RRC Group D Previous Year Paper 12 (Held On: 4 Oct 2018 Shift 1)

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.

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

CBT

Q1. Dalton’s theory was based on the laws of:

(a) Conservation of Momentum
(b) Conservation of Mass
(c) Conservation of Energy
(d) Conservation of Charge

Q2. In August 2018, Hindalco’s wholly-owned subsidiary Novelis Inc. announced the acquisition of a global aluminium rolled products company that is headquartered in the US. Name the acquired company.

(a) Century Aluminium
(b) Alcoa Corporation
(c) U.S Foil company
(d) Aleris Corporation

Q3. Select the option that is related to the third word on the same as the second word is related to the first word.

Wait : Linger ? Bite:

(a) Gnaw
(b) Murmur
(c) Hiss
(d) Eat

Q4. Find the value of √0.7.

(a) 0.948
(b) 0.598
(c) 0.894
(d) 0.836

Q5. Which of the following is a reducible fraction?

(a) 77/72
(b) 105/112
(c) 104/121
(d) 5/49

Q6. If in a code, TRUCK is written as RPSAI, how will TOOL be written as in that code?

(a) JMRJ
(b) RJKM
(c) RMMJ
(d) RMJM

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Q7. Who among the following was called the 'Iron Chancellor'?

(a) Napoleon Bonaparte
(b) Genghis Khan
(c) Otto von Bismarck
(d) Adolf Hitler

Q8. If you invest Rs. 100 at 40% annual interest compounded quarterly, how much will you receive after one year?

(a) Rs. 145.61
(b) Rs. 146.41
(c) Rs. 149.01
(d) Rs. 148.11

Q9. An object of mass 12 kg is at a certain height above the ground. If the potential energy of the object is 600 J, find the height at which the object is with respect to the ground. Given g = 10 ms^(-2)

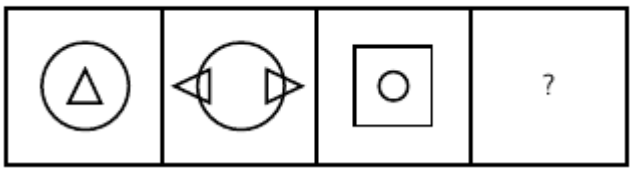
(a) 5 m
(b) 5 ms^(-2)
(c) 5 ms^2
(d) -5 m

Q10. Anusri is eleven years younger than Yashomati. Fifteen years from now, Yashomati's age will be three times Anusri's present age. What is Yashomati's present age?

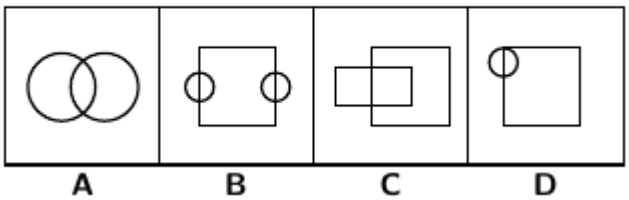
(a) 21 years
(b) 24 years
(c) 20 years
(d) 23 years

Q11. Pick the figure that will complete the given series.

Problem Figures:



Answer Figures:



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

Q12. The average marks obtained by Suvir in 15 tests is 29. Ruchira is maintaining an average of 27 so far but has taken only 11 of the tests so far. How much does Ruchira have to score on an average in the remaining four tests to match Suvir's performance?

(a) 36
(b) 35.5
(c) 34.5
(d) 35

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Q13. You are given a question and two statements. Identify which of the statements is/are necessary/sufficient to answer the question.

Question:

How many sons does X have?

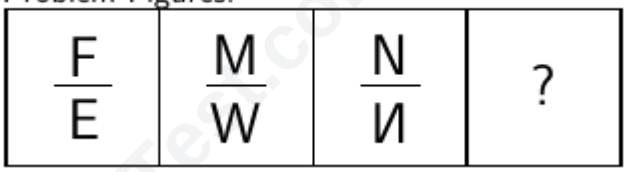
Statements:

1. Y and Z are brothers of W.
2. The mother of Z is wife of W's father.

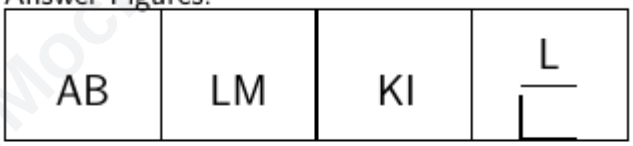
(a) 1 alone is sufficient while 2 alone is not sufficient
(b) Neither 1 nor 2 alone is sufficient
(c) Both 1 and 2 together are sufficient
(d) 2 alone is sufficient while 1 alone is not sufficient

Q14. Find the next figure for the given series:

Problem Figures:



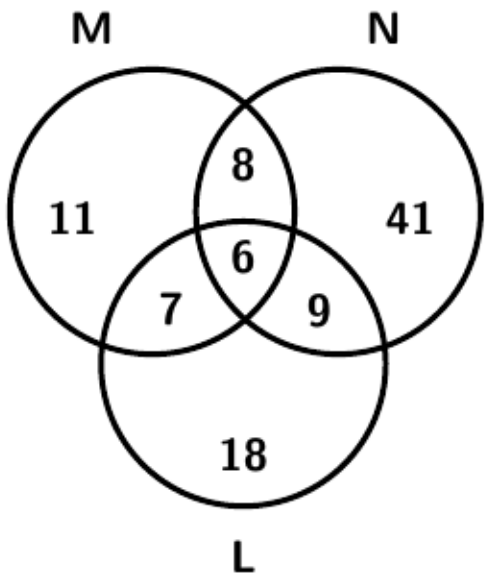
Answer Figures:



A B C D

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

Q15.



The above Venn diagram represent the students who play 3 sports M, N and L in a class.

Total number of students who play game M is:

(a) 7
(b) 11

(c) 32
(d) 21

Q16. Which of the following statements is/are true?

A. Solid CO_2 is known as dry ice.
B. The particles of liquid absorb energy from the surrounding to regain the energy lost during evaporation.
C. Solid CO_2 gets converted directly to the gaseous state.

(a) All are false
(b) A and C are false, B is true
(c) A and C are true, B is false
(d) All are true

Q17. Find SP when MP = 160 and discount = 12%?

(a) 140.80
(b) 160.80
(c) 132.80
(d) 100

Q18. What are the roots of the equation $2x^2 + 4x = 30$?

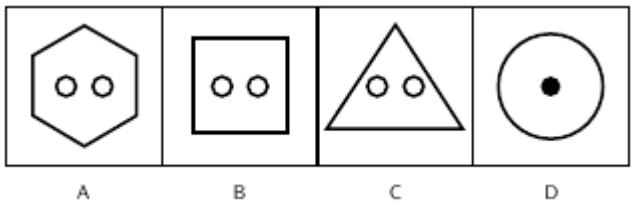
(a) 2, - 15
(b) 6, 5
(c) • 5, 3
(d) 10, 3

Q19. Find the next letter set in the given series.

CV, ET, HQ, ?

(a) LM
(b) LC
(c) MX
(d) LK

Q20. Find the odd figure out from among the given figures.



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

Q21. What is the process by which a gas is converted into a solid?

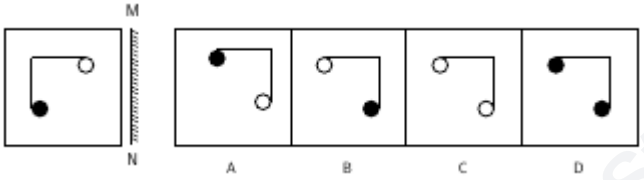
(a) Deposition
(b) Sublimation
(c) Vaporisation
(d) Freezing

Q22. The Indian Space Research Organisation (ISRO) created the world's third-largest hypersonic wind tunnel in:

(a) Jaisalmer
(b) Gokarna
(c) Thiruvananthapuram
(d) Ahmedabad

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Q23. Choose the mirror image for the following figure:



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

Q24. Who among the following is the Minister of External Affairs?

(a) Sushma Swaraj
(b) SM Krishna
(c) Salman Khurshid
(d) Manmohan Singh

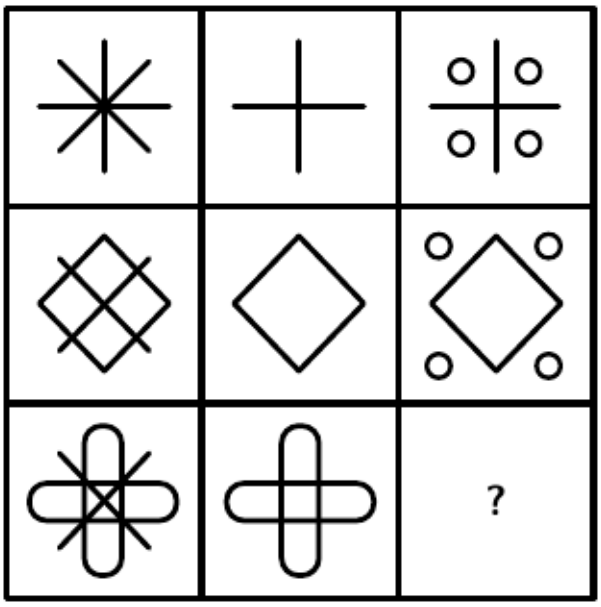
Q25. Two pipes feed a water tank at the rate of 2 liters/minute and and 3 liters/minute. A third pipe draws out water at a rate of 6 liters/minute. The capacity of the tank is 100 liters and it is full of water. How many minutes would it take to make the tank empty if the three pipes are opened simultaneously?

(a) 125
(b) 75
(c) 100
(d) 50

Q26. Four words have been given below of which three are alike in some way and one is different. Choose the odd on out:

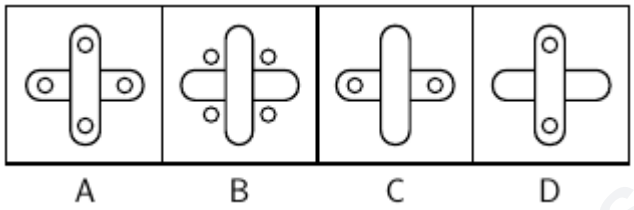
(a) ISM Dhanbad
(b) (CBI) Central Bureau of Investigation
(c) NIT Warangal
(d) BHU Varanasi

Q27.



Choose the correct picture that fits the blank place.

