RRB NTPC CBT 2 (Level-6) Official paper (Held On: 9 May 2022 Shift 1) (Previous Year Paper)

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FULL TEST

Q1. In a certain code language, ‘RELATIONS' is written as 'TSRONLIEA', and 'NUMBER' is written as 'URNMEB'. How will 'SPECULATION' be written in that language?

(a) UTSPONLIECA
(b) UTNLIESPOCA
(c) OCAATNLIESP
(d) UOCATNLIESP

Q2. Refer to the given letter, number, symbol series and answer the question that follows.

(Left) K L % Y & 4 E 2 * 3 M & 7 S W # 8 2 H * L (Right)

If all the numbers are dropped from the series, which of the following will be eighth from the right?

(a) M
(b) &
(c) *
(d) E

Q3. The IPCC is the United Nations body for assessing the science related to climate change. IPCC stands for:

(a) Intergovernmental Provision on Climate Change
(b) International Panel on Climate Change
(c) International Provision on Climate Change
(d) Intergovernmental Panel on Climate Change

Q4. What is the time taken by a 450 m long train running at 54 km/h to cross a man standing on a platform?

(a) 25 seconds
(b) 32 seconds
(c) 28 seconds
(d) 30 seconds

Q5. A certain sum on compound interest becomes Rs. 56,180 when compounded annually after 2 years and Rs. 59,550.80 after 3 years. Find the sum (in Rs.).

(a) 48,700
(b) 50,000
(c) 52,500
(d) 45,000

Q6. A sum increases by 75% in 10 years at certain rate of simple interest per annum. By what percentage will the same sum increase in 6 years at the same rate of simple interest per annum?

(a) 42%
(b) 45%
(c) 38%

(d) 48%

Q7. Nile River was known as the backbone of which country?

(a) Sudan
(b) Egypt
(c) Saudi Arabia
(d) Morocco

Q8. If $1/(1 + \tan\theta) + 1/(1 - \tan\theta) = 4$, $0° < \theta < 90°$, then what is the value of $(\text{cosec}^2\theta + \sec^2\theta)$

(a) 9/2
(b) 4/3
(c) 8/3
(d) 5/2

Q9. Allarakha Qureshi who is popularly known as Alla Rakha, is an Indian _____ player.

(a) Veena
(b) Dholak
(c) Tabla
(d) Sitar

Q10. The marginal propensity to consume (MPC) refers to the:

(a) rate of change of consumption as income changes
(b) savings per unit of income
(c) consumption per unit of income
(d) change in savings per unit change in income

Q11. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

QHD, MNV, ITN, EZF, AFX, ?

(a) WJP
(b) XJQ
(c) WLP
(d) XLQ

Q12. Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

CKO : FNL :: FLP : IOM :: DPQ : ?

(a) HRN
(b) HRT
(c) GSN
(d) GST

Q13. Majuli, the largest riverine island in the world, is associated with which of the following rivers?

(a) Brahmaputra
(b) Ganga
(c) Indus
(d) Godavari

Q14. Who appoints the Union Council of Ministers?

(a) The Prime Minister of India
(b) The Parliament
(c) The President of India according to his own discretion
(d) The President of India on the advice of the Prime Minister

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Q15. There are six persons – C, D, E, X, Y, and Z, each of different ages. Only one person is younger than Y. X is older than E but younger than D. E is older than Y. Neither D nor C is the eldest.

How many people are older than Z?

(a) Two
(b) Zero
(c) three
(d) more than three

Q16. Simplify:

72 - 4(40 + 24 ÷ 8 × 6 - 4 × 4) + 20

(a) –36
(b) 52
(c) –76
(d) –6

Q17. When did the Maharashtra government launch the 'Jail Tourism' initiative?

(a) November 2021
(b) May 2021
(c) August 2021
(d) January 2021

Q18. Select the number from among the given options that can replace the question mark (?) in the following series.

86, 74, 62, 54, ?, 42, 38

(a) 50
(b) 43
(c) 46
(d) 44

Q19. Find the HCF of 245, 175 and 385.

(a) 35
(b) 7
(c) 25
(d) 5

Q20. For which novel did Valeria Luiselli win the International Dublin Literary Award 2021?

(a) Lost Children Archive
(b) The Story of My Teeth
(c) Sidewalks
(d) Faces in the Crowd

Q21. On _____, the Constituent Assembly set up a Drafting Committee under the Chairmanship of Dr. B.R. Ambedkar to prepare a Draft Constitution for India.

(a) 29 August, 1947
(b) 20 August, 1947
(c) 18 August, 1947
(d) 25 August, 1947

Q22. In a certain code language, 'MUSIC' is written as 'LTTJD', and 'CONCEPT' is written as 'BNMDFQU'. How will 'SINGING' be written in that language?

(a) RHMHJOH
(b) RHOHJOF
(c) TJOHHOF
(d) RHMFHOJ

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Q23. To increase fish consumption which state inaugurated the 'Aqua Bazaar' and 'Aqua Hub' project on 21 November 2020?

(a) Andhra Pradesh
(b) Kerala
(c) West Bengal
(d) Goa

Q24. Which of the following has four chambered heart?

(a) Peacock
(b) Sea horse
(c) Frog
(d) Fish

Q25. The first ever Industrial Policy Resolution of India was announced in the year _____.

(a) 1952
(b) 1955
(c) 1948
(d) 1960

Q26. _____ is an order or order given by a superior court to a subordinate court or tribunal or public authority, to do so if it is not discharging its duty.

(a) Habeas Corpus
(b) Mandamus
(c) Certiorari
(d) Quo Warranto

Q27. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

AURT, BWSV, CYTX, ?

(a) DZUY
(b) DZUZ
(c) DAUZ
(d) DZUV

Q28. Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

MDT : PAW :: RFQ : UCT :: LSK : ?

(a) JPH
(b) HRN
(c) OPN
(d) ORH

Q29. In a certain code language,

‘see their dresses' is coded as 'ti ve su',

‘dresses we see' is coded as 'nx ti ve’,

‘we see their party' is coded as 'fs ve nx su'.

(Note: All codes are two letter codes only)

What is the probable code for ‘party dresses’ in the given code language?

(a) ti ve
(b) na ti
(c) ti fs
(d) su na

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Q30. Which of the following can be defined as "the process in which the government sells a majority stake to one or more companies, while the government still owns it and the minority stakeholder as in persists"?

(a) Disinvestment
(b) Displacement
(c) Delegation
(d) Divergence

Q31. A person covers a certain distance at a certain speed. If he increases his speed by 30%, then he takes 15 minutes less to cover the same distance. Find the time taken by him to cover the distance when travelling at his original speed.

(a) 1 hour 12 minutes
(b) 1 hour
(c) 1 hour 05 minutes
(d) 1 hour 10 minutes

Q32. One-seventh of a 2-digit number is 15 less than half of the number. What is the sum of the digits of the 2-digit number?

(a) 8
(b) 5
(c) 7
(d) 6

Q33. A consumer's optimal bundle is located at the point of tangency between the budget line and _____.

(a) indifference curve
(b) law of demand
(c) income effect
(d) monotonicity

Q34. Which of the following is an element with atomic number 30 as per the modern periodic table?

(a) Ni
(b) Fe
(c) Zn
(d) Co

Q35. In Vaishnavism, how many avatars or incarnation of deity were recognised?

(a) 5
(b) 7
(c) 9
(d) 10

Q36. The Fundamental Duties were added to the Constitution of India in the year _____.

