69. Answer: (c) Only I is implicit

Since the meteorologist emphasizes that a shortage in rainfall would result in crop failure, it can assumed that rainfall is a necessity to avoid the failure.

Therefore, assumption I is implicit.

However, nothing is mentioned or suggested about the relation between irrigation and rainfall.

Therefore, assumption II is not implicit.

Hence, only assumption I is implicit.

Q70. Answer: (c) C

In each figure the arrow is on one of the sides of the polygon whereas in figure C arrow is on one of the corners of the polygon.

Hence, figure C is the odd one among the given figures.

Q71. Answer: (a) 30 hours

Shortcut Trick

Work done by A + B in 8 hours = 8/24 = 1/3 of the tank.

Remaining work = 1 − 1/3 = 2/3 of the tank.

Time taken by A alone to finish 2/3 work = 28 − 8 = 20 hours.

Time for A alone to fill the full tank = 20 × (3/2) = 30 hours.

Therefore The correct answer is 30 hr.

Alternate Method

Person	Days/Hours	Total Work	Efficiency
A + B	24	24 units	1 unit/hr

Given: Total work = 24 units (LCM of 24). Combined efficiency = 1 unit/hr.

Calculations:

=> Work done by A and B in 8 hours = 8 × 1 = 8 units.

=> Remaining work = 24 − 8 = 16 units.

=> Total time taken = 28 hours. Time A worked alone = 28 − 8 = 20 hours.
=> Efficiency of A = Remaining work ÷ Time = 16 ÷ 20 = 0.8 units/hr.
=> Time for A alone to fill tank = Total work ÷ Efficiency of A = 24 ÷ 0.8
=> Time = 240 ÷ 8 = 30 hours.
Therefore The correct answer is 30 hr.
Additional Information
Efficiency Concept
Efficiency is inversely proportional to the time taken to complete a work. If A is twice as fast as B, A takes half the time B takes.
Pipes and Cisterns
Inlet pipes have positive efficiency, while outlet (leakage) pipes have negative efficiency. Total work = Time × Net Efficiency.

Q72. Answer: (b) Only I is implicit

Bird sanctuaries provide natural habitats to the birds who take shelter here.
Therefore, it is safe to assume that the birds are migratory and stay in the sanctuary during a particular period of the year
Therefore, assumption I is implicit.
However, since the statement does not talk about water bodies at all, assumption II is not implicit.
Hence, only assumption I is implicit.

Q73. Answer: (b) Cousin

Preparing the family tree using the following symbols:
Hence, Vandana is cousin of Amit.

Q74. Answer: (c) 6 years

Shortcut Trick
Father’s age at Monika’s birth = 38 years.
Mother’s age at sister’s birth (4 years later) = 36 years.
Mother’s age at Monika’s birth = 36 − 4 = 32 years.
Age difference = 38 − 32 = 6 years.
Therefore The correct answer is 6 years.
Alternate Method
Given:
Father’s age when Monika was born = 38 years.
Sister is 4 years younger than Monika.
Mother’s age when Sister was born = 36 years.
Calculations:
=> Let Monika’s birth year be Year 0.
=> Father’s age in Year 0 = 38 years.
=> Sister’s birth year = Year 4 (since she is 4 years younger).
=> Mother’s age in Year 4 = 36 years.
=> Mother’s age in Year 0 = 36 − 4 = 32 years.
=> Difference between parents’ ages = 38 − 32 = 6 years.
Therefore The correct answer is 6 years.
Additional Information
Constant Age Difference
The difference between the ages of any two individuals always remains constant regardless of the number of years passed.
Relative Age Calculation
To find the age of a person at a different point in time, add or subtract the number of years lapsed from their known age at a specific event.
Siblings Age Logic
If Person A is n years younger than Person B, then Person A is born n years after Person B.

YourMockTest.com — Free Study Material

Q75. Answer: (a) Darwin's

The correct answer is option 1, i.e. Darwin's theory of evolution.

Key Points

Darwin's theory of evolution tells us how life evolved from simple to more complex form.

• Evolution is a process of change happening over generations.

• Darwin published his theory of evolution with evidence in his book 'On the Origin of Species' in 1859.

• The book introduced the scientific theory of evolution over the course of generations through the process of Natural Selection.