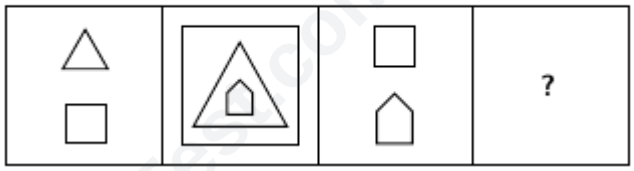
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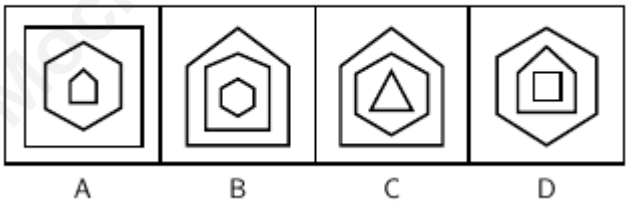
(a) A
(b) B
(c) C
(d) D

Q28. Choose the correct figure that will fit in the blank space in the following series.

Problem Figures:



Answer Figures:



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

Q29. Force = _____.
(a) mass × acceleration
(b) mass × volume
(c) mass × pressure
(d) mass × velocity

Q30. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.
Statement:
"Beware of our dog," a signboard outside a house states.
Assumption:
I. A dog is being raised at the house.
2. Dogs are the most loyal animals.
(a) Neither I nor II is implicit
(b) Only assumption I is implicit
(c) Only assumption II implicit
(d) Both I and II are implicit

Q31. The Gulf of Bothnia is situated between two countries. One of them is Finland. Which is the other country?
(a) Denmark
(b) Russia
(c) Sweden
(d) Norway

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Q32. Kaushik bought a toy for Rs. 180 and sold it for Rs. 202.50 The rate of profit was _____ %

(a) 15.25
(b) 12.5
(c) 16
(d) 17.5

Q33. A cylinder has the same height as the radius of its base. A hollow sphere has the same outer radius as that of the base of the cylinder while the inner radius is half of the outer radius. Find the ratio of the volumes of the cylinder to the hollow sphere.

(a) 5 : 6
(b) 7 : 8
(c) 6 : 7
(d) 3 : 4

Q34. Objects move with a constant speed when no _____ is acting on it.

(a) pressure
(b) inertia
(c) force
(d) momentum

Q35. A force of 10N is acting on an object. The object is displaced through 5 m in the direction of force. Then the work done is:

(a) -50 J
(b) 50 Watt
(c) -50 N
(d) 50 Nm

Q36. A tractor can finish its journey in 10 hours at the speed of 36km/hr. If the same distance must be covered in 8 hours, what should be the speed of the tractor?

(a) 60 km/hr
(b) 50 km/hr
(c) 45 km/hr
(d) 55 km/hr

Q37. Which of the following reaction is precipitation reaction?

(a) Calcium carbonate → calcium oxide + Carbon dioxide
(b) Sodium sulphate + Barium chloride → Barium sulphate + Sodium chloride
(c) Lead + Copper chloride → Lead chloride + Copper
(d) Methane + Oxygen → Carbon dioxide + Water

Q38. Padma is the sister of Suresh's mother. How is Padma related to Suresh?

(a) Grandmother
(b) Mother
(c) Sister
(d) Aunt

Q39. If $\text{cosec}^{4}\theta - \text{cosec}^{2}\theta = 1.24$, then $\cot^{4}\theta + \cot^{2}\theta = ?$

(a) 1.24
(b) 1.86
(c) 2.48
(d) 0.62

Q40. How many hydrogen atoms are present in one molecule of ethanol?

(a) Six
(b) Four
(c) Seven
(d) Five

Q41. The mean of the 5 smallest numbers from a group is 18 while the mean of all the 13 members of the group taken together is 20. What is the mean of the 8 largest numbers?

(a) 22.50
(b) 22.75
(c) 21.75
(d) 21.25

Q42. 138 ÷ [35 – {53 – (89 – 72 ÷ 9 × 6)}] = ?

(a) 2
(b) 6
(c) 23
(d) 3

Q43. The resistivity of a conductor depends on:

(a) Material
(b) Area of cross section
(c) Length
(d) All of the given options

Q44. A sum of money when invested for 5 years gives Rs. 5,250 as the amount. If the simple rate of interest was 2% per annum more than what it was, the amount would have been Rs.. 5,600. The original sum invested was:

(a) Rs. 4,000
(b) Rs. 3,250
(c) Rs. 3,750
(d) Rs. 3,500

Q45. Which process of fusion of sperm and ova results in the formation of single structure called zygote?

(a) Fragmentation
(b) Fertilisation
(c) Sexual reproduction
(d) Tissue culture

Q46. -3, -8, -13, -18, _____ the sum of the first 10^(th) term in the sequence is:

(a) -250
(b) -260
(c) -255
(d) -245

Q47. In a hostel, there is stock of 6,190.80 kg of wheat for feeding 105 students for 22 days. After 5 days, 14 students joined the hostel. How many days will the balance wheat feed the students, if all students consume the same quantity per day?

(a) 11 days
(b) 15 days
(c) 13 days
(d) 17 days

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Q48. Who took Oath on 23^(rd) January 2018 as the Governor of Madhya Pradesh?

(a) Om Prakash Kohli
(b) Kumud Ben Joshi
(c) Ram Naresh Yadav
(d) Anandiben Patel

Q49. Sound generated by a single frequency is called _____.

(a) tone
(b) wavelength
(c) amplitude
(d) pitch

Q50. The Saraswati Samman Award 2016 was bestowed upon:

(a) A.A manavalan
(b) Padma Sachdev
(c) Mahabaleshwar Sail
(d) Sugathakumari

Q51. Nm^(-2) is the SI unit of:

(a) Pressure
(b) Work
(c) Power
(d) Force

Q52. A statement is followed by two arguments. Decide which of the arguments is/are strong with respect to the statement.

Statement:

There is more wastage of water due to water purifiers.

Arguments:

I. Yes, houses should adopt ways to reuse the excess water produced from the filters so that it can be given back to the land.

II. No it enters the sewage system and automatically goes back.

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

Q53. 'Nuakhai', a social festival belongs to which state of India?

(a) Tamil Nadu
(b) Assam
(c) Odisha
(d) Karnataka

Q54. Find out the least number to be added 1051 make it completely divisible by 33.

(a) 31
(b) 33
(c) 38
(d) 36

Q55. The chemical formula of ferrous sulphate crystal is _____.

(a) FeSO4.4H2O
(b) FeSO4.5H2O
(c) FeSO4.6H2O
(d) FeSO4.7H2O

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Q56. Consider the given statement(s) and decide which of the given assumption(s) is/are implicit in the statement.

Statement: Organisations that follow certain business ethics have better chances of survival, compared to those whose only goal is to earn profits.

Assumption:

I. A written code of ethics to let the employees know the do's and dont's of an organisation is important.

II. Organisations should focus on training employees on code of ethics.

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

Q57. Who has won the Padma Sri Award 2018 in the field of sports(Swimming)?

(a) Sandeep Sejwal
(b) Shikha Tandon
(c) Sajan Prakash
(d) Murlikant Petkar

Q58. The sum of 5/12 and 12/5 is:

(a) 17/60
(b) 60/17
(c) 17/17
(d) 169/60

Q59. Ohm is the SI unit of _____.

(a) electric charge
(b) electric current
(c) potential difference
(d) resistance

Q60. x and y, given correct to 1 decimal place are given as 6.5 and 1.3 respectively. What is the upper bound of the value of x/y?

(a) 5
(b) 4.77
(c) 5.05
(d) 4.96

Q61. Identify the avid mountaineer who, in May 2017, became the first woman in the world to scale Mount Everest twice in a season. Does she also hold the record of fastest double ascent by a woman to the world's highest peak?

(a) Anshu Jamsenpa
(b) Malavath Purna
(c) Arunima Sinha
(d) Premlata Agrawal

Q62. A porter lifts a luggage of 12 kg from the ground and puts it on his head 1.5m above the ground. Calculate the work done by him on the luggage (g = 10ms^(-2))

(a) 140 J
(b) 180 J
(c) 150 J
(d) 155 J

Q63. Who hosted recently concluded ASIA CUP Men's Cricket 2018 tournament?

(a) UAE
(b) Bangladesh
(c) Nepal
(d) China

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Q64. Areolar tissue fills the spaces _____ the organ, supports the _____ organs and repairs tissues.

(a) outside; internal
(b) outside; external
(c) inside; internal
(d) inside; external

Q65. 45 men can complete a piece of work in 12 days. In how many days will 36 men be able to complete it?

(a) 10
(b) 16
(c) 18
(d) 15

Q66. Arjun was born on 1^(st) January 2007, Monday. What day of the week lies on 1^(st) January, 2008?

(a) Sunday
(b) Tuesday
(c) Friday
(d) Wednesday

Q67. In which of the following oceans is the Republic of Seychelles located?

(a) Pacific Ocean
(b) Indian Ocean
(c) Atlantic Ocean
(d) Artic Ocean

Q68. _____ give evidence of evolutionary relationships.

(a) Rocks
(b) Ocean beds
(c) River beds
(d) Fossils

Q69. Who discovered the theory of nuclear forces?

(a) S.N. Bose
(b) Hideki Hukawa
(c) J.C. Bose
(d) J.J. Thomson

Q70. Which alpha-numeric set will follow in the given series?

12E, 15B, 18Y, 21V,?

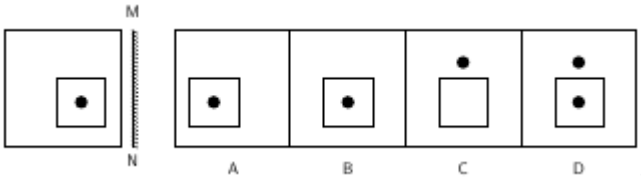
(a) 20V
(b) 25G
(c) 24S
(d) 28T

Q71. Unsaturated hydrocarbons add hydrogen in the presence of catalysts such as:

(a) Nickel and Cadmium
(b) Nickel and Hydrogen
(c) Nickel and Palladium
(d) Palladium and Radium

Q72. Find the mirror image of the following figure if the mirror is placed at line MN.

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

Q73. Two pipes X and Y can fill up a tank in 32 minutes and 16 minutes respectively. If both the pipes are opened simultaneously, after how much time should Y be closed, so that the tank is full in 20 minutes?

(a) 6 minutes
(b) 10 minutes
(c) 4 minutes
(d) 8 minutes

Q74. Which of the following inert gases is placed in period 5?

(a) Ne
(b) Ru
(c) Xe
(d) Ar

Q75. As of 1^(st) March 2018, who among the following is India's Permanent Representative to the United Nations?