(a) 1966
(b) 1986
(c) 1996
(d) 1976

Q37. Which of following enzymes is used in the stabilisation of rice bran oil?

(a) Hydrolase
(b) Catalase
(c) Lipase
(d) Cellulase

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Q38. If 1^(st) January 2017 was a Thursday, then what day of the week was it on 31^(st)March of that year?

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

Q39. If $56 \div 14 \times 2^2 - 12 \times 6 \div 3 + 10 = z$, then find the value of z.

(a) 3
(b) 4
(c) 6
(d) 2

Q40. In each of the number-pairs, the second number is obtained by performing a certain mathematical operation on the first number. Three of the following pairs follow the same pattern and thus form a group. Select the number-pair that does NOT belong to that group.

(a) 22, 34
(b) 11, 12
(c) 25, 42
(d) 17, 24

Q41. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All camels are donkeys.

Some cats are camels.

All dolphins are cats.

Conclusions:

I. All dolphins are donkeys.

II. Some dolphins are donkeys.

III. Some donkeys are cats.

IV. All cats are donkeys.

(a) Only conclusion IV follows
(b) Only conclusion III follows
(c) Both conclusions I and III follow
(d) Both conclusions II and III follow

Q42. In Contemporary Carnatic music, how many Melakarta ragas are there?

(a) 72
(b) 82
(c) 62
(d) 52

Q43. Who became the first official in India to be felicitated with United Nations Asia Environmental Enforcement Award in February 2021 under the Gender Leadership and Impact category?

(a) Birendra Singh Johari
(b) Sasmita Lenka
(c) Sudarshan Panthee
(d) Namita Gokhale

Q44. A man can do a work in 20 days and a woman can do the same work in 30 days. In how many days will 2 men and 3 women do the work?

(a) 5 1/2
(b) 5

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(c) 6
(d) 4

Q45. If 0.17y = 10.2, find the value of y.
(a) 0.6
(b) 60
(c) 600
(d) 6

Q46. The Central Pollution Control Board was set up by the government in the year _____.
(a) 1974
(b) 1956
(c) 1947
(d) 1965

Q47. _____ defeated Mahmood Khilji and erected the tower of victory (Vijay Stambha) in Chittorgarh.
(a) Prithviraj Chauhan
(b) Jai Chand Gadhawak
(c) Rana Sangram Singh
(d) Rana Kumbha

Q48. There are five girls in a group, each having a different height. H is shorter than E only. F is not as tall as P. P is shorter than G. H is taller than G. Who is the shortest among them?
(a) G
(b) E
(c) F
(d) P

Q49. What is the difference in the mode and the mean of the observations?
4, 5, 6, 7, 8, 12, 9, 12, 5, 12
(a) 4
(b) 4.2
(c) 5.1
(d) 4.6

Q50. There is a group of 6 people: A, B, C, D, E and F (not necessarily in the same order). D is taller than A and E. F is taller than B and C. E is taller than F. A is taller than F. Which of the following can be the shortest person?
(a) C or F
(b) B or C
(c) A or C
(d) B or E

Q51. Which of following is oldest production unit of the Indian Railways?
(a) Rail Wheel Factory
(b) Integral Coach Factory
(c) Diesel Locomotive Works
(d) Chittaranjan Locomotive Works

Q52. The circumference of a circle is given as 308 m. What is the area of the circle?
[Use π = 22/7]
(a) 7646 m^2
(b) 7546 m^2
(c) 7556 m^2
(d) 7446 m^2

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Q53. Ram gave a discount of 10% on the marked price of an item and still gained 12.5%. How much would have Ram gained, if he sold the item at the marked price?

(a) 27.5%
(b) 25%
(c) 20%
(d) 22.5%

Q54. Article 239 deals with the _____.

(a) administration of union territories by Lt. Governor
(b) administration of union territories by President
(c) administration of union territories by Prime Minister
(d) administration of union territories by Cabinet Ministers

Q55. The average of 30 numbers is 55. The average of the first 15 numbers is 51 and the average of the last 12 numbers is 56. What is the average of 68, 74 and the remaining 3 numbers?

(a) 71
(b) 70
(c) 72.2
(d) 72

Q56. As per Renewable Fuel Association data, _____ was the world's largest producer of ethanol in the year 2020.

(a) China
(b) The United States of America
(c) Canada
(d) Brazil

Q57. As per Organisation for Economic Co-operation and Development (OECD) data for the year 2020, which country has highest per capita total spending on health?

(a) USA
(b) Canada
(c) Russia
(d) Germany

Q58. The ratio between the marked price and the cost price of an article is 5 : 3. If the selling price of the article is Rs. 3,024 and the shopkeeper gave two successive discounts of 16% and 20%, then how much is the profit or loss (in Rs.)?

(a) Profit, Rs. 324
(b) Loss, Rs. 112
(c) Loss, Rs. 216
(d) Profit, Rs. 225

Q59. ABCD is a rectangle with AB = 10 cm and BC = 8 cm. O is the centre of a circle touching the three sides AB, BC and CD of the rectangle ABCD. Find the area (in cm^2) of ΔOBC.

(a) 24
(b) 16
(c) 22
(d) 20

Q60. Which of the following tropical cyclones had hit the western coast of India in May 2021?

(a) Vardah
(b) Tauktae
(c) Titli
(d) Hudhud

Q61. The outer radius of a spherical shell is 9 cm and the thickness of the shell is 1 cm. Find the volume of the metal used for the shell (in cubic cm).

(Use π = 22/7)

(a) 9122/3
(b) 9151/3
(c) 9091/3
(d) 9093/5

Q62. Five years ago, ages of father and his son were in the ratio 7 : 2. Five years hence, ages of the father and his son will be in the ratio 9 : 4. After how many years will the father's age be twice the age of his son?

(a) 8
(b) 12
(c) 9
(d) 10

Q63. Giridar was at a temple and was facing west. He turns 45° in the clockwise direction to collect a token, then another 180° in clockwise direction. He then turned 45° in the anti-clockwise direction. Which direction is he facing now?

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

Q64. Six people A, B, C, D, E and F are sitting around a circular table facing the centre. B sits second to the right of E. C sits to the immediate left of E. F sits second to the right of D. Who sits third to the right of A?

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

Q65. Simplify the following expression.

$(12 - 6 \div 2 + 4)/(3^2 \times 3 - 7 + 6)$

(a) 1/2
(b) 11/26
(c) 13/18
(d) 11/18

Q66. If y = cbrt6 - 4, then what is the value of $y^3 + 12y^2 + 48y + 100$?

(a) 42
(b) 0
(c) 106
(d) 6

Q67. Find the value of √(2k + 11), where k is average of 16, 25, 13, 26 and 15.

(a) 10
(b) 8
(c) 7
(d) 9

Q68. K is the product of the greatest and the smallest of the numbers 1/4, 2/3, 4/5, 5/8, 3/4. Find the value of (1/k + 4)(1/k - 2)

(a) 189/25
(b) 27
(c) 171/25
(d) 7

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Q69. If 2/3 of y = 8/15 of z, then find y : z.

(a) 4 : 5
(b) 21 : 25
(c) 16 : 45
(d) 3 : 5

Q70. What is sublimation?

(a) direct change of a substance from a gas to a liquid state
(b) direct change of a substance from a gas to a solid state
(c) direct change of a substance from a liquid to a gas state
(d) direct change of a substance from a solid to a gas state

Q71. Which of the following persons was honoured with the highest award of the Central European University Open Society Award in June 2021?