Name	Discovery
Alfred Russel Wallace	He independently proposed the theory of evolution through natural selection. His theory was jointly published with Charles Darwin's writings in 1859.
Gregor Johann Mendel	Founder of the modern science of genetics.
Jean Baptiste Lamarck	Proposed the idea of natural laws in biological evolution.

Q76. Answer: (b) 15,000

Shortcut Trick

Convert crate dimensions to cm: 180 cm × 150 cm × 120 cm.

Max Cubes = (L/side) × (W/side) × (H/side)

Max Cubes = (180/6) × (150/6) × (120/6)

Max Cubes = 30 × 25 × 20 = 15,000

Therefore The correct answer is 15,000 cubes.

Alternate Method

Given:

Length of wooden crate (L) = 1.8 m = 180 cm

Width of wooden crate (W) = 1.5 m = 150 cm

Height of wooden crate (H) = 1.2 m = 120 cm

Side of iron cube (a) = 6 cm

Formula Used:

Number of cubes = Volume of crate ÷ Volume of one cube

Volume of cuboid = L × W × H

Volume of cube = a^3

Calculations:

=> Volume of crate = 180 × 150 × 120 = 3,240,000 cm^3

=> Volume of one iron cube = 6 × 6 × 6 = 216 cm^3

=> Number of cubes = 3,240,000 ÷ 216

=> Number of cubes = 15,000

Therefore The correct answer is 15,000 cubes.

Additional Information

Volume of Cuboid

The total space occupied by a cuboid is given by Length × Breadth × Height.

Fitting Rule

When fitting objects, the number of objects is only equal to (Total Volume / Object Volume) if the dimensions are perfectly divisible by the object side.

Unit Conversion

Always ensure all measurements are in the same unit before calculation (1 m = 100 cm).

Q77. Answer: (a) 82L

Hence, 82L is the next term in the given series.

Q78. Answer: (b) 20 m/s

The correct answer is option 2, i.e. 20 m/s.

A boy standing at the top of the tower drops a stone from the height 20 m.

Velocity at which it will hit the ground is calculated as,

Given:

Height of the tower h = 20 m

g = 10 m/s²

Initial Velocity u = 0 (drops)

Final Velocity v =?

Using Equation of motion,

$v^2 - u^2 = 2gh$

$v2 = u2 + 2gh$

$v2 = (0)^2 + 2 \times 10 \times 20$

$v2 = 400$

$v = 20$ m/s

The stone touches the ground at the velocity of 20 m/s when drops from the height of 20 m.

Q79. Answer: (c) Maruti Suzuki

The Correct Answer is Option 3 i.e Maruti Suzuki.

• The Government of India has tied up with Maruti Suzuki to support Skill India in the automobile industry.

• Ministry of Skill Development and Maruti Suzuki enters into an agreement to support Skill India in Automobile industry.

• This agreement objective is to provide a unique opportunity to the youth to acquire skills related to automobile and manufacturing industry through the "Learn and Earn" approach.

• On 18^(th) December 2017, the flexi MoU was signed by Shri Vijay Kumar Dev, Director General, DGT (Ministry of Development and Entrepreneurship) and Shri Mukesh Kumar Gupta, Vice President (Maruti Suzuki India Limited).

Q80. Answer: (b) Contraction effect

The correct answer is Option 2, i.e Contraction Effect.

• Contraction is a method in Chemistry. It is related to Lanthanoid.

• Lanthanoid contraction: The gradual decrease in atomic and ionic radii of lanthanoids with the increase in atomic number is called lanthanoid contraction. It has a definite effect on the properties of lanthanoids.

• Chemical Effect, Heating Effect, Magnetic Effect are all produced by current.

Q81. Answer: (d) Ne

The correct answer is Ne or Neon.

• The element which has two shells both of which are completely filled with electrons is Neon with electronic configuration (2,8).

• Helium (He) only has 2 electrons and therefore it has a configuration of $1s^2$.

• Argon (Ar) electron configuration will be 1s22s22p63s23p6.

• Electron configuration of Krypton (Kr) : 1s22s22p63s23p63d104s24p6.

Q82. Answer: (c) 2 hours 30 minutes

Shortcut Trick

Using Alligation Method: Average speed = 220 ÷ 4.5 = 440/9 km/h.

Speed 1 (Train): 60 | Speed 2 (Bus): 40 | Mean: 440/9

Ratio of Time (Bus : Train) = (60 − 440/9) : (440/9 − 40) = 100/9 : 80/9 = 5 : 4.