(a) Rajiv Kumar Chander
(b) Hardeep Singh
(c) Nirupam Sen
(d) Nirupama Menon Rao

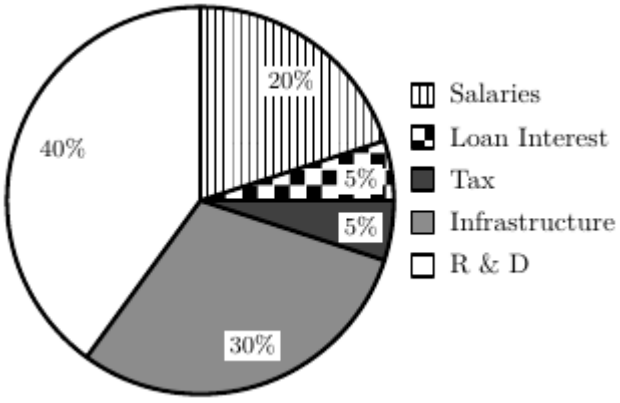
Q76. Who among the following won the 53^(rd) Jnanpith Award for the year 2017?

(a) Amar Kant
(b) Kedarnath Singh
(c) Pratibha Ray
(d) Krishna Sobti

Q77. Which of the following sports is S.V. Sunil related to?

(a) Table tennis
(b) Hockey
(c) Badminton
(d) Cricket

Q78. The following pie chart shown the expenditure of company XYZ in Q3 2015 on various heads.



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If company XYZ has spent a total of Rs. 100 lakh crores on the various heads then how much did it spend on R & D (in lakh crores)?

(a) 20
(b) 10
(c) 30
(d) 40

Q79. The HCF of 66, 198 and 154 is _____.

(a) 44
(b) 66
(c) 22
(d) 33

Q80. The plants in _____ group are commonly called algae.

(a) Gymnosperm
(b) Bryophyta
(c) Pteridophyte
(d) Thallophyta

Q81. Read the given statement(s) and conclusions carefully and select which of the conclusions logically follow(s) from the statement(s).

Statements:

I. All pigs are white.

II. Some white are peacock.

Conclusions:

1. Some peacock are pigs.

2. Some white are pigs

(a) Both 1 and 2 follows.
(b) Neither 1 nor 2 follows
(c) Conclusion 2 alone follows.
(d) Conclusion 1 alone follows

Q82. Name the service launched by the Central Government which will be available across the Common Service Centre (CSC) network and connect citizens to legal service providers with the help of technology-enabled platforms.

(a) 'Madadgar'
(b) 'Tele-Law'
(c) 'Retro-Fitment'
(d) 'Digi yatra'

Q83. What is the chemical name of Chinese salt that we use in preparing Chinese cuisine?

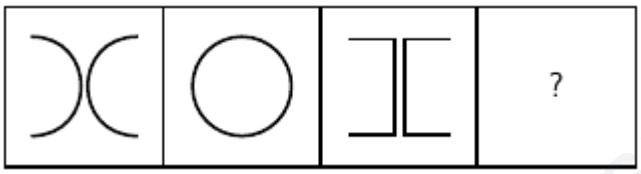
(a) Calcium hypochlorite
(b) Calcium carbonate
(c) Sodium benzoate
(d) Monosodium glutamate

Q84. Samu spent 1/4 of his money on books and 1/8 on food. If he is left with Rs. 40, how much did he spend on food?

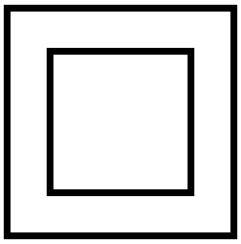
(a) 12
(b) 8
(c) 6
(d) 10

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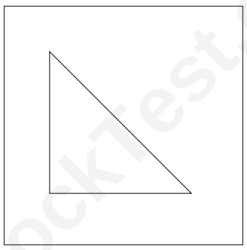
Q85. Choose the correct option to complete the series.



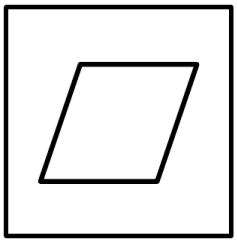
(a)



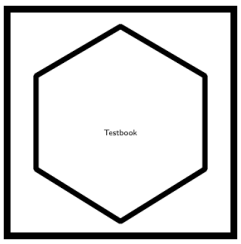
(b)



(c)



(d)



Q86. Read the following information carefully and answer the question that is given below.

Amrith is older than Manish. Vishnu is older than Manish but younger than Amrith. Dhivakar is younger than Rakesh and Manish. Manish is older than Rakesh.

Who is the eldest?

(a) Manish
(b) Rakesh
(c) Vishnu
(d) Amrith

Q87. A car accelerates uniformly from 18 kmh^(-1) to 36 kmh-1 in 5 sec. Calculate the acceleration of Car.

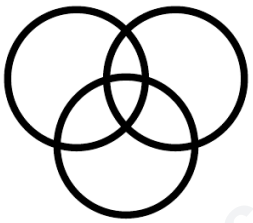
(a) 1 ms^(-2)
(b) 4 ms^(-2)
(c) 4 ms^2
(d) 1 ms^2

Q88. In Mendeleev's periodic table, _____ appeared before Nickel.

(a) Co
(b) Rb
(c) Mo
(d) Sr

Q89. Choose the best suitable Venn diagram for the following words
Capsicum, Mat, Rat.

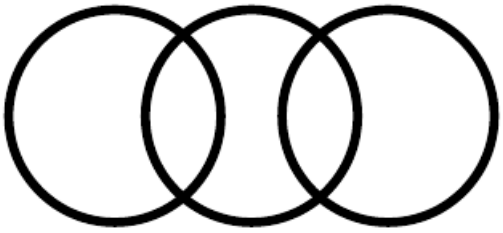
(a)



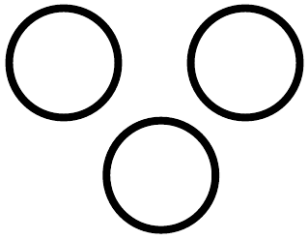
(b)



(c)



(d)



Q90. Find the missing word.
Leap (_____) Jump

(a) Walk
(b) Descend
(c) Bounce
(d) Run

Q91. A body travelling with a speed of more than the velocity of sound in air is said to be _____.

(a) Ultrasonic
(b) Infrasonic
(c) Supersonic
(d) Hypersonic

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Q92. Which two words were added to the Preamble of the Indian Constitution by the 42^(nd) Amendment, in 1976?

(a) Socialist, Secular
(b) Secular, Fraternity
(c) Democratic, Republic
(d) Justice, Liberty

Q93. Babur made his first raid into India in _____ A.D.

(a) 1519
(b) 1521
(c) 1535
(d) 1544

Q94. Each question given below consists of a statement, followed by two arguments numbered I and II. You have to decide which of the arguments is a 'strong' argument.

Statement: Is morning dose of coffee good for health?

Arguments:

I. Yes, coffee contains high antioxidants and many minerals which supply essential nutrients to the body.

II. No, consuming too much coffee can lead to panic anxiety attacks and also reduces the quality of sleep.

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

Q95. A fraction when taken away from 1/5 gives 1/12. What is the fraction?

(a) 7/60
(b) 11/30
(c) 5/12
(d) 1/7

Q96. The following chart shows the results of three athletic academies in the district level selections for three years.

Academy	2012	2013	2014
A	2	3	4
B	1	5	2
C	3	7	9

How many selections were done in the year 2014 for academy 'c'?

(a) 19
(b) 9
(c) 7
(d) 3

Q97. If East becomes North-East then What will West become?

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

Q98. Choose the option that is NOT true about vascular system.

(a) Blood flows at low pressure, with jerk and faster in them.
(b) It forms about 7-8% of the body weight.
(c) Blood is commonly called river of life.
(d) Life span of human RBCs is 115-120 days.

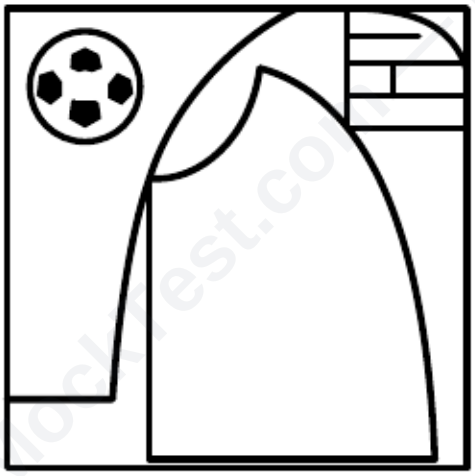
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Q99. The sum of the interior angles of a regular heptagon (seven-side polygon) is:

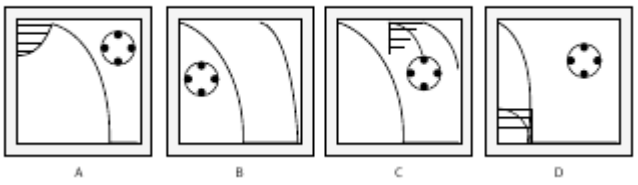
(a) 1080°
(b) 720°
(c) 540°
(d) 900°

Q100. Which of the answer figures is formed from the shapes given the problem figure?

Problem Figures :



Answer Figures:



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

ANSWER KEY

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

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SOLUTIONS

Q1. Answer: (b) Conservation of Mass

The correct answer is Conservation of mass.

Key Points

• Dalton's theory was based on the law of conservation of mass and the law of constant composition.

• It is also known as the law of constant composition and the law of multiple proportions.

• Dalton’s atomic theory states that all matter is composed of atoms and all compounds are composed of atomic combinations in defined ratios.

Additional Information

• Conservation of momentum: Conservation of momentum, the general law of physics according to which the quantity called momentum that characterizes motion never changes in an isolated collection of objects; that is, the total momentum of a system remains constant.

• Conservation of Energy: The law of conservation of energy states that the total energy of an isolated system remains constant; it is said to be conserved over time. In other words, we can say that energy can neither be created nor destroyed - only converted from one form of energy to another.

• Conservation of Charge: The law states that the total amount of electric charge in a system does not change with time.

Q2. Answer: (d) Aleris Corporation

• In August 2018, Hindalco’s wholly-owned subsidiary Novelis Inc. announced the acquisition of a global aluminium rolled products company Aleris Corporation that is headquartered in the US.

• Kumar Mangalam Birla is the Chairman of Hindalco.

• Aleris has its manufacturing facilities in Asia, Europe, and the US.

Q3. Answer: (a) Gnaw

Wait and Linger are synonyms. Bite and Gnaw are also synonym.

Hence, Gnaw is the related word.

Q4. Answer: (d) 0.836

the value of √0.7 = 0.836

So, correct answer is 0.836

Alternate Method square roots of non-perfect number is approximately given by

√(x+y)=√x+y/(2√x)

√.7=(√(70/100)=(√70)/10

√70=√64+6)= √64+6/(2√64)

8+6/(16)

8+(3/8)=67/8=8.375

8.375/10=.8375 is near to .836

Q5. Answer: (b) 105/112

A reducible fraction is a ratio of two integers which have a common divisor. Thus, fraction 105/112 is reducible because 7 divides both 105 and 112. On the other hand, is irreducible. A fraction is no longer reducible when the numerator and the denominator are relatively prime.