(a) Deepak Sawant
(b) Satyendar Jain
(c) Harsh Vardhan
(d) KK Shailaja

Q72. Out of a total sum of Rs. 5,000, Danish invested one part at 12% simple interest per annum and the remaining part at 10% simple interest per annum. If the total interest that accrued to Danish in two years equals Rs. 1072, what was the sum Danish invested at 12% simple interest per annum?

(a) Rs. 2,150
(b) Rs. 1,750
(c) Rs. 1,800
(d) Rs. 2,000

Q73. G, M, P, V, Z and D are six members of a family. Z is the son of V. M is the brother of V. D and V are a married couple. P is the daughter of D. D is the sister of G.

How is Z related to P?

(a) Mother
(b) Sister
(c) Brother
(d) Father

Q74. Which two signs should be interchanged to make the following equation correct?

$4 \div 8 + 5 - 6 \times 2 = 34$

(a) +, -
(b) ÷, ×
(c) ÷, +
(d) ×, +

Q75. Find the value of the expression:

$1 - ((4 \div 5 - 1 \times 3 + 2) \times 8)/(3^2 \times 8 - 4 \times 2)$

(a) 39/40
(b) 41/40
(c) 0
(d) 5/8

Q76. AB and CD are parallel tangents to a circle with centre O. Points P and Q are on AB and CD, respectively, such that PQ touches the circle at R. Find the measure of angle POQ.

(a) 85°
(b) 90°
(c) 80°
(d) 100°

Q77. On 3 August 2021, _____ became India's 69^(th) Grandmaster of Chess at the Biel Masters Open.

(a) Harshit Raja
(b) Nihal Sarin
(c) Dommaraju Gukesh
(d) Prithu Gupta

Q78. The radius of the base of a conical tent is 9 m and its height is 12 m, find the cost of the material needed to make it if it costs Rs. 100 per π m².

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

Q79. Bodo language is spoken mainly in which of the following states of India?

(a) Assam
(b) Jharkhand
(c) Himachal Pradesh
(d) Karnataka

Q80. Which of the following is the SI unit of electric charge and is equivalent to the charge contained in nearly 6 × 10^(18) electrons?

(a) Coulomb
(b) Siemens
(c) Becquerel
(d) Henry

Q81. In a class, each student scored a different rank. Aman's rank is 11^(th) from the top and Nikhil's rank is 13^(th) from the bottom. Only three students ranked between Aman and Nikhil. If the total number of students is an odd number divisible by 3, how many students are there in total in the class?

(a) 21
(b) 33
(c) 15
(d) 27

Q82. As of December 2021, the total number of nuclear power plants in India is _____.

(a) 7
(b) 9
(c) 6
(d) 10

Q83. If $3x + 2y = 13$ and $y^2 - 4y + 4 = 0$, then find (x, y)

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

Q84. If $2\sin y + \cos y = \sqrt{5} \sin y$, then find the value of tan y.

(a) √5 - 1
(b) √5 - 2
(c) √5 + 2
(d) √5 + 1

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Q85. Which institute received the Africa Food Prize 2021, for the Tropical Legumes Project that has improved income and food production in sub-Saharan Africa?

(a) National Rice Research Institute (NRRI)
(b) Central Arid Zone Research Institute (CAZRI)
(c) International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
(d) Indian Institute of Sugarcane Research (IISR)

Q86. Ramesh ranked 16^(th) from the top and 21^(st) from the bottom in his class in an examination. If only 21 students passed the exam, how many students in his class failed?

(a) 19
(b) 17
(c) 15
(d) 21

Q87. Eight people E, H, M, P, S, T, Y and Z are sitting in a straight line. All of them are facing North. E sits fourth from one of the extreme ends of the line. H sits third to the right of E. As many people sit to the right of H as to the left of M. Only one person sits between M and P. S sits to the immediate right of Z. Only one person sits between Z and T.

How many people sit to the left of Y?

(a) Two
(b) Three
(c) One
(d) None

Q88. As per Human Development Index Ranking (2020), which country has highest life expectancy at birth (years)?

(a) Norway
(b) France
(c) Hong Kong, China (SAR)
(d) Denmark

Q89. The difference between the interest payable on a sum invested for three years at 20% compound interest per annum compounded annually and 20% simple interest per annum for the same period is Rs. 448. What is the value of the sum invested?

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

Q90. The Champaran Satyagraha took place in the year _____.

(a) 1915
(b) 1910
(c) 1912
(d) 1917

Q91. In the year 2021, DRDO launched which satellite by PSLV-C51 to enhance India's surveillance capability in the Indian Ocean Region (IOR)?

(a) Satish Dhawan Satellite
(b) Sindhu Netra Satellite
(c) Sindhu Durga Satellite
(d) Sri Shakti Satellite

Q92. Eight people M, N, P, S, T, V, X and Y are sitting in a straight line and all are facing north.

N sits second from one of the extreme ends of the line. Only three people sit between M and N. P sits second to the right of M. As many people sit to the right of P as to the left of S. Exactly three people sit between T and S. T does not sit at any of the extreme ends of the line. Y sits to the immediate right of X.

Who sits third to the left of V?

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(a) P
(b) M
(c) X
(d) Y

Q93. Which of the following internet protocols allows us to access the data over the World Wide Web?
(a) DNS
(b) SNMP
(c) HTTP
(d) FTP

Q94. Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?
499.37 + 1.95 × 4.79 - 2.87 ÷ 19.70 = ?
(a) 510
(b) 365
(c) 290
(d) 750

Q95. Which Indian shooter won two Paralympic medals in the single edition of Paralympic on 3 September 2021?
(a) Naresh Sharma
(b) Avani Lekhara
(c) Singhraj Adhana
(d) Manish Narwal

Q96. Which of the following is a non-conventional source of energy?
(a) Wood
(b) Petrol
(c) Wind
(d) Coal

Q97. According to the Census of India 2011, how many "million-plus cities" were there in India?
(a) 53
(b) 47
(c) 58
(d) 40

Q98. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements:
Some athletes are businessmen.
All businessmen are rich.
Conclusions:
I. Some athletes are rich.
II. No athlete is rich.
(a) Neither conclusion I nor II follows.
(b) Both conclusions I and II follow.
(c) Only conclusion II follows.
(d) Only conclusion I follows.

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Q99. In which of the following states of India is Padayani a ritual dance art form performed at Bhadrakali temple?

(a) Karnataka
(b) Maharashtra
(c) Kerala
(d) Tamil Nadu

Q100. The Sahitya Akademi was formally inaugurated by the Government of India on 12 March _____.

(a) 1956
(b) 1954
(c) 1958
(d) 1952

Q101. Which ceremonial folk dance of Puducherry is related to the Hindu epic Ramayana, performed at the Villianur temple in Puducherry?

(a) Garadi
(b) Hulivesha
(c) Dalkhai
(d) Tippani

Q102. Eight people P, Q, R, S, T, U, V and W are sitting around a square table for dinner in such a way that 4 persons are sitting at the four corners and 4 persons are sitting at the mid-position on the four sides. All of them are facing the centre of the square. S sits to the immediate left of U. U sits to the immediate left of T. T sits at one of the mid-positions of the sides. R sits third to the right of U. P is an immediate neighbour of both V and R. W is not an immediate neighbour of T.

Who among the following is sitting at one of the corners?

(a) V
(b) R
(c) Q
(d) S

Q103. Which of the following characters is used to create absolute address in MS-Excel?