Bus Time = (5 ÷ 9) × 4.5 hours = 2.5 hours.

Therefore The correct answer is 2 hr 30 min.

Alternate Method

Given: Total distance = 220 km, Total time = 4.5 hours, Train speed = 60 km/h, Bus speed = 40 km/h.

Let Time traveled by bus be 't' hours.

Then, Time traveled by train = (4.5 − t) hours.

=> Total Distance = (Speed_(train) × Time_(train)) + (Speed_(bus) × Time_(bus))

=> 220 = 60 × (4.5 − t) + 40 × t

=> 220 = 270 − 60t + 40t

=> 220 = 270 − 20t

=> 20t = 270 − 220

=> 20t = 50

=> t = 50 ÷ 20 = 2.5 hours

=> 2.5 hours = 2 hours + 0.5 × 60 minutes = 2 hours 30 minutes.

Therefore The correct answer is 2 hr 30 min.

Additional Information

Average Speed

Average Speed is the Total Distance divided by the Total Time taken for the journey.

Alligation Rule for Speed

When alligation is applied to Speeds, the resulting ratio is always the Ratio of Time spent on each part.

Relative Speed

If two objects move in the opposite direction, relative speed is the sum (S1 + S2). If in the same direction, it is the difference (S1 − S2).

Q83. Answer: (b) 6 and 7

The Correct Answer is Option 2 i.e 6 and 7.

Period	Elements
3	• This period contains 8 elements. - Elements starts from Sodium (Na) to Argon (Ar).
4	• This period contains 18 elements. - Elements starts from Potassium (K) to Krypton (Kr).
5	• This period contains 18 elements. - Elements starts from Rubidium (Rb) to Xenon (Xe).
6	• This period contains 32 elements which includes Lanthanaides. - Lanthanaides will be in 6^(th) period between Barium (Ba) and Hafnium(Hf). - Elements starts from Caesium (Cs) to Radon (Rn).
7	• This period contains 32 elements which includes Actinides. - Actinides will be in 7^(th) period between Radium(Ra) and Rutherfordium (Rf). - Elements starts from Francium (Fr) to Oganesson(Og).

Q84. Answer: (b) A

The question figure has a triangle which is at the left of two opposite facing arrows.

The triangle does not touch the arrows and the arrows are outside the rectangle.

Hence, the pattern given in answer figure A is the pattern that most closely resembles the question figure.

Q85. Answer: (b) B

Circle, Square and Rectangle are figures where as Volume is the quantity that represents the measure of space within a three dimensional figure.

Hence, Volume does not belong to the group.

Q86. Answer: (b) North

Drawing the diagram as per the directions given.

If the home entrance is east facing this means when someone enters he/she must be west facing.

Now she went to the shop which is adjacent means while entering she must be facing west.

Now she takes a right turn means the final direction will be in the North.

Hence, Meenu is facing North direction.

Q87. Answer: (d) 1

Shortcut Trick

Pick small natural numbers n > 1.

If n = 2, n2 = 4. Since 4 = (3 × 1) + 1, it exceeds a multiple of 3 by 1.

If n = 3, n2 = 9. Since 9 = (3 × 3), it is a multiple of 3.

If n = 4, n2 = 16. Since 16 = (3 × 5) + 1, it exceeds a multiple of 3 by 1.

Therefore The correct answer is 1.

YourMockTest.com — Free Study Material

Alternate Method

Given: A natural number n > 1.

Concept: Any natural number can be represented in the form 3k, 3k+1, or 3k+2.

=> Case 1: If n = 3k

=> n2 = (3k)2 = 9k2 = 3(3k2), which is a multiple of 3.

=> Case 2: If n = 3k + 1

=> n2 = (3k + 1)2 = 9k2 + 6k + 1 = 3(3k2 + 2k) + 1, which exceeds a multiple of 3 by 1.

=> Case 3: If n = 3k + 2 (or 3k − 1)

=> n2 = (3k + 2)2 = 9k2 + 12k + 4 = 9k2 + 12k + 3 + 1 = 3(3k2 + 4k + 1) + 1, which exceeds a multiple of 3 by 1.

Therefore The correct answer is 1.

Additional Information

Square of a Number (mod 4)

The square of any integer is either a multiple of 4 or exceeds a multiple of 4 by 1 (n2 ≡ 0, 1 mod 4).

Euclid Division Lemma

For any positive integers a and b, there exist unique integers q and r such that a = bq + r, where 0 ≤ r < b.