Q6. Answer: (c) RMMJ

The pattern followed here is,

Similarly,

Hence, “RMMJ” is the correct answer.

Q7. Answer: (c) Otto von Bismarck

• Otto von Bismarck was called the ‘Iron Chancellor’.

• He was the German Chancellor.

• Napoleon Bonaparte was a French Emperor known to have conquered much of Europe in the 19^(th) century.

• Genghis Khan was a Mongolian ruler.

• Adolf Hitler was the leader of the Nazi party and was also the Chancellor of Germany.

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Q8. Answer: (b) Rs. 146.41

Shortcut Trick

For quarterly compounding at 40% annually, the quarterly interest rate is 10% (40% ÷ 4).

Successive percentage for 4 periods of 10% follows the multiplying factor 1.1^4.

1.1^4 = 1.4641

Final Amount = Principal × 1.4641 = 100 × 1.4641 = 146.41

Therefore The correct answer is Rs. 146.41.

Alternate Method

Given:

Principal (P) = Rs. 100

Annual Rate (R) = 40% per annum

Time (T) = 1 year

Compounding = Quarterly

Formula Used:

Amount (A) = $P(1 + r/100)^n$

Where r = Quarterly Rate and n = Number of Quarters.

=> Quarterly Rate (r) = 40 ÷ 4 = 10%

=> Number of Quarters (n) = 1 year × 4 = 4

=> A = 100(1 + 10/100)^4

=> A = 100(1.1)^4

=> A = 100 × 1.4641

=> A = 146.41

Therefore The correct answer is Rs. 146.41.

Additional Information

Effective Annual Rate (EAR)

When interest is compounded quarterly, the effective annual rate is given by $[(1 + r/100)^n - 1] \times 100$. For 10% quarterly, EAR is 46.41%.

Compound Interest vs Simple Interest

CI is always greater than SI for any period greater than one compounding cycle because CI involves interest on interest.

Compounding Frequencies

As the frequency of compounding increases (daily > monthly > quarterly > half-yearly), the final amount received increases for the same nominal rate.

Q9. Answer: (a) 5 m

CONCEPT:

• Potential energy (PE): The energy possessed by a body by virtue of its position or configuration is called potential energy.

PE = mgh

Where, m = mass of the body, g = acceleration due to gravity and h = height of the body

CALCUATION:

Given that:

Mass (m) = 12 kg

Potential Energy (PE) = 600 J

Acceleration due to gravity (g) = 10 m/s^{-2}

height (h) = ?

We know that, Potential Energy = mgh

h = Potential Energy/mg = 600/[12 × 10] = 5 m

Therefore, Height (h) = 5 m. So option 1 is correct.

Q10. Answer: (b) 24 years

Let Anusri be denaoted by ‘a’ and Yashomati by ‘y’

1) Anusri is eleven years younger than Yashomati.

11 + a = y

2) Fifteen years from now, Yashomati’s age will be three times Anusri’s present age.

15 + y = 3(a)
15 + y = 3a
y = 3a - 15
11 + a = 3a - 15
2a = 26
a = 13 and y = 13 + 11 = 24
Hence, present age of Yashomati is 24 years.

Q11. Answer: (b) B

In the given series the next term will be a figure with square in the centre and two circle at its two horizontal sides.
Hence, “Figure B” is the correct answer.

Q12. Answer: (c) 34.5

Shortcut Trick
Target total score for Suvir = 15 × 29 = 435 marks.
Current total score for Ruchira = 11 × 27 = 297 marks.
Total marks needed in remaining 4 tests = 435 − 297 = 138 marks.
Required average for remaining tests = 138 ÷ 4 = 34.5 marks.
Therefore The correct answer is 34.5 marks.
Alternate Method
Given: Average marks of Suvir (15 tests) = 29; Average marks of Ruchira (11 tests) = 27.
Formula Used: Total Marks = Average × Number of Tests
=> Total marks scored by Suvir = 15 × 29 = 435 marks.
=> Total marks scored by Ruchira so far = 11 × 27 = 297 marks.
=> Marks required by Ruchira in remaining tests = 435 − 297 = 138 marks.
=> Number of remaining tests for Ruchira = 15 − 11 = 4 tests.
=> Required average in 4 tests = 138 ÷ 4 = 34.5 marks.
Therefore The correct answer is 34.5 marks.
Additional Information
Basic Average Formula
Average = Sum of all observations ÷ Total number of observations.
Weighted Average Concept
When a group is divided, the overall average is (n1×A1 + n2×A2) ÷ (n1 + n2).
Net Deviation Method
The sum of deviations of all values from the average is always zero.

Q13. Answer: (b) Neither 1 nor 2 alone is sufficient

Statement 1 :Y and Z are brothers of W.
No information is given about X. Hence, statement 1 alone is not sufficient to answer the question.
Statement 2: The mother of Z is wife of W’s father.
No information is given about X. Hence, statement 2 alone is not sufficient to answer the question.
Statement 1 & 2 combined together:
Since, no information is given about X. both the statement combined together are not sufficient to answer the question.
Hence, “neither statement 1 nor statement 2 alone is sufficient” is the correct answer.

Q14. Answer: (d) D

Here, each part in problem figure consists of an alphabet and its mirror image.
Hence, “Answer figure D” is the correct answer

Q15. Answer: (c) 32

The total number of students who play game M is: 11 + 6 + 7 + 8 = 32.
Hence, 32 is the correct answer.

Q16. Answer: (c) A and C are true, B is false

Explanation:-

Let's evaluate each statement to determine which one(s) are true:

A. Solid CO2 is known as dry ice:- This statement is true. Solid CO2 is commonly referred to as dry ice because it sublimates directly from a solid to a gas without passing through the liquid state.

B. The particles of liquid absorb energy from the surrounding to regain the energy lost during evaporation:- This statement is not accurate as it is phrased. During evaporation, particles absorb energy from the surroundings to overcome intermolecular forces and transition from liquid to gas, not to regain lost energy.

C. Solid CO2 gets converted directly to the gaseous state:- This statement is true. Solid CO2 sublimates directly into the gaseous state without becoming a liquid first.

Considering the above evaluations:

A. True B. False C. True

Therefore, the correct answer is: A and C are true, B is false

Q17. Answer: (a) 140.80

Shortcut Trick

Identify the Selling Price (SP) using the multiplier method: SP = MP × (100 − Discount%) ÷ 100.

Given Marked Price (MP) = 160 and Discount = 12%.

SP = 160 × (100 − 12) ÷ 100 = 160 × 0.88.

SP = 140.80.

Therefore The correct answer is 140.80.

Alternate Method

Given: Marked Price (MP) = 160, Discount Percentage = 12%.

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

=> Discount Amount = (12 ÷ 100) × 160

=> Discount Amount = 0.12 × 160 = 19.20

=> Selling Price (SP) = 160 − 19.20

=> Selling Price (SP) = 140.80

Therefore The correct answer is 140.80.

Additional Information

Marked Price & Discount

Marked Price is the price printed on the label. Discount is always calculated on the Marked Price unless stated otherwise.

Selling Price Calculation

Selling Price is the final amount paid after deducting the discount from the Marked Price. Formula: SP = MP × (1 − d) where d is the decimal form of discount rate.

Q18. Answer: (c) • 5, 3

Shortcut Trick

Simplify the quadratic equation by dividing by 2: $x^2 + 2x - 15 = 0$.

Find two factors of −15 that add up to the middle coefficient +2.

The factors are +5 and −3 (since 5 × −3 = −15 and 5 − 3 = 2).

The roots are the signs of these factors reversed: −5 and 3.

Therefore The correct answer is −5, 3.

Alternate Method

Given: $2x^2 + 4x = 30$

Formula Used: Factorization method (splitting the middle term) for a standard form equation $ax^2 + bx + c = 0$.

=> $2x^2 + 4x - 30 = 0$

=> $x^2 + 2x - 15 = 0$ (Dividing the entire equation by 2)

=> $x^2 + 5x - 3x - 15 = 0$

=> $x(x + 5) - 3(x + 5) = 0$

=> $(x + 5)(x - 3) = 0$

=> $x + 5 = 0$ or $x - 3 = 0$

=> $x = -5$ or $x = 3$

Therefore The correct answer is −5, 3.

Additional Information

Nature of Roots

For an equation $ax^2 + bx + c = 0$, the discriminant $D = b^2 − 4ac$ determines the roots. If $D > 0$, roots are real and distinct; if $D = 0$, roots are real and equal; if $D < 0$, roots are imaginary.

Sum and Product of Roots

If α and β are the roots of the equation, then Sum of roots $(\alpha + \beta) = -b/a$ and Product of roots $(\alpha\beta) = c/a$.

Quadratic Formula

The roots can also be found using the Sridharacharya formula: $x = (−b \pm \sqrt{(b^2 − 4ac)}) / 2a$.

Q19. Answer: (a) LM

Each term in the series consists of two alphabets and form two consecutive series,

First part :C + 2 = E; E + 3 = H; H + 4 = L;

Second Part :V – 2 = T; T – 3 = Q; Q – 4 = M;

Hence, “LM” is the next term in the given series.

Q20. Answer: (d) D

In the above given figures, all the given figures have two small circles except figure D. D have only one small circle in the centre.

Hence, figure D is the odd one out among the given figures.

Q21. Answer: (a) Deposition

Key Points

• A deposition is a process by which a gas is converted into a solid.
• Sublimation is the process by which a solid is converted to gas directly without changing into liquid in between.
• Vaporisation is the process of conversion of a liquid into a gas (vapor).
• Freezing is a process of conversion of liquid into solid at the freezing point.

Q22. Answer: (c) Thiruvananthapuram

• The Indian Space Research Organisation (ISRO) created the world’s third-largest hypersonic wind tunnel in Thiruvananthapuram, Kerala in the year 2017.
• Two facilities were commissioned in this regard by the Chairman of ISRO- 1-m Shock Tunnel and 1-m Hypersonic Wind Tunnel.
• These are the third largest in terms of simulation capability and size.
• These will help in studying the effects of air flowing past a space vehicle.

Q23. Answer: (d) B

The mirror image of the following figure is,

Hence, “Figure B” is the correct answer.

Q24. Answer: (a) Sushma Swaraj

• Sushma Swaraj is the Minister of External Affairs.
• SM Krishna is the former Governor of Maharashtra.
• Salman Khurshid is the former Cabinet Minister of Law and Justice and Minority Affairs.
• Manmohan Singh is the former Prime Minister of India.
• The current Minister of External Affairs is Mr Jaishankar.