(a) Dollar ($)
(b) Ampersand (&)
(c) Percent (%)
(d) Hash (#)

Q104. Eight colleagues K, L, M, N, O, P, Q and R are seated in a circle facing the centre. N is an immediate neighbour of both L and Q. P is an immediate neighbour of both K and R. O is second to the right of K. Which of the following is definitely true about M's position?

(a) Second to the left of L
(b) Exactly between K and O
(c) Exactly between Q and O
(d) Exactly between O and P

Q105. If 23.5% of a number is 11.75, then what is the number?

(a) 50
(b) 60
(c) 40
(d) 48

Q106. The people of Sikkim celebrate Lhabab Dhuechen which is observed to mark the descent of _____ from heaven back to earth.

(a) Lord Vishnu
(b) Lord Buddha
(c) Lord Shiva

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(d) Lord Mahaviira

Q107. Padma Shri Minati Mishra was an Indian classical dancer and actress, known for her expertise in which of the following Indian classical dance forms?

(a) Kathak
(b) Kathakali
(c) Bharatanatyam
(d) Odissi

Q108. In a certain code language,

'good deeds pay' is coded as 'ag bi tr',

'pay all bills' is coded as 'od ez ag',

'all your deeds count' is coded as 'sn tr od um'.

(Note: All codes are two letter codes only)

What is the code for 'count' in the given code language?

(a) ez
(b) either 'od' or 'tr'
(c) either 'sn' or 'um'
(d) od

Q109. Read the given statements and conclusions carefully. Decide which of the given conclusions is/are true based on the given statement.

Statement:

$W = H \geq G = C \geq T \leq L \leq M$

Conclusions:

I. $T \leq W$

II. $C \geq M$

(a) Only conclusion II is true
(b) Both conclusions I and II are true
(c) Only conclusion I is true
(d) Neither conclusion I nor II is true

Q110. The mean of the observations 29, 36, 21, 18, 7, 19, k, k is 21.25 and the mode of the observations 29, 22, 15, 15, 22, 18, 21, p, p is 29. Find the value of (p - k).

(a) 12
(b) 11
(c) 10
(d) 9

Q111. In each of the given number-clusters, the number on the right side of = (the equal to sign) is calculated by performing certain mathematical operations on the four numbers on the left of = (the equal to sign). All three number-clusters follow the same pattern. Select the number from among the given options that can replace the question mark (?) in the third number-cluster.

11, 8, 5, 9 = 43

12, 9, 7, 6 = 66

14, 13, 9, 10 = ?

(a) 92
(b) 80
(c) 98
(d) 89

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Q112. A right circular cone is surmounted on a hemisphere. Base radius of the cone is equal to radius of the hemisphere. The diameter of the hemisphere is 12 cm while the height of the cone is 8 cm. Find the cost of painting the compound object if it costs Rs. 25 to paint π cm^2.

(a) Rs. 10,371
(b) Rs. 3,300
(c) Rs. 6,930
(d) Rs. 4,500

Q113. Bamabodhini Patrika', a journal for women was edited by _____.

(a) Umeshchandra Dutta
(b) Swami Vivekananda
(c) Debendranath Tagore
(d) Raja Ram Mohan Roy

Q114. P, Q, R can do a piece of work in 40 days, 90 days and 36 days, respectively. P started the work. Q joined him after 7 days. If R joined them after 8 days from the beginning, then for how many days did R work?

(a) 118/23
(b) 128/23
(c) 158/23
(d) 138/23

Q115. There are five boxes K, L, M, N and O, arranged one above the other. Box M is placed above box N. Box O is placed below box K. Box N is placed above K. Box L is placed below O. Which among the following is the bottom most box?

(a) O
(b) L
(c) K
(d) M

Q116. In a certain code language, 'CONSUME' is written as 'CEMNOSU' and 'COMPEL' is written as 'CELMOP'. How will 'ENGLISH' be written in that language?

(a) EGHILNS
(b) EHGLNSI
(c) EHGILNS
(d) EGHNLSI

Q117. Shamita's birthday was on 15 March 2020, which was a Sunday. If her husband's birthday was on 31 May 2020, on which day would it fall?

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

Q118. Which of the following works of Kalidasa is based on the context of the birth of Kartikeya, the son of God Shiva and Goddess Parvati?

(a) Meghaduta
(b) Raghuvamsa
(c) Kumarasambhava
(d) Ritusamhara

Q119. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All salsa are jazz.

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No jazz is kathak.

Conclusions:

I. Some jazz is salsa.

II. No salsa is kathak.

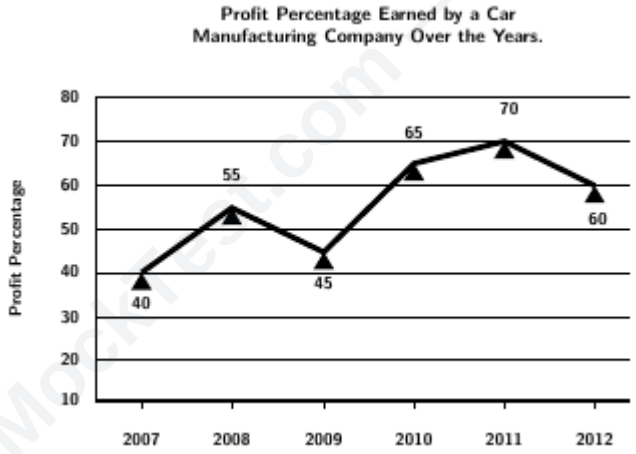
(a) Only conclusion II follows

(b) Only conclusion I follows

(c) None of the conclusions follow

(d) Both the conclusions follow

Q120. The following line graph shows the annual profit percentage earned by a car manufacturing company during the period 2007-2012.



In which of the following years was the annual profit percentage closest to the average of the annual profit percentage in all the years given in the graph?

(a) 2008

(b) 2009

(c) 2007

(d) 2011

ANSWER KEY

1	a	2	a	3	d	4	d	5	b	6	b	7	b	8	a	9	c	10	a
11	c	12	c	13	a	14	d	15	b	16	c	17	d	18	c	19	a	20	a
21	a	22	a	23	a	24	a	25	c	26	b	27	c	28	c	29	c	30	a
31	c	32	d	33	a	34	c	35	d	36	d	37	c	38	b	39	d	40	c
41	b	42	a	43	b	44	b	45	b	46	a	47	d	48	c	49	a	50	b
51	d	52	b	53	b	54	b	55	a	56	b	57	a	58	a	59	b	60	b
61	c	62	d	63	d	64	a	65	a	66	a	67	c	68	b	69	a	70	d
71	d	72	c	73	c	74	b	75	b	76	b	77	a	78	d	79	a	80	a
81	d	82	a	83	d	84	c	85	c	86	c	87	c	88	c	89	c	90	d
91	b	92	d	93	c	94	a	95	b	96	c	97	a	98	d	99	c	100	b
101	a	102	c	103	a	104	b	105	a	106	b	107	d	108	c	109	c	110	d
111	a	112	b	113	a	114	b	115	b	116	a	117	b	118	c	119	d	120	a

SOLUTIONS

Q1. Answer: (a) UTSPONLIECA

• Code: letters written in reverse alphabetical order

• RELATIONS

Alphabetical order: A < E < I < L < N < O < R < S < T

Reverse order: T > S > R > O > N > L > I > E > A

Thus, code is TSRONLIEA

• NUMBER

Alphabetical order: B < E < M < N < R < U

Reverse order: U > R > N > M > E > B

• Similarly, SPECULATION

Alphabetical order: A < C < E < I < L < N < O < P < S < T < U

Reverse order: U > T > S > P > O > N > L > I > E > C > A

Hence, "option 1" is the correct answer.