Perfect Square Properties

A perfect square never ends in the digits 2, 3, 7, or 8.

Q88. Answer: (a) 19

Simplify using BODMAS: Bracket – Of – Division – Multiplication – Addition – Subtraction

3 + [32 ÷ 8 × 52 ÷ (4 + 9)]

=> 3 + [32 ÷ 8 × 52 ÷ 13]

=> 3 + [4 × 4]

=> 3 + 16

=> 19

Q89. Answer: (c) Double displacement

The Correct Answer is Option 3 i.e Double displacement.

Single Combination reaction	**• When two or more reactants which combines to form a single product is called as Combination reaction. - Its form will be: a + b → ab. - Example: 2Na + Cl2→ 2NaCl.**
Single Displacement reaction	• When high reactive element displaces a less reactive element from its aqueous solution is called as Displacement reaction. - Its form will be: a + bc → ac + b. - Example: Zn + CuSO4→ ZnSO4 + Cu.
Double Displacement reaction	• When ions gets exchanged between two reactants which will form a new compound is called as Double Displacement reaction. - Its form will be: ab + ca → ac + ba. - Example: Bacl2 + Na2SO4→ BaSO4 + 2NaCl.

Q90. Answer: (c) 40,00,000 tones

Total production of X and Y in 2000 = (40 + 40) lakh tonnes = 80 lakh tonnes

Total production of X and Y in 2004 = (60 + 60) lakh tonnes = 120 lakh tonnes

Therefore Required difference = (120 – 80) lakh tonnes = 40,00,000 tonnes

Q91. Answer: (c) A

The logic followed here is:

In the question figure the second image is the mirror image of the first figure on axis which is in line with the base of triangle (horizontal axis) in figure 1.

Similarly,

In the question figure the fourth image will be the mirror image of the third figure on axis which is in line with the base of triangle (vertical axis) in figure 3.

Hence, answer figure A will be the next image in the given series.

YourMockTest.com — Free Study Material

Q92. Answer: (c) Rs. 22.5 lakhs

Total operating cost in 2016 = Rs. 120 lakhs

=> Salary in 2016 = Rs. (120 × 50/100) lakhs = Rs. 60 lakhs

Total operating cost in 2017 = Rs. 150 lakhs

=> Salary in 2017 = Rs. (150 × 55/100) lakhs = Rs. 82.5 lakhs

Therefore Salary in 2017 higher than that of 2016 by = Rs. (82.5 – 60) lakhs = Rs. 22.5 lakhs

Q93. Answer: (d) 3550

The logic followed here is that each alphabet is coded as second number of its positional value.

V (22) → 2;

E (05) → 5;

I (09) → 9;

L (12) → 2;

Similarly,

M (13) → 3;

E (05) → 5;

E (05) → 5;

T(20) → 0;

Hence, 'MEET' is coded as '3550'.

Q94. Answer: (c) Akbar's

The Correct Answer is Option 2 i.e Akbar's.

Mughals	Capitals
Bahadur Shah's	Old Delhi (Shahjahanabad)
Babur's	Akhsikent
Akbar's	Fatehpur Sikri
Aurangzeb's	Old Delhi (Shahjahanabad)

• Fatehpur Sikri is a city in Agra, Uttar Pradesh and it was founded by Akbar.

• Fatehpur Sikri or the 'City of Victory' was Akbar's capital for 12 years.

• In 1986, Fatehpur Sikri becomes one of the UNESCO's World Heritage Site.

Q95. Answer: (b) Tungsten

The Correct Answer is Option 2 i.e Tungsten.

Metal	Uses
Iron	• Iron (26Fe) has its atomic number 26. - Red colour in blood is from the iron in haemoglobin, which helps to carry oxygen from the lungs to cells - Iron used to make electricity pylons, bicycle chains and rifle barrels.
Tungsten	• Tungsten (74W) has its atomic number 74. - Tungsten is used in filaments of incandescent light bulbs. - Tungsten is used to make counterfeit gold bars because of its density which is similar to that of gold. - Tungsten carbide is used in drill bits and mining tools.
Silver	• Silver (47Ag) has its atomic number 47. - Threads of Silver are used to operate touch screen devices because it is woven into gloves. - Light sensitive silver halides are used in photochromic glasses and photography.
Nickel	• Nickel (28Ni) has its atomic number 28. - Nickel-Chromium alloy is used in heating elements of toasters and electric ovens. - Nickel is used in making coins of many countries. - Nickel is one of the only four elements that will magnetic at 20 ^oC.