Q25. Answer: (c) 100

Shortcut Trick

Net flow rate = (Inlet 1 + Inlet 2) − Outlet

Net flow rate = (2 + 3) − 6 = −1 liter/minute (negative indicates emptying)

Time required = Capacity ÷ Net flow rate = 100 ÷ 1 = 100 minutes

Therefore The correct answer is 100 minutes.

Alternate Method

Given:

Inlet pipe A rate = 2 liters/minute

Inlet pipe B rate = 3 liters/minute

Outlet pipe C rate = 6 liters/minute

Total capacity of tank = 100 liters

Calculations:

=> Total inflow per minute = 2 + 3 = 5 liters/minute

=> Total outflow per minute = 6 liters/minute

=> Net outflow rate = Outflow − Inflow = 6 − 5 = 1 liter/minute

=> Time taken to empty a full tank = Capacity ÷ Net outflow rate

=> Time = 100 liters ÷ 1 liter/minute = 100 minutes

Therefore The correct answer is 100 minutes.

Additional Information

Net Rate Concept

When multiple pipes operate, the net rate is the algebraic sum of their individual rates: Net Rate = Σ(Inlet rates) − Σ(Outlet rates).

Pipes and Cisterns

If an inlet pipe fills in X hours and an outlet pipe empties in Y hours, the net work in 1 hour is (1/X − 1/Y). If the result is negative, the tank will eventually empty.

Q26. Answer: (b) (CBI) Central Bureau of Investigation

Here, NIT Warangal, BHU Varanasi and ISM Dhanbad are educational institutes. Whereas, (CBI) Central Bureau of Investigation is a Government department.

Hence, “CBI” is odd one among the given options.

Q27. Answer: (b) B

In the last part the figure has four small circle on the outer side of the figure.

Hence, answer figure B will replace the question mark.

Q28. Answer: (d) B

In the problem figure there are sets of two parts. First part of the set has two geometric figures. In the second part the geometric figure which is present at the bottom of first part is placed outside and the other figure is placed inside and a third new figure appears at the centre.

Hence, figure B of Answer figures will replace the question mark.

Q29. Answer: (a) mass × acceleration

- Force = mass × acceleration
- The net force of an object is defined as its acceleration multiplied by its mass.
- Force is measured as N, Newton, mass in Kg, and acceleration in m/s^2.
- This formula is related to Newton's second law of motion.

Q30. Answer: (b) Only assumption I is implicit

The signboard indicates the presence of a pet dog and the visitors are being cautioned.

Hence, assumption I is implicit.

The statement only speaks about a particular dog. Therefore, no kind of comparison is implicit.

Therefore, assumption II is not implicit.

Hence, only assumption I is implicit.

Q31. Answer: (c) Sweden

- The Gulf of Bothnia is situated between two countries, which are Finland and Sweden.
- It covers an area of 45,200 square miles.
- It forms the north most arm of the Baltic sea.
- Aland islands lie to the south of it.

Q32. Answer: (b) 12.5

Shortcut Trick

Given Cost Price (CP) = 180 and Selling Price (SP) = 202.50.

Profit = 202.50 − 180 = 22.50.

Multiplier method: Profit % = (Profit ÷ CP) × 100.

Profit % = (22.50 ÷ 180) × 100 = 12.5%.

Therefore The correct answer is 12.5 %.

Alternate Method

Given → CP = Rs. 180, SP = Rs. 202.50.

Formulas → Profit = SP − CP | Profit % = (Profit ÷ CP) × 100

Steps:

=> Profit = SP − CP = 202.50 − 180 = 22.50.

=> Profit % = (22.50 ÷ 180) × 100.

=> Profit % = (2250 ÷ 180) = 12.5%.

Therefore The correct answer is 12.5 %.

Additional Information

Profit and Loss Percentage

Profit % and Loss % are always calculated on the Cost Price (CP) unless otherwise specified in the question.

Selling Price Calculation

SP = CP × (100 + Profit %) ÷ 100. For loss, SP = CP × (100 − Loss %) ÷ 100.

Q33. Answer: (c) 6 : 7

Shortcut Trick

Let outer radius R = 2. Then inner radius r = 1 and cylinder height h = 2.

Volume of Cylinder = $\pi \times 2^2 \times 2 = 8\pi$.

Volume of Hollow Sphere = $4/3 \times \pi \times (2^3 - 1^3) = 4/3 \times \pi \times 7 = 28\pi/3$.

Ratio = $8\pi : 28\pi/3$ => 24 : 28 = 6 : 7.

Therefore The correct answer is 6 : 7.

Alternate Method

Given:

For Cylinder: Base radius = r, Height h = r.

For Hollow Sphere: Outer radius R = r, Inner radius $r_i = r/2$.

Formula Used:

=> Volume of Cylinder (V_c) = $\pi r^2 h$

=> Volume of Hollow Sphere (V_s) = $4/3 \times \pi(R^3 - r_i^3)$

Calculations:

=> $V_c = \pi \times r^2 \times r = \pi r^3$

=> $V_s = 4/3 \times \pi \times [r^3 - (r/2)^3]$

=> $V_s = 4/3 \times \pi \times [r^3 - r^3/8]$

=> $V_s = 4/3 \times \pi \times [7r^3/8] = 7\pi r^3/6$

=> Ratio $V_c : V_s = \pi r^3 : 7\pi r^3/6$

=> Ratio = 1 : 7/6 = 6 : 7

Therefore The correct answer is 6 : 7.

Additional Information

Volume of Solid Sphere

The volume of a solid sphere with radius r is given by $V = 4/3\ \pi r^3$.

Curved Surface Area of Cylinder

The lateral or curved surface area of a cylinder is $2\pi rh$, and the total surface area is $2\pi r(h + r)$.

Hollow Sphere Thickness

The thickness of a hollow sphere is the difference between the outer radius and inner radius (R − r).

Q34. Answer: (c) force

The correct answer is option 3 i.e Force,

CONCEPT:

• Force (F): The interaction which after applying on body changes or try to change the state of motion or state of rest is called force.

Force (F) = Mass (m) × Acceleration (a)

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• Speed (v): The rate of change of distance is called speed.
• Acceleration (a): The rate of change of velocity is called acceleration.
EXPLANATION:
When force (F) = 0
Acceleraion (a) = F/m = 0/m = 0
• Since there is no acceleration, so there will be no change in speed. Hence the speed will remain constant.
• Objects move at a constant speed when no force is acting on it.
Additional Information
• This was first declared by Galileo Galilei.
• It means that an object will continue to be in motion when no other force is acting upon it while it is moving on a frictionless path.

Q35. Answer: (d) 50 Nm

Work done = Force (F) × displacement (S)
F = 10 N
S = 5 m
W = F × S
= 10 × 5
= 50 Nm or 50 Joules.

Q36. Answer: (c) 45 km/hr

Shortcut Trick
Since Distance is constant, Speed is inversely proportional to Time.
Ratio of Time = 10 : 8 → 5 : 4
Ratio of Speed = 4 : 5
Given 4 units = 36 km/hr => 1 unit = 9 km/hr
New Speed (5 units) = 5 × 9 = 45 km/hr
Therefore The correct answer is 45 km/hr.
Alternate Method
Given: Initial speed (S1) = 36 km/hr, Initial time (T1) = 10 hours, New time (T2) = 8 hours.
Formula Used: Distance = Speed × Time
=> Distance = 36 × 10 = 360 km
=> New Speed = Distance ÷ New Time
=> New Speed = 360 ÷ 8
=> New Speed = 45 km/hr
Therefore The correct answer is 45 km/hr.
Additional Information
Constant Distance Rule
When the distance is constant, S1 × T1 = S2 × T2. This allows for direct calculation of the unknown variable.
Average Speed
For two equal distances covered at speeds x and y, Average Speed = 2xy ÷ (x + y).
Unit Conversion
To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Q37. Answer: (b) Sodium sulphate + Barium chloride → Barium sulphate + Sodium chloride

• Sodium sulphate + Barium chloride → Barium sulphate + Sodium chloride
• It is a precipitation reaction.
• Since barium sulphate is insoluble in water, it precipitates as a solid while sodium chloride remains in the solution.
• A precipitation reaction is that which forms an insoluble salt when 2 solution having soluble salts are combined.

Q38. Answer: (d) Aunt

According to the question,
Hence, “Padma is Aunt of Suresh”.

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Q39. Answer: (a) 1.24

Shortcut Trick

Using the identity $\text{cosec}^2\theta - \cot^2\theta = 1$, we know $\text{cosec}^2\theta = 1 + \cot^2\theta$.

Factorizing the given expression: $\text{cosec}^2\theta(\text{cosec}^2\theta - 1) = 1.24$.

Substitute $\text{cosec}^2\theta - 1 = \cot^2\theta$ and $\text{cosec}^2\theta = 1 + \cot^2\theta$.

We get: $(1 + \cot^2\theta)(\cot^2\theta) = 1.24 \rightarrow \cot^{\wedge}4\theta + \cot^2\theta = 1.24$.

Therefore The correct answer is 1.24.

Alternate Method

Given: $\text{cosec}^{\wedge}4\theta - \text{cosec}^2\theta = 1.24$

Formula Used: $\text{cosec}^2\theta - \cot^2\theta = 1$

=> $\text{cosec}^2\theta(\text{cosec}^2\theta - 1) = 1.24$

=> From identity: $\text{cosec}^2\theta - 1 = \cot^2\theta$

=> $(1 + \cot^2\theta)(\cot^2\theta) = 1.24$

=> $\cot^2\theta + \cot^{\wedge}4\theta = 1.24$

Therefore The correct answer is 1.24.

Additional Information

Trigonometric Identities

Standard identities: $\sin^2\theta + \cos^2\theta = 1$, $\sec^2\theta - \tan^2\theta = 1$, and $\text{cosec}^2\theta - \cot^2\theta = 1$.

Secant-Tangent Correlation

Similarly, if $\sec^{\wedge}4\theta - \sec^2\theta = k$, then $\tan^{\wedge}4\theta + \tan^2\theta = k$ as well.

Q40. Answer: (a) Six

• Six hydrogen atoms are present in one molecule of ethanol(C_2H_6O).

• Ethanol is an alcohol having 2 carbons.

• It is used as a fuel, in beverages, in manufacturing perfumes, etc.

Q41. Answer: (d) 21.25

Shortcut Trick

Total Sum of all 13 numbers = 13 × 20 = 260.

Sum of 5 smallest numbers = 5 × 18 = 90.

Sum of 8 largest numbers = 260 − 90 = 170.

Required Mean = 170 ÷ 8 = 21.25.

Therefore The correct answer is 21.25.