Q2. Answer: (a) M

Given series:-

• (Left) K L % Y & 4 E 2 * 3 M & 7 S W # 8 2 H * L (Right)

• If all the numbers are dropped from the series then series given below:-

• (Left) K L % Y & E * M & S W # H * L (Right)

• M is the eighth from the right end.

Hence, "option 1" is the correct answer.

Q3. Answer: (d) Intergovernmental Panel on Climate Change

The correct answer is Intergovernmental Panel on Climate Change.

Key Points

• IPCC's full form is Intergovernmental Panel on Climate Change

• It is an international organization that assesses the reasons behind climate change.

• It is a part of the United Nations.

• It was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).

• Its objective is to provide input to all governments regarding the scientific information and Technical Guidance that may be used to design climate policies.

• It releases annual assessment reports that guide the governmental decision-making process and and plays an important role in UNFCCC-COP meetings.

Additional Information

• IPCC

• Established: 1988

• Headquarters: Geneva, Switzerland

• It was awarded the Nobel peace prize in 2007 for its role in assessing man-made climate change.

• Rajendra Pachauri served as chairman of IPCC.

Q4. Answer: (d) 30 seconds

Given:

Speed of the train = 54 kmph

Length of the train = 450m

Concept used:

Time × Speed = Distance

While a train crosses a person, it crosses its own length.

Kilometer per hour (kmph) = 3.6 × Meter per second (mps)

Calculation:

54 km/h = 54 ÷ 3.6 = 15 mps

Time taken by the train to cross the man = 450 ÷ 15 = 30 seconds

Therefore A 450m long train running at 54 km/h will take 30 seconds to cross a man standing on a platform.

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Q5. Answer: (b) 50,000

Given:

A certain sum on compound interest becomes Rs. 56,180 when compounded annually after 2 years and Rs. 59,550.80 after 3 years.

Concept used:

Compound interest, CI = P(1 + R/100) n - P

where

P = Principal amount

R = Rate of interest per year

N = Time in years

Calculation:

Amount at the end of the second year, A 2 = Rs. 56,180

Amount at the end of the third year, A3 = Rs. 59,550.80

Hence, interest incurred during the second year to the third year = 59,550.80 - 56,180 = Rs. 3370.8

Let the principal sum be Rs. P and the rate of interest be R%.

CI of the first year = SI of the first year

=> Rs. 3370.8 = (Because for the second year, the principal amount should be Rs. 56,180)

=> R = 6%

According to the question,

P(1 + 6/100)2 = 56,180

=> P = 50000

Therefore The principal amount is Rs. 50000.

Q6. Answer: (b) 45%

Shortcut Trick

In Simple Interest, the percentage increase is directly proportional to the time period.

Percentage increase in 10 years = 75%

Percentage increase in 1 year = 75% ÷ 10 = 7.5%

Percentage increase in 6 years = 7.5% × 6 = 45%

Therefore The correct answer is 45%.

Alternate Method

Given:

A sum increases by 75% in 10 years at simple interest.

Time (T1) = 10 years, Time (T2) = 6 years.

Formula Used:

Simple Interest (SI) = (P × R × T) ÷ 100

6 Years (SI = ?)

Remaining 4 Years

Total 10 Years: SI = 75% increase

6 Years: SI = 45% increase

Calculation:

Let the principal (P) be 100.

=> Since the sum increases by 75%, Simple Interest for 10 years = 75.

=> 75 = (100 × R × 10) ÷ 100

=> 75 = 10R

=> R = 7.5% per annum

Now, calculate the SI for 6 years at the same rate of interest:

=> New SI = (100 × 7.5 × 6) ÷ 100

=> New SI = 7.5 × 6

=> New SI = 45

=> Since the principal is 100, an SI of 45 means the sum increases by 45%.

Therefore The correct answer is 45%.

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Additional Information

Direct Proportion in Simple Interest

For a fixed principal and constant rate, the interest earned is directly proportional to the time period (SI prop. to T). You can directly use the ratio: SI1 ÷ T1 = SI2 ÷ T2.

Percentage Increase

When a problem states that a sum increases by a certain percentage, that percentage increase is exactly equal to the Simple Interest accumulated. Amount = Principal + SI.

Rate of Interest

Rate per annum (R) can be determined efficiently by isolating it from the SI formula: R = (SI × 100) ÷ (P × T).

Q7. Answer: (b) Egypt

The correct answer is Egypt.

Key Points

• The Nile is the longest river in the world.

• It flows across the eastern African region from South to North.

• The major portion of the river flows in Egypt.

• It is the source for agriculture, fishing and facilitates transportation in the country.

Additional Information

• Its basin covers countries like Uganda, Sudan, South Sudan,Ethiopia and Egypt.

• It starts near Lake Victoria(near Uganda) and empties into the Mediterranean Sea(Egypt).

• The main tributaries are White Nile (from Lake Victoria) and Blue Nile (from Ethiopia).

• It is a major lifeline for the countries in the eastern Sahara region.

• It provides transportation and supports agriculture and fishing in the region.

• Alexandria, Cairo(Egypt) and Khartoum(Sudan) are the important cities on the bank of the river.

Q8. Answer: (a) 9/2

Given:

1/(1 + tan θ) + 1/(1 - tan θ) = 4, 0° < θ < 90°

Concept used:

sec²θ - tan²θ = 1

sin2θ + cos2θ = 1

cosec θ = 1/sin θ

sec θ = 1/cos θ

Calculation:

1/(1 + tan θ) + 1/(1 - tan θ) = 4

=> 1 - tanθ + 1 + tanθ over 1 - tan²θ = 4

=> 1 + 1 over 1 - tan²θ = 4

=> 2 over 1 - tan²θ = 4

=> 1 - tan² θ = 1/2

=> tan2 θ = 1/2

Adding both side by 1, as we know 1 + tan²θ = sec²θ

=> 1 + tan2 θ = 1/2 + 1

=> sec²θ = 3/2 ....(1)

=> cos²θ = 2/3

=> 1 - cos²θ = 1/3 We know (sin2θ + cos2θ = 1)

=> sin²θ = 1/3

=> cosec²θ = 3 ....(2)

Hence (1) + (2),

(cosec2 θ + sec2 θ)

=> 3 + 3/2

=> 9/2

Therefore The required value is 9/2.

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Q9. Answer: (c) Tabla

The correct answer is Tabla.

Key Points

• Alla Rakha Qureshi is an Indian Tabla player.

• He specialised in Hindustani Classical music and belongs to Punjab Gharana.

• He is often seen accompanying Sitar specialist Pandit Ravi Shankar.

• Zakir Hussain, a Tabla expert is the son of Qureshi.

• He played an important role in introducing the Tabla to the West.

• He received Padma Shri in 1977 and Sangeet Natak Akademi Award in 1982.