YourMockTest.com — Free Study Material

Q96. Answer: (c) 21 km

Shortcut Trick

Using Alligation Method on Speed:

Average Speed = 109 / 8.5 = 218 / 17 km/h.

Ratio of Time (Walking : Cycling) = (16 − 218/17) : (218/17 − 7) = (272 − 218) : (218 − 119) = 54 : 99 = 6 : 11.

Total time parts = 6 + 11 = 17 units → 8.5 hours. So, 1 unit = 0.5 hours.

Time spent walking = 6 × 0.5 = 3 hours.

Distance on foot = 7 km/h × 3 hours = 21 km.

Therefore The correct answer is 21 km.

Alternate Method

Given: Cycling speed = 16 km/h, Walking speed = 7 km/h, Total Distance = 109 km, Total Time = 8.5 hours.

Formula Used: Distance = Speed × Time

=> Let the time spent walking be 't' hours.

=> Then, time spent cycling = (8.5 − t) hours.

=> Total Distance = (7 × t) + [16 × (8.5 − t)] = 109

=> 7t + 136 − 16t = 109

=> −9t = 109 − 136

=> −9t = −27

=> t = 3 hours

=> Distance on foot = 7 km/h × 3 hours = 21 km.

Therefore The correct answer is 21 km.

Additional Information

Alligation on Speed

When alligation is applied to speeds, the resulting ratio is always the ratio of Time taken for each part of the journey.

Average Speed

Average Speed = Total Distance ÷ Total Time. In this problem, it acts as the mean value in the alligation cross.

Distance Calculation

Once the time ratio is found, actual time is calculated using total hours, and then multiplied by the respective speed (D = S × T).

Q97. Answer: (c) Only argument I is strong

If the time table includes a free period of time in a day or a week would give sufficient time and the necessary permission to ensure students can interact with each other and explore new avenues freely. Therefore, argument I is strong.

However, it is not necessary that there would not be any discipline during this free period.

Therefore, argument II is not strong.

Hence, only argument I is strong.

Q98. Answer: (d) 6

The Correct Answer is Option 4 i.e 6.

BODMAS (Bracket, Of, Division, Multiplication, Addition and Subtraction) is a rule used to perform mathematical expression. So priority is given first to bracket of division, multiplication, addition and subtraction.

Calculation based on BODMAS:

Step 1 : 7 of 4 = 7 x 4 = 28

Step 2 : 112/28 = 4

Step 3 : 25 - 4 = 21

Step 4 : 37 - 21 = 16

Step 5 : 40 - 16 = 24

Step 6 : 144/24 = 6

Answer : 6

Q99. Answer: (a) 27

Shortcut Trick

Sum of 3 numbers = 20 × 3 = 60.

Let numbers be x, x+3, x+12 (since range is 12 and smallest difference is 3).

3x + 15 = 60 → 3x = 45 → x = 15.
Greatest number = 15 + 12 = 27.
Therefore The correct answer is 27.
Alternate Method
Given:
Mean of three numbers (a, b, c) = 20
Range (c − a) = 12
Difference (b − a) = 3
Calculations:
=> Sum (a + b + c) = 20 × 3 = 60
=> From conditions: b = a + 3 and c = a + 12
=> Substitute in sum: a + (a + 3) + (a + 12) = 60
=> 3a + 15 = 60
=> 3a = 45
=> a = 15
=> Greatest number (c) = a + 12 = 15 + 12 = 27
Therefore The correct answer is 27.
Additional Information
Mean
The average of a data set calculated by Sum of observations ÷ Total number of observations.
Range
The difference between the Maximum value and the Minimum value in a data set.
Median of 3 numbers
When arranged in ascending order, the middle term (b) is the median.

Q100. Answer: (a) 1

Symbol	•	×
Meaning	•	÷

Given: ((75 + 25) × 5) × 10
On decoding: ((75 - 25) ÷ 5) ÷ 10
→ ((75 - 25) ÷ 5) ÷ 10
→ ((50) ÷ 5) ÷ 10
→ (10) ÷ 10
→ 1
Hence, on decoding the value of ((75 + 25) × 5) × 10 is 1.

More previous year papers and mock tests: **www.yourmocktest.com/pyq**

YourMockTest.com – Free Study Material