Alternate Method

Given:

Number of total members (n) = 13

Mean of all 13 members = 20

Number of smallest members (n1) = 5

Mean of 5 smallest members = 18

Number of largest members (n2) = 13 − 5 = 8

Formula Used:

Mean = (Sum of all observations) ÷ (Total number of observations)

Combined Mean = (n1 × Mean1 + n2 × Mean2) ÷ (n1 + n2)

Calculations:

=> Total Sum = 13 × 20 = 260

=> Sum of 5 smallest = 5 × 18 = 90

=> Sum of 8 largest = Total Sum − Sum of 5 smallest

=> Sum of 8 largest = 260 − 90 = 170

=> Mean of 8 largest = 170 ÷ 8

=> Mean of 8 largest = 21.25

Therefore The correct answer is 21.25.

Additional Information

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Combined Mean Formula

When two groups with sizes n1, n2 and means x1, x2 are combined, the new mean is (n1x1 + n2x2) ÷ (n1 + n2).

Deviation Method

If the average decreases by 'd' for some items, the remaining items must increase by (total decrease ÷ remaining items) to maintain the overall mean.

Properties of Mean

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

Q42. Answer: (b) 6

Follow BODMAS rule to solve this question, as per the order given below:

Step-1: Parts of the equation enclosed in 'Brackets' must be solved first, and inside the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

138 ÷ [35 – {53 – (89 – 72 ÷ 9 × 6)}]

138 ÷ [35 – {53 – (89 – 8 × 6)}]

138 ÷ [35 – {53 – (89 – 48)}]

138 ÷ [35 – {53 – 41]

138 ÷ [35 – 12]

138 ÷ 23 = 6

Q43. Answer: (a) Material

CONCEPT:

• Resistivity: The measure of the resistance of a specific material to electrical conduction is called resistivity. It is denoted by ρ.

• Resistivity is the property of any material/conductor.

• It also depends on temperature and nature but not on shape and size.

• Its unit is ohm-meter.

EXPLANATION:

• Since the resistivity of any conductor is the property of the material. So it is independent of the shape and the size.

• It depends on the material of the conductor. So option 1 is correct.

• Electrical resistivity (ρ)

• It is defined as the resistance of a unit length with a unit area of cross-section of the material of the conductor.

• Difference between resistivity and resistance:

RESISTANCE	RESISTIVITY
The property of any conductor that opposes the flow of electric current through it and depends on the shape and size (length and area) of the materials, temperature, and nature of the materials is called resistance.	The property of a conductor that opposes the flow of electric current through them and independent of the shape and size (length and area) of the materials but depends on the nature and temperature of the materials is called resistivity.
It is denoted by R.	It is denoted by ρ.
The SI unit is the ohm(Ω).	The SI unit is ohm-meter (Ω-m).
It is not a constant term for a given material. It can be changed by changing the length or cross-sectional area of that material.	It is a constant term for a given material. It doesn't change by changing the length and cross-sectional area of the material.

Q44. Answer: (d) Rs. 3,500

Shortcut Trick

Extra interest earned = New Amount − Original Amount = Rs. 5,600 − Rs. 5,250 = Rs. 350.

This extra interest is due to the increase in simple rate of interest by 2% per annum for 5 years.

Total percentage increase in interest = 2% × 5 = 10%.

Therefore 10% of Principal (Original Sum) = Rs. 350.

=> 100% of Principal = 350 × 10 = Rs. 3,500.

Therefore The correct answer is Rs. 3,500.

Alternate Method

Given: Original Amount (A1) = Rs. 5,250, Time (T) = 5 years, New Amount (A2) = Rs. 5,600, Increase in Rate = 2%.

Formula: Amount (A) = Principal (P) + Simple Interest (SI) | SI = (P × R × T) ÷ 100

=> Let original Rate be R%. Original Amount A1 = P + (P × R × 5) ÷ 100 = 5,250.

=> New rate = (R + 2)%. New Amount A2 = P + (P × (R + 2) × 5) ÷ 100 = 5,600.

=> A2 − A1 = [P + (5PR + 10P) ÷ 100] − [P + (5PR) ÷ 100]

=> 5,600 − 5,250 = (5PR + 10P − 5PR) ÷ 100

=> 350 = 10P ÷ 100

=> 350 = P ÷ 10

=> P = 350 × 10 = Rs. 3,500.

Therefore The correct answer is Rs. 3,500.

Additional Information

Simple Interest Properties

Simple Interest is calculated only on the Principal amount. It remains constant every year if the rate and principal are unchanged.

Effect of Rate Change

If the Rate increases by x% for T years, the extra interest earned is (P × x × T) ÷ 100.

Principal Formula from SI

P = (SI × 100) ÷ (R × T). This can be used directly when the change in interest and change in rate are known.

Q45. Answer: (b) Fertilisation

• Fertilisation results in the formation of a single structure called zygote.

• Fragmentation is the process where a parent organism divides or breaks into fragments to form a new organism.

• Sexual reproduction is the process of fusion of a female egg and a male sperm.

• Tissue culture is the process of growing cells in an artificial medium.

Q46. Answer: (c) -255

Shortcut Trick

Identify the Arithmetic Progression (AP) with first term a = −3 and common difference d = −5.

Sum of 10 terms = (10 ÷ 2) × [2 × (−3) + (10 − 1) × (−5)]

Sum = 5 × [−6 − 45] = 5 × (−51) = −255

Therefore The correct answer is −255.

Alternate Method

Given:

The sequence is −3, −8, −13, −18, ...

First term (a) = −3

Common difference (d) = −8 − (−3) = −5

Number of terms (n) = 10

Formula Used:

Sum of n terms (S_n) = (n ÷ 2) × [2a + (n − 1)d]

-3

-5

→

-8

-5

→

-13

-5

→

-18

...

→

-255

Calculations:

=> S10 = (10 ÷ 2) × [2 × (−3) + (10 − 1) × (−5)]

=> S10 = 5 × [−6 + 9 × (−5)]

=> S10 = 5 × [−6 − 45]

=> S10 = 5 × (−51)

=> S10 = −255

Therefore The correct answer is −255.

Additional Information

Arithmetic Progression (AP)

A sequence where the difference between consecutive terms is constant. General term $T_n = a + (n − 1)d$.

Sum of AP Terms

Can also be calculated as $S_n = (n ÷ 2) × (\text{first term} + \text{last term})$ if the last term is known.

Common Difference (d)

Calculated as T2 − T1. If d is negative, the sequence is decreasing.

Q47. Answer: (b) 15 days

Shortcut Trick

Remaining days for initial 105 students = 22 − 5 = 17 days.

Total students after 5 days = 105 + 14 = 119 students.

Using M1D1 = M2D2: 105 × 17 = 119 × D2.

D2 = (105 × 17) ÷ 119 = 15 days.

Therefore The correct answer is 15 days.

Alternate Method

Given: Total wheat = 6,190.80 kg, Initial students = 105, Total days = 22, Days passed = 5, New students = 14.

Formula Used: Total Work (or consumption) = Number of Persons × Days

=> Initial remaining work capacity = 105 students × (22 − 5) days

=> Initial remaining work capacity = 105 × 17 = 1785 student-days

=> New total number of students = 105 + 14 = 119 students

=> Required days = Total remaining capacity ÷ New total students

=> Required days = 1785 ÷ 119

=> Required days = 15 days

Therefore The correct answer is 15 days.

Additional Information

Chain Rule Formula

For work and food consumption problems, use M1D1H1/W1 = M2D2H2/W2, where M is persons, D is days, H is hours, and W is work/quantity.

Inverse Proportion

When the quantity of food is constant, the number of days the food lasts is inversely proportional to the number of people consuming it.

Remaining Stock Method

Always calculate the remaining food in terms of men-days based on the original group before dividing by the new total number of men.

Q48. Answer: (d) Anandiben Patel

- Former CM of Gujarat Anandiben Patel took Oath on 23rd January 2018 as the Governor of Madhya Pradesh.
- Om Prakash Kohli served as the Governor of Gujarat.
- Kumud Ben Joshi served as Andhra Pradesh Governor from 1985-1990.
- Ram Naresh Yadav served as the CM of Uttar Pradesh from 1977-1979.

Article	Subject
Article 151	Audit reports: The reports of the Comptroller and Auditor General of India relating to the accounts of the Union.
Article 155	Appointment of Governor

Article 148	Comptroller and Auditor General of India
Article 127	Appointment of ad hoc Judges

Important Points

• Mangubhai C. Patel is the current Governor of Madhya Pradesh.

Q49. Answer: (a) tone

• The sound generated by a single frequency is called tone.

• The distance between 2 successive troughs or crests of a wave is known as wavelength.

• Amplitude is defined as the maximum distance or displacement moved by a point on a vibrating body.

• Pitch is the sensation of a frequency.

Q50. Answer: (c) Mahabaleshwar Sail

• The Saraswati Samman Award 2016 was bestowed upon Mahabaleshwar Sail.

• He is a prominent Konkani writer and was awarded on 31 August 2017 for his novel Hawthan.

• Saraswati Samman is awarded annually to individuals for their outstanding literary work in any of the 22 languages given the Schedule VIII of the Indian Constitution.

• The award was established in the year 1991 and carries a cash prize of Rs. 15 lakh.

Q51. Answer: (a) Pressure

Concept:

• Dimensions: When a derived quantity is expressed in terms of fundamental quantities, it is written as a product of different powers of the fundamental quantities.

• The powers to which fundamental quantities must be raised in order to express the given physical quantity are called its dimensions.

• A quantity without dimension will usually be a ratio of two quantities with similar dimensions and hence, will cancel out. Thus, they will have no units and are known as dimensionless quantities.

Explanation:

Pressure: It is the component of the force normal to the area under consideration.

Pressure = F/A

• Its dimensions are [ML–1T–2]

• The pressure is a scalar quantity since force is a vector quantity

• The SI unit of pressure is Nm–2. It has been named as pascal (Pa)

SI Unit	Quantity
Nm-2	Pressure
Joule	Work
Watt	Power
Newton	Force

Q52. Answer: (a) Only argument I is strong.

The statement talks about wastage of water due to water purifiers.

Argument I suggests working on developing methods to deal with the wastage caused due to water purifiers. Therefore, argument I is inline with the given statement.

Hence, argument I is strong.

Argument II denies the wastage mentioned in the statement thus contradicting it.

Therefore, argument II is not strong.

Hence only argument I is strong.

Q53. Answer: (c) Odisha

• ‘Nuakhai’, a social festival belongs Odisha.

State	Festivals
Tamil Nadu	Pongal

Assam	Bihu
Odisha	Nuakhai
Karnataka	Hampi

Q54. Answer: (c) 38

Shortcut Trick

Remainder when 1051 is divided by 33:

1051 ÷ 33 → 1051 = 33 × 31 + 28

Remainder = 28

Number to be added = Divisor − Remainder = 33 − 28 = 5

Wait, checking options. If 5 is not there, check next multiple: 5 + 33 = 38.