Additional Information

Person Name	Details
Kishan Maharaj	The famous Indian tabla player born in Kabir Chaura, Varanasi, Uttar Pradesh, who belonged to the Benares Gharana is Pandit Kishan Maharaj. A tabla is a pair of twin hand drums from the Indian subcontinent. Since the 18th century, the tabla has been the principal percussion instrument in Hindustani classical music. Tabla was invented in the first half of the 18th century (about 1738) by a drummer named Amir Khusru.
Ahmed Jan Thirkwa	Ahmed Jan Khan was born in 1892, in Moradabad. Ustad Ahmed Jan Khan Thirakwa was an Indian tabla player, commonly considered the pre-eminent soloist among tabla players of the 20th century, and among the most influential percussionists in the history of Indian Classical Music.
Shivkumar Sharma	Pandit Shivkumar Sharma was born on Born: 13 January 1938, in Jammu. Death: 10 May 2022. Pandit Shivkumar Sharma is an Indian music composer and santoor player from the state of Jammu and Kashmir. The santoor is originally a folk instrument but became an instrument for Indian classical through his internationally recognized playing style. Born: 13 January 1938 (age 83 years), Jammu

Q10. Answer: (a) rate of change of consumption as income changes

The correct answer is rate of change of consumption as income changes.

Key Points

• Marginal propensity to consume refers to the change in consumption with respect to the change in income.

• When there is an increase in income it reflects in better purchasing power of a consumer.

• The change in income not only affects consumption but also induces changes in savings.

• The proportion of consumption depends upon the income levels and corresponding necessities of the consumer.

• It is used widely in economics to calculate the required additional production for the increased demand(consumption).

Additional Information

• The complement of the MPC(Marginal propensity to Consume) is Marginal Propensity to Save(MPS).

• They both reflect the increase in income.

• Marginal Propensity To Consume (MPC)-

In economics, the marginal propensity to consume (MPC) is defined as the proportion of an aggregate raise in pay that a consumer spends on the consumption of goods and services, as opposed to saving it. The marginal propensity to consume is a component of Keynesian macroeconomic theory and is calculated as the change in consumption divided by the change in income.

The marginal propensity to consume is equal to ΔC / ΔY, where ΔC is the change in consumption, and ΔY is the change in income. If consumption increases by 80 cents for each additional dollar of income, then MPC is equal to 0.8 / 1 = 0.8.

Q11. Answer: (c) WLP

The logic followed here is:-

Hence, "option 3" is the correct answer.

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Q12. Answer: (c) GSN

The logic followed here is:-

And,

Similarly,

Hence, "option 3" is the correct answer.

Q13. Answer: (a) Brahmaputra

The correct answer is Brahmaputra.

Key Points

• Majuli is the largest river island in the world to be inhabited by people.

• It is located in the state of Assam and is a district by itself.

• It is formed due to course changes to the river Brahmaputra and its tributaries.

• It is located on the National Waterway 2, which is a part of Brahmaputra river.

• It is surrounded by River Brahmaputra and River Subansiri.

Q14. Answer: (d) The President of India on the advice of the Prime Minister

The correct answer is option 4.

Key Points

• Article 75 deals with the appointment of the Council of Ministers by the President of India.

• Council of ministers aid and advise the President in the exercise of his/her functions.

• It represents the highest executive body in the Indian polity.

• It is also called the Cabinet, where most executive decisions are made.

Additional Information

• Article 74 tells about constitution of Council of Ministers.

• Article 75 talks about other provisions(like appointment, collective responsibility to Lok Sabha, six months time for becoming MP etc.) related to the Council of Ministers.

Q15. Answer: (b) Zero

Given that:-

Only one person is younger than Y.

• Y > _.

X is older than E but younger than D.

• D > X > E

E is older than Y.

• E > Y

Neither D nor C is the eldest.

• Z > D > X > E > Y > C

• Thus, no one is older than Z.

Hence, "option 2" is the correct answer.

Q16. Answer: (c) –76

Given:

72 - 4(40 + 24 ÷ 8 × 6 - 4 × 4) + 20

Concept used:

Calculation:

72 - 4(40 + 24 ÷ 8 × 6 - 4 × 4) + 20

=> 72 - 4(40 + 3 × 6 - 4 × 4) + 20

=> 72 - 4(40 + 18 - 16) + 20

=> 72 - 4 × 42 + 20

=> 72 - 168 + 20

=> (-76)

Therefore The simplified value is (-76).

Q17. Answer: (d) January 2021

The correct answer is January 2021.

Key Points

• The initiative of Jail Tourism has been launched by the Maharashtra government in January 2021.

• It is aimed at increasing awareness about the historical prisons and their role in the freedom struggle.

• As a part of the initiative, some parts of Yerwada Prison of Pune are opened for visitors.

• The prison has the historical significance of signing the Poona Pact(between Ambedkar and Gandhi) and accommodating many freedom fighters during the independence movement.

Additional Information

• Maharashtra

• CM: Eknath Shinde

• Governor: Ramesh Bais.

• Parliamentary seats: 48 (LS) and 19(RS).

• Capital: Mumbai, Nagpur(Winter capital

• Recent News : A loan scheme named Jivhala has been launched by the Maharashtra Department of Prisons for the inmates who are serving sentences in various jails across Maharashtra

Q18. Answer: (c) 46

The logic followed here is:-

Hence, "option 3" is the correct answer.

Q19. Answer: (a) 35

Shortcut Trick

The HCF of a set of numbers is always a factor of the difference between any two of those numbers.

Step 1: Find the smallest difference between the given numbers: 245 − 175 = 70.

Step 2: List the factors of 70 in descending order: 70, 35, 14, 10, 7, 5, 2, 1.

Step 3: Check divisibility. 70 does not divide 175. However, 35 divides 175 (35 × 5), 245 (35 × 7), and 385 (35 × 11).

Therefore The correct answer is 35.

Alternate Method

Given: The numbers are 175, 245, and 385.

Formula Used: HCF = Product of the lowest power of all common prime factors.

Calculations:

=> Prime factorization of 175 = 5 × 5 × 7 = $5^2 \times 7^1$

=> Prime factorization of 245 = 5 × 7 × 7 = $5^1 \times 7^2$

=> Prime factorization of 385 = 5 × 7 × 11 = $5^1 \times 7^1 \times 11^1$

=> Common prime factors are 5 and 7.

=> HCF = $5^1 \times 7^1$ = 35.

Therefore The correct answer is 35.

Additional Information

HCF (Highest Common Factor)

Also known as GCF (Greatest Common Factor), it is the largest integer that divides two or more numbers without leaving a remainder.

Successive Division Method

A systematic way to find the HCF of large numbers by dividing the larger number by the smaller one until the remainder is zero.

HCF of Co-prime Numbers

If two numbers have no common factors other than 1, they are called co-prime, and their HCF is always 1.

Relation with LCM

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

Q20. Answer: (a) Lost Children Archive

The correct answer is Lost Children Archive.

Key Points

• Valeria Luiselli is a Mexican author, who won the International Dublin Literary Award 2021 for her work Lost Children Archive

• It is a novel based on the theme of the separation of children from their parents near the Mexico-America border.

Additional Information

• International Dublin Literary Prize

• The prize is among the richest literary awards given to the works in English literature

• Akhil Sharma, an Indian-American is the recipient of the Prize in 2016, for his novel Family Life.

• Established in 1994, the International Dublin Literary Award is considered one of the world's wealthiest awards for literature with prize money of €100,000 (approximately INR 89,27,300).

• The award is given to a novel written or translated into English.

Q21. Answer: (a) 29 August, 1947

The correct answer is 29 August, 1947.

Key Points

• On 29 August 1947, the Constituent Assembly set up a Drafting Committee under the Chairmanship of Dr. B.R. Ambedkar to prepare a Draft Constitution for India.

• While deliberating upon the draft Constitution, the Assembly moved, discussed, and disposed of as many as 2,473 amendments out of a total of 7,635 tabled.

• The Constitution of India was adopted on 26 November 1949 and the hon'ble members appended their signatures to it on 24 January 1950.

• In all, 284 members actually signed the Constitution.

• On that day when the Constitution was being signed, it was drizzling outside and it was interpreted as a sign of a good omen.

• The Constitution of India came into force on 26 January 1950.

• On that day, the Assembly ceased to exist, transforming itself into the Provisional Parliament of India until a new Parliament was constituted in1952.

Additional Information

Drafting Committee:

• Chairman - Dr B. R. Ambedkar

• Other 6 members -

• K.M.Munshi

• Muhammed Saadulah

• Alladi Krishnaswamy Iyer

• Gopala Swami Ayyangar

• N. Madhava Rao (He replaced B.L. Mitter)

• T. T. Krishnamachari (He replaced D.P. Khaitan)

Q22. Answer: (a) RHMHJOH

The logic followed here is:-

• • Code for the first 2 letters out of 5 = Positional value - 1

• Code for the remaining letters = Positional value + 1

And,

• • Code for the first 3 letters out of 7 = Positional value - 1

• Code for the remaining letters = Positional value + 1

Similarly,

• • Code for the first 3 letters out of 7 = Positional value - 1

• Code for the remaining letters = Positional value + 1

Hence, "option 1" is the correct answer.

Q23. Answer: (a) Andhra Pradesh

The correct answer is Andhra Pradesh.

Key Points

• The Chief Minister of Andhra Pradesh Jagan Mohan Reddy inaugurated the 'Aqua Bazaar' and 'Aqua Hub' project.

• The project was launched in Vishakhapatnam. It aims to raise fish consumption in Andhra Pradesh.

• Over 150 state-of-the-art fish markets are to be set up in rural areas named 'Aqua-bazaar', and a hub and spoke model will be formed in urban areas.

• Aqua hubs will come up in big cities from where produce will be distributed to retail outlets.

• Aqua bazaars and outlets will have: a live fish section, ice fish and prawn section, frozen section and a dressing section to clean, cut and pack.

Additional Information

• November 21 is also celebrated as World Fisheries Day.

• The theme of the day was "Mixture of the fishing industry, nature and environment, and a greater focus on biodiversity".

Q24. Answer: (a) Peacock

The correct answer is Peacock.

Key Points

• Peacock has a four-chambered heart.

• Peacock is the national bird of India and its scientific name is Pavo cristatus.

• Taxonomy of Peacock:

• Kingdom: Animalia

• Phylum: Chordata

• Subphylum: Vertebrata

• Superclass: Tetrapoda

• Class: Aves

• Order: Galliformes

• Family: Phasianidae

• Genus: Pavo

• Species: cristatus

Additional Information

• The frog belongs to the class Amphibia and has a characteristic three-chambered heart with 2 auricles and 1 ventricle.

• Fishes have a two-chambered heart.

• Sea horses have a two-chambered heart

Q25. Answer: (c) 1948

The correct answer is 1948.

Key Points

• The first industrial policy statement of India is known as Industrial Policy Resolution.

• It was announced in the year 1948.

• It defined the role of the State in industrial development both as an entrepreneur and authority.

• Industrial Policy Resolution,1948 states that India is going to have a Mixed Economic Model.

• The Industries (Development and Regula-tion) Act was passed in 1951.

• It was passed to implement the Industrial Policy Resolution, 1948.

Additional Information

• India’s Industrial Policy classified industries into four broad areas:

• Strategic Industries (Public Sector) - It included in its ambit the manufacture of arms and ammunition, production and control of atomic energy and the ownership and management of railway transport. These industries became the exclusive monopoly of the Central government of India.

• Basic/Key Industries (Public-cum-Private Sector) - This included coal, iron and steel, aircraft manufacture, shipbuilding, manufacture of telephone, telegraphs and wireless apparatus, and mineral oils. New undertakings in this category could be started only by the state government.

• Important Industries (Controlled Private Sector) - This included industries of basic importance like machine tools, chemicals, fertilizers, non-ferrous metals, rubber manufacturers, cement, paper, newsprint, automobiles, electric engineering, etc. for which the Central Government would feel necessary to plan and regulate.

• Other Industries (Private and Cooperative Sector) - It included those industries which were left open to the private sector, individual as well as cooperative.

Q26. Answer: (b) Mandamus

The correct answer is Mandamus.

Key Points

• 'Mandamus' means - We Command.

• It is an order from the Supreme Court or High Court to a lower court or tribunal or public authority to perform a public or statutory

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duty if it is not discharging its duty.

• There are five writs that can be issued by the Supreme Court of India and the High Court of India - Habeas Corpus, Mandamus, Prohibition, Quo Warranto, and Certiorari.

• Supreme Court has the power to issue writs under Article 32.

• High Courts have the power to issue writs under Article 226.

Additional Information

• Habeas Corpus

• A Latin term which literally means ‘to have the body of’.

• It is an order which is issued by the court to a person who has detained another person to produce the body of the latter before it.

• The court then examines the cause and the legality of the detention.

• It is the only writ that can be issued both against public authorities as well as private individuals.

• Prohibition

• It means ‘to forbid’

• It is issued by the higher court to the lower court or the tribunal to prevent the latter from exceeding its jurisdiction or usurping a jurisdiction that it does not possess.

• Certiorari

• It means ‘to be certified’ or sometimes ‘to be informed’.

• It is issued by a higher court to the lower court or the tribunal either to transfer a case pending with the latter to itself or to squash the order of the latter is the case.

• Quo-Warranto

• It means ‘by what authority or warrants’.

• It is issued by the court to inquire into the legality of the claim of the person to the public office.

• It prevents an illegal usurpation of the public office by the person.

Q27. Answer: (c) DAUZ

The logic followed here is:-

Hence, "option 3" is the correct answer.

Q28. Answer: (c) OPN

The logic followed here is:-

And,

Similarly,

Hence, "option 3" is the correct answer.

Q29. Answer: (c) ti fs

The logic followed here is:-

• "party dresses" would be coded as "ti fs".

Hence, "option 3" is the correct answer.

Q30. Answer: (a) Disinvestment

The correct answer is Disinvestment.

Key Points

• Disinvestment can be defined as the process in which the government sells a majority stake to one or more companies, while the government still owns it and the minority stakeholder persists.

• It is the process of selling subsidiary assets, investments, or divisions of a company in order to maximize the value of the parent company.

Additional Information

• In finance and economics, Disinvestment is the reduction of some kind of asset for financial, ethical, or political objectives or the sale of an existing business by a firm.

• A Disinvestment is the opposite of an investment.

• Divestiture is an adaptive change and adjustment of a company's ownership and business portfolio made to confront with internal and external changes.

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Q31. Answer: (c) 1 hour 05 minutes

Shortcut Trick

Speed Ratio (Original : New) = 100 : 130 = 10 : 13

Since Distance is constant, Time Ratio = 13 : 10

Difference in time = 13 − 10 = 3 units

According to the question, 3 units = 15 min => 1 unit = 5 min

Original Time = 13 units = 13 × 5 = 65 min = 1 hr 05 min

Therefore The correct answer is 1 hr 05 min.

Alternate Method

Given:

Speed increase = 30%

Time reduction = 15 min

Formula Used:

Distance = Speed × Time (D = S × T)

Calculations:

=> Let original speed be S and original time be T.

=> New speed = S + 30% of S = 1.3S

=> New time = T − 15 min

=> Since distance is the same: S × T = 1.3S × (T − 15)

=> T = 1.3T − 19.5

=> 1.3T − T = 19.5

=> 0.3T = 19.5

=> T = 19.5 ÷ 0.3 = 65 min

=> 65 min = 1 hr 05 min

Therefore The correct answer is 1 hr 05 min.

Additional Information

Inverse Proportion Rule

When Distance is constant, Speed and Time are inversely proportional (S1/S2 = T2/T1).

Average Speed

If a person covers the same distance at speed x and speed y, the Average Speed is (2 × x × y) ÷ (x + y).

Unit Conversion

To convert speed from km/h to m/s, multiply by 5/18. To convert m/s to km/h, multiply by 18/5.

Q32. Answer: (d) 6

Shortcut Trick

Assume the 2-digit number is 14 units (LCM of 2 and 7).

One-seventh of the number = 14 ÷ 7 = 2 units.

Half of the number = 14 ÷ 2 = 7 units.

The difference is 7 units − 2 units = 5 units.

Given, 5 units = 15 => 1 unit = 3.

The number = 14 × 3 = 42. Sum of digits = 4 + 2 = 6.

Therefore The correct answer is 6.

Alternate Method

Given:

Let the 2-digit number be x.

One-seventh of the number = x/7

Half of the number = x/2

Formula Used:

Fractional relation: x/7 = x/2 − 15

Total Number (x)

1/7 of x

1/2 of x

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Difference = 15

Calculations:

=> x/2 − x/7 = 15

=> (7x − 2x) / 14 = 15

=> 5x / 14 = 15

=> 5x = 15 × 14

=> x = 3 × 14 = 42

=> Sum of digits = 4 + 2 = 6.

Therefore The correct answer is 6.

Additional Information

2-Digit Number Representation

Any 2-digit number with tens digit a and units digit b can be written as 10a + b.

Sum of Digits Property

The sum of digits for the number 10a + b is simply a + b.

LCM in Fraction Problems

Using the LCM of denominators as a base value helps avoid complex fractions and simplifies calculations.

Q33. Answer: (a) indifference curve

The correct answer is indifference curve.

Key Points

• The optimum bundle of the consumer is located at the point where the budget line is tangent to one of the indifference curves.

• The indifference curve is a geometrical device developed by J.R. Hicks and R.G.D. Allen in the article “A Reconsideration of the Theory of Value”.

• An indifference curve shows a combination of two goods that give a consumer equal satisfaction and utility thereby making the consumer indifferent.

• An indifference schedule is a table which represents various combinations of two goods, which yield equal satisfaction to the consumer.

• The graphical presentation of the Indifference schedule is known as the Indifference curve.

• Along the curve, the consumer has an equal preference for the combinations of goods shown—i.e. is indifferent about any combination of goods on the curve.

• Typically, indifference curves are shown convex to the origin, and no two indifference curves ever intersect.

• A diagram showing different indifference curves corresponding to different indifference schedules of the consumer is an indifference map. In other words, a set or family of indifference curves is an indifference map.

• Law of Demand

• According to the law of demand

• when the price of a commodity increase, the quantity demanded decreases

• when the price of a commodity decreases, it’s the quantity demanded increases

• keeping other factors remains the same.

• The consumer’s demand for goods must be inversely related to the price of the good.

• There is an inverse relationship between price and demand and due to this the demand curve always has a downward slope.

• The demand curve is the relation between the quantity of the good chosen by a consumer and the price of the good.

• Assumptions for the Law of Demand

• No change in the income of consumers

• No change is the taste and preference of the consumers

• No change in price related to other goods.

Q34. Answer: (c) Zn

The correct answer is Zn.

Key Points

• Zinc is a chemical element with the symbol Zn and atomic number 30.

• Atomic Number is defined as the number of protons in the nucleus of an element.

• It is used to determine the characteristics of an element and it is also referred to for placing an element in the Periodic Table.

• The Atomic Number of Zinc (Zn) is 30 whereas the Mass Number is 65 i.e. it has 35 neutrons.

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• It is the first element in group 12 (IIB) of the periodic table.

• Zinc is chemically similar to magnesium: both elements exhibit only one normal oxidation state (+2), and the Zn^(2+) and Mg^(2+) ions are of similar size.

Additional Information

Element	Symbol	Atomic Number (Z)
Iron	Fe	26
Cobalt	Co	27
Nickel	Ni	28

Q35. Answer: (d) 10

The correct answer is 10.

Key Points

• In Vaishnavism, 10 avatars or incarnations of deity were recognized.

• Matsya (Fish)

• Tortoise

• Boar

• Man-lion

• Dwarf

• Rama-with-the-Ax

• King Rama

• Krishna

• Buddha

• Kalkin

• Vaishnavism is the worship and acceptance of Vishnu (Sanskrit: “The Pervader” or “The Immanent”) or one of his various incarnations (avatars) as the supreme manifestation of the divine.

• During a long and complex development, many Vaishnava groups emerged with differing beliefs and aims.

• Some of the major Vaishnava groups include the Shrivaishnavas (also known as Vishishtadvaitins) and Madhvas (also known as Dvaitins) of South India.

• Most Vaishnava believers, however, draw from various traditions and blend the worship of Vishnu with local practices.

Q36. Answer: (d) 1976

The correct answer is 1976.

Key Points

• The fundamental duties of citizens were added to the Constitution by the 42nd Constitutional Amendment Act (1976).

• The 42nd Constitutional Amendment Act (1976) included ten Fundamental Duties.

• This amendment added a new part, namely, Part IVA to the Constitution.

• This new part consists of only one Article, that is, Article 51A which for the first time specified a code of ten fundamental duties of the citizens.

• Later there was an addition of one more Fundamental Duty in 2002 by the 86th Amendment Act.

• The Fundamental Duties in the Indian Constitution are inspired by the Constitution of the erstwhile USSR.

• 42nd Amendment Act, 1976 is one of the most important amendments to the Indian Constitution. It was enacted by the Indian National Congress headed by Indira Gandhi then. Due to the large number of amendments this act has brought to the Indian Constitution, it is also known as 'Mini-Constitution.

Q37. Answer: (c) Lipase

The correct answer is Lipase.

Key Points

• Lipase enzymes are used in the stabilization of rice bran oil.

• Rice bran oil is known as wonder oil and it is the most important vegetable oil in Asia.

• Rice bran oil is extracted from bran which is the outer hard layer of rice.

• It is an emerging category in edible oil with a lot of nutritional properties and health benefits.

• Rice bran oil is heart-friendly, immunity, and prevents other diseases.

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• The current study aimed to stabilize rice bran oil through different probiotic isolates and to assess the nutritional content of rice bran oil after stabilization.

• The study was aimed to inactivate naturally occurring lipases that can hydrolyze oil into glycerol and free fatty acid which is a serious problem that gives it a rancid taste and smell.

Additional Information

• Hydrolases are the group of enzymes that catalyze bond cleavages by reaction with water. The natural function of most hydrolases is digestion to break down nutrients into smaller units for digestion.

• Catalase is a key enzyme that uses hydrogen peroxide, a non-radical ROS, as its substrate. This enzyme is responsible for neutralization through the decomposition of hydrogen peroxide, thereby maintaining an optimum level of the molecule in the cell which is also essential for cellular signaling processes.