Therefore The correct answer is 38.

Alternate Method

Given: Number = 1051, Divisor = 33

Formula Used: Number to be added = (Divisor − Remainder) or (Divisor − Remainder + k × Divisor)

=> Divide 1051 by 33:

=> 33 × 3 = 99

=> 105 − 99 = 6; Bring down 1 → 61

=> 33 × 1 = 33

=> 61 − 33 = 28 (Remainder)

=> Required number to be added to make it exactly divisible = Divisor − Remainder

=> 33 − 28 = 5

=> Since 5 is not in the options, we look for the next number which is 5 + 33 = 38.

=> Check: 1051 + 38 = 1089

=> 1089 ÷ 33 = 33 (Perfectly divisible)

Therefore The correct answer is 38.

Additional Information

Divisibility Rule of 33

A number is divisible by 33 if it is divisible by both 3 and 11. Sum of digits must be divisible by 3, and the alternating sum of digits must be divisible by 11.

Least Number to Subtract

To make a number exactly divisible by a divisor, the least number to be subtracted is always equal to the Remainder itself.

Euclid's Division Lemma

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

Q55. Answer: (d) FeSO4.7H2O

- The chemical formula of ferrous sulphate crystal is FeSO4.7H2O.
- It is a yellow-brown or greenish crystalline solid.
- It is heptahydrate salt.
- FeSO4.4H2O is tetrahydrate salt, while FeSO4.5H2O is pentahydrated salt.

Q56. Answer: (a) Both I and II are implicit.

The statement outlines the benefits gained by organisations upon following business ethics.

Therefore, any action which supports the statement would be an implicit assumption.

Written code of ethics is akin to laying out the rules and regulations that are mandatory to be followed by every employee of the organization.

Thus, it can ensure business ethics are followed.

Therefore, assumption I is implicit.

Educating the employees about the ethical laws of the company will increase awareness and can help effective implementation of the code of ethics.

Therefore, assumption II is implicit.

Hence both I and II are implicit.

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Q57. Answer: (d) Murlikant Petkar

• Murlikant Petkar won the Padma Sri Award 2018 in the field of sports(Swimming).
• He is India's first Paralympic gold medallist.
• MS Dhoni and Pankaj Advani won Padma Bhushan.
• Kidambi Srikanth, Somdev Kishore Devvarman, and Saikhom Mirabai Chanu won Padma Shri.

Q58. Answer: (d) 169/60

The sum of 5/12 and 12/5
LCM of 12, 5 = 60
= (25 + 144)/60 = 169/60

Q59. Answer: (d) resistance

SI Unit	Quantity
coulomb	electric charge
ampere	electric current
volt	potential difference
ohm	resistance

Q60. Answer: (a) 5

Given:-
x = 6.5 and y = 1.3
Calculation:-
x/y = 6.5/1.3
x/y = 5

Q61. Answer: (a) Anshu Jamsenpa

The correct answer is Anshu Jamsenpa
Key Points
• Anshu Jamsenpa, in May 2017, became the first woman in the world to scale Mount Everest twice in a season.
• She did this in just 5 days.
• She also holds the record for fastest double ascent by a woman to the world’s highest peak.
• She has climbed Mt Everest 5 times till now.
• Malavath Purna is the youngest Indian girl to climb the summit.
• Arunima Sinha is the first female amputee in the world to climb Everest.
• Premlata Agrawal is the first Indian to climb the 7 highest peaks of the world.
• Image of Anshu Jamsenpa

Q62. Answer: (b) 180 J

Work done by the porter on the luggage = Force x displacement
For scientific purposes g= 9.8 m/s
= mgh
= 12 kg x (10 m/s²) x 1.5 m
= 180 J

Q63. Answer: (a) UAE

• UAE hosted the recently concluded 2018 ASIA CUP Men’s Cricket tournament.
• It is a One Day International cricket tournament.
• The final was played between Bangladesh and India, where India emerged as the winner.
• It was held from 15-28 September 2018 in UAE.

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Q64. Answer: (c) inside; internal

- Areolar tissue fills the spaces inside the organ, supports the internal organs and repairs tissues.
- These are connective tissues found between muscles and skin, around nerves and blood vessels and in the bone marrow.
- It consists of many types of cells and fibres.

Q65. Answer: (d) 15

Shortcut Trick

Apply the Man-Days formula: M1 × D1 = M2 × D2

45 × 12 = 36 × D2

D2 = (45 × 12) ÷ 36

D2 = 540 ÷ 36 = 15 days.

Therefore The correct answer is 15 days.

Alternate Method

Given:

Number of men (M1) = 45

Days (D1) taken by 45 men = 12

New number of men (M2) = 36

Formula Used:

Total Work = Men × Days

Calculations:

=> Total Work = 45 × 12 = 540 units

=> Time taken by 36 men = Total Work ÷ M2

=> Time = 540 ÷ 36

=> Time = 15 days

Therefore The correct answer is 15 days.

Additional Information

Work Equivalence Formula

For different work conditions, use (M1 × D1 × H1) ÷ W1 = (M2 × D2 × H2) ÷ W2, where H is hours and W is work.

Inverse Proportion

In Time & Work, the number of people is inversely proportional to the time taken. If strength decreases, time increases.

Efficiency Rule

Work = Rate × Time. If work is constant, M1/M2 = D2/D1.

Q66. Answer: (b) Tuesday

In an ordinary year, there are 365 days and on dividing 365 by 7,

We get a remainder = 1 so this extra one day is taken as a odd day.

Similarly,

In an leap year, there are 366 days and on dividing 366 by 7.

We get remainder = 2 so this extra two days is taken as a odd day.

Given: 1^(st) January 2007, Monday

Since 2007 is non-leap year.

Number of odd days from year 1^(st) January 2007 to 1^(st) January 2008 = 1 = 1 odd days.

→ On 1st January 2007, It was Monday + 1 = Tuesday

Hence, the correct answer is "Tuesday".

Mistake Points 1) 2008 is the leap year, But we don't add 2 odd days in it. Because the month of February has not come, so we will not add Two extra days in it.

Q67. Answer: (b) Indian Ocean

- The Republic of Seychelles is located in the Indian Ocean.
- Its capital is Victoria, which is situated on Mahe Island.
- It is composed of two island groups and is one of the world's smallest countries.
- Danny Faure is the President of the country.

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Q68. Answer: (d) Fossils

Mistake Points

• Please note that this is a controversial question from the official paper.

• The official answer key has also omitted the answer for this question.

• 'Rocks' and 'fossils' have related meanings and can both be correct.

• We are selecting "Fossils" as the correct option here as it is more specific.

Explanation:

• Fossils give evidence of evolutionary relationships.

• The preserved remains of animals, plants, and other organisms from the past are fossils.

• The dead bodies of the organisms are immediately covered by materials that do not allow decomposition at a fast rate forming them into fossils.

Q69. Answer: (b) Hideki Hukawa

• Hideki Hukawa discovered the theory of nuclear forces.

• The forces acting between 2 or more nucleons are known as nuclear forces.

• S.N. Bose is known for developing Bose-Einstein Condensate.

• J.C. Bose invented crescograph.

• J.J. Thomson is known to have discovered electron.

Q70. Answer: (c) 24S

The pattern follow here is,

Logic followed for the number is:

12 + 3 = 15;

15 + 3 = 18;

18 + 3 = 21;

21 + 3 = 24;

Logic followed for the alphabet is,

E – 3 = B;

B – 3 = Y;

Y – 3 = V;

V – 3 = S;

Hence, “24S” is the next term of the given series.

Q71. Answer: (c) Nickel and Palladium

The role of a catalyst-

• The role of a catalyst in a reaction is to lower the activation energy of the reactants.

• Lowering the activation energy increases the rate of the reaction.

• The reaction now proceeds via a low energy path.

• Catalysts and promoters are also used to speed up the process and increase yield.

• For the process of hydrogenation, nickel is used as a catalyst to increase the speed of reaction.

• Unsaturated hydrocarbons add hydrogen in the presence of catalysts such as Nickel and Palladium.

• Through this process, the unsaturated hydrocarbons get converted into saturated ones.

• This process is known as an addition reaction.

Hence, the catalyst used is Nickel and Palladium for adding hydrogen to unsaturated hydrocarbons.

Q72. Answer: (a) A

The mirror image of the give figure is as follow,

Hence, “Figure A” is the correct answer.

Q73. Answer: (a) 6 minutes

Shortcut Trick

Let the Total Capacity of the tank be 32 units (LCM of 32 and 16).

Efficiency of pipe X = 32 ÷ 32 = 1 unit/min; Efficiency of pipe Y = 32 ÷ 16 = 2 units/min.

Pipe X remains open for the entire 20 minutes.

Work done by X = 20 × 1 = 20 units. Remaining work = 32 − 20 = 12 units.

Time for which Y was open = 12 ÷ 2 = 6 minutes.

Therefore The correct answer is 6 min.

Alternate Method

Given: Time for pipe X = 32 min, Time for pipe Y = 16 min, Total time = 20 min.

Formula Used: Total Work = Time × Efficiency

Person	Days	Total Work	Efficiency
Pipe X	32	32	1
Pipe Y	16	2	

Calculations:

=> Total capacity of tank = 32 units.

=> Efficiency of X = 1 unit/min and Efficiency of Y = 2 units/min.

=> Pipe X works for the full duration of 20 minutes.

=> Amount filled by X = 20 × 1 = 20 units.

=> Amount to be filled by Y = Total capacity − Work by X = 32 − 20 = 12 units.

=> Time for which pipe Y was open = 12 ÷ 2 = 6 minutes.

Therefore The correct answer is 6 min.

Additional Information

Pipes and Cisterns Efficiency

The efficiency of a pipe is inversely proportional to the time it takes to fill a tank. Total work is usually assumed as the LCM of individual times.

Inlet and Outlet Pipes

Inlet pipes have positive efficiency (filling), while outlet pipes (leaks) have negative efficiency (emptying).

Fractional Work Method

If pipe Y is closed after t minutes, the equation becomes: (20/32) + (t/16) = 1. Solving for t gives the time before closing.

Q74. Answer: (c) Xe

- Xe or Xenon, an inert gas, is placed in period 5 of the periodic table.
- Ne of Neon is in period 2.
- Ru or Ruthenium is in period 5, but it is not an inert gas.
- Ar or Argon is placed in period 3.

Q75. Answer: (a) Rajiv Kumar Chander

- As of 1st March 2018, Rajiv Kumar Chander is India’s Permanent Representative to the United Nations.
- Prior to this appointment, he was the Consul General, Consulate General of India, Vancouver.
- Hardeep Singh is the Minister of State of the Ministry of Housing and Urban Affairs
- Nirupam Sen was the former West Bengal Commerce and Industry Minister.
- Nirupama Menon Rao is the former Foreign Secretary of India.

Q76. Answer: (d) Krishna Sobti

- Krishna Sobti won the 53rd Jnanpith Award for the year 2017.
- She was awarded for her contribution to the Indian literature.
- She is the 8th women to win this award.
- The award carries a plaque, cash prize of Rs. 11 lakh and a bronze statue of Goddess Saraswati.

Q77. Answer: (b) Hockey

- S.V. Sunil is related to Hockey.
- He won a silver medal at the 2014 Commonwealth Games and also participated in the 2012 London Olympics.

Sports	Famous Players

Table tennis	Harmeet Desai
Hockey	S.V. Sunil
Badminton	Srikanth Kidambi
Cricket	MS Dhoni

Q78. Answer: (d) 40

Total spent by the company on the various heads = 100 lakh crores

Total percentage spent on R and D = 40%

Total spent on R & D in rupees = 100 × 40/100 = 40 lakh crores.

Q79. Answer: (c) 22

Shortcut Trick

Identify the smallest difference between the given numbers.

Differences: 198 − 154 = 44 | 154 − 66 = 88.

The HCF must be a factor of the smallest difference (44).

Checking factors of 44: 44, 22, 11... Since 66 and 154 are not divisible by 44, but all are divisible by 22.

Therefore The correct answer is 22.

Alternate Method

Given: Numbers are 66, 198, and 154.

Formula: HCF is the product of the lowest powers of common prime factors.

Prime factorization of the numbers:

=> 66 = 2 × 3 × 11

=> 198 = 2 × 3^2 × 11

=> 154 = 2 × 7 × 11

Common prime factors are 2 and 11.

=> HCF = 2^1 × 11^1

=> HCF = 22

Therefore The correct answer is 22.

Additional Information

Highest Common Factor (HCF)

The greatest number that divides two or more numbers without leaving a remainder. Also known as GCD (Greatest Common Divisor).

Least Common Multiple (LCM)

The smallest non-zero number that is a multiple of all the given numbers.

Product Rule

For any two numbers a and b: HCF(a, b) × LCM(a, b) = a × b.

Q80. Answer: (d) Thallophyta

• The plants in the Thallophyta group are commonly called algae.

• These are usually found in wet or moist places.

• They do not have vascular tissue and are autotrophic in nature.

• Bryophytes are land plants such as mosses and hornworts.

• Pteridophytes are those plants which do not have seeds or flowers.

• Gymnosperms are those plants which are flowerless but produces seeds.

Q81. Answer: (c) Conclusion 2 alone follows.

Statement I: All pigs are white.

Statement II: Some white are peacock.

Conclusions:

I. Some peacock are pigs. → False (as it's a case of possibility but not specific)

II. Some white are pigs → True

Hence, "Only Conclusion 2" follows.

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Q82. Answer: (b) 'Tele-Law'

• 'Tele-Law' was launched by the Central Government in 2017 which will be available across the Common Service Centre (CSC) network and connect citizens to legal service providers with the help of technology-enabled platforms.

• This will make legal aid accessible to citizens and marginalized communities living in rural areas.

• It was first tested on a pilot basis in Bihar and Uttar Pradesh in 500 Common Service Centres.

Q83. Answer: (d) Monosodium glutamate

• Monosodium glutamate is the chemical name of Chinese salt that we use in preparing Chinese cuisine.

• It is also known as Ajinomoto.

• It helps in enhancing the flavour of the cooked food.

• It is derived from glutamic acid or amino acid glutamate.

Q84. Answer: (b) 8

Let Smau have x money

He spent on book = x × (1/4) = x/4

He spent on food = x × (1/8) = x/8

Remaining money = x – x/4 – x/8 = (8x – 2x – x)/8 = 5x/8

According to the question

5x/8 = 40

x = 40 × (8/5) = 64

Total money = Rs. 64

Money spent on the food = Rs. 64 × (x/8) = Rs. 8

Alternate Method Let the total amount be 32 unit (LCM of the denominator 4 and 8)

Spent of Books = 32 × 1/4 = 8 units

Spent on Food = 32 × 1/8 = 4 units

Remaining = 32 - (8 + 4) = 20 units (given as Rs. 40)

20 units = Rs. 40

1 unit = Rs. 2

Spent on Food = 2 × 4 = Rs. 8

Q85. Answer: (a) [figure]

In the given series:

The two figures (semi circles) given in the first part are inverted vertically (mirror image) to form the second part (a circle). Similarly, the figures in third part are inverted and a square is formed (at the centre) in the fourth part.

Hence, the figure given above is the correct answer.

Q86. Answer: (d) Amrith

1) Amrith is older than Manish.

2) Vishnu is older than Manish but younger than Amrith.

Amrith > Vishnu > Manish

3) Manish is older than Rakesh.

4) Dhivakar is younger than Rakesh and Manish.

Amrith > Vishnu > Manish > Rakesh >Dhivakar

Hence, Amrith is the oldest.

Q87. Answer: (a) 1 ms^(-2)

CONCEPT:

• Equation of motion: The mathematical equations used to find the final velocity, displacements, time, etc of a moving object without considering force acting on it are called equations of motion.

• These equations are only valid when the acceleration of the body is constant and they move on a straight line.

There are three equations of motion:

V = u + at

V2 = u2 + 2 a S

$S = ut + 1/2at^2$

Where, V = final velocity, u = initial velocity, s = distance traveled by the body under motion, a = acceleration of body under motion, and t = time taken by the body under motion.

CALCULATION:

It is given that,

=> Initial Velocity (u) = 18 km/hr

=> Final Velocity (v) = 36 km/hr

=> Time (t) = 5 Sec

Use V = u + at

=> Acceleration (a) = Change in Velocity (V-u)/Time (t)

=> Change in Velocity = (v - u) = 36 - 18 = 18 km/h = 18 × 5/18 = 5 m/s

=> Time (t) = 5 Seconds

=> Acceleration (a) = 5/5= 1 ms^(-2)

• When we need to convert km/h into m/s then multiply the speed with 5/18.

• When we need to convert m/s into km/h then multiply the speed with 18/5.

Q88. Answer: (a) Co

• In Mendeleev's periodic table, Co appeared before Nickel.

• The elements were arranged in increasing order of their atomic masses in the periodic table.

• However, Cobalt which has an atomic mass of 58.93 AMU appeared before Nickel with atomic mass 58.

Q89. Answer: (d) [figure]

There is no relation between Capsicum (a vegetable), Mat (Furnishing) and Rat (animal).

Hence, the above figure is the best suitable Venn diagram for the given words.

Q90. Answer: (c) Bounce

• Leap Bounce Jump

• All three words are synonyms to each other.

• Leap means a forceful jump.

• Bounce means jumping with a jerk.

Q91. Answer: (c) Supersonic

• A body travelling by a speed of more than the velocity of sound in air is said to be Supersonic.

• Ultrasonic are those vibrations which have frequencies greater than the upper limit of a human's audible range, that is, above 20kHz.

• Infrasonic sounds are those which have frequencies lower than the lower limit of a human's audible range, that is, below 20Hz.

• Hypersonic speed is more than 5 times the sound's speed or frequencies above 1000 million Hz.

Q92. Answer: (a) Socialist, Secular

Key Points

• Socialist and Secular were the two words added to the Preamble of the Indian Constitution by the 42nd Amendment, in 1976.

• The earlier description of India was the Sovereign Democratic Republic.

• It was then changed to Sovereign, Socialist, Secular Democratic Republic.

• 'Unity of nation' was changed to 'Unity and integrity of the nation'.

• The Supreme court is the guardian of the constitution.

Q93. Answer: (a) 1519

The correct answer is 1519 AD.

Key Points

• Babur made his first raid into India in the year 1519 A.D.

• He attacked with 2000 horsemen and captured Bajaur.

• He later captured Bhira in Punjab.

• He was the first Mughal Emperor and the founder of the Mughal dynasty.

Additional Information

• Babur was the first emperor of the Mughal Empire.

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• Babur conquered the first battle of Panipat by defeating Ibrahim Lodi in 1526 AD.
• Ibrahim Lodi was the last ruler of the Lodi dynasty of the Delhi Sultanate.
• Babur defeated Rana Sanga of Mewar in the Battle of Khanwa in the year 1527 AD.
• Humayun was his son and Akbar was his grandson.
• On December 26, 1530 AD, Mughal emperor Babur died in Agra,
• Initially, he was buried in Agra against his wishes.
• Later on, he was buried in Bagh-e Babur Garden in Kabul, Afghanistan by Sher Shah Suri.

Q94. Answer: (a) Only Argument I is strong

The given statement only talks about morning dose of coffee.
Argument II explains the effects of excess consumption of coffee and thus irrelevant to the statement.
Therefore, argument II is not strong.
Argument I highlights the nutritional benefits of coffee and thus supports the idea of morning intake of coffee.
Therefore, argument I is strong.
Hence, only argument I is strong.

Q95. Answer: (a) 7/60

Let the fraction be x.
According to the question
1/5 – x = 1/12
x = 1/5 – 1/12 = 7/60

Q96. Answer: (b) 9

Calculations:

Academy	2012	2013	2014
A	2	3	4
B	1	5	2
C	3	7	9

As we can clearly see, In the year 2014 selection done by Academy C = 9
Therefore The correct answer is 9.

Q97. Answer: (a) South-West

The new directions are indicated in boxes. As per the diagram, West will become South West.
Hence, South West is the correct answer.

Q98. Answer: (a) Blood flows at low pressure, with jerk and faster in them.

• Blood flows at high pressure, with a jerk and faster in the vascular system.
• It forms about 7-8% of the body weight.
• Blood is commonly called river of life since it transports oxygen and nutrients, carries away wastes.
• The life span of human RBCs is 115-120 days.

Q99. Answer: (d) 900°

Shortcut Trick
The sum of the interior angles of any polygon with n sides is given by the formula: (n − 2) × 180°.
For a heptagon, the number of sides n = 7.
Sum = (7 − 2) × 180°
Sum = 5 × 180° = 900°.
Therefore The correct answer is 900°.
Alternate Method
Given:
Polygon type = Regular Heptagon
Number of sides (n) = 7

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Formula Used:

Sum of interior angles = (n − 2) × 180°

Calculations:

=> n = 7

=> Sum of interior angles = (7 − 2) × 180°

=> Sum of interior angles = 5 × 180°

=> Sum of interior angles = 900°

Therefore The correct answer is 900°.

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Q100. Answer: (d) A

Hence, the above given figure is the answer figure.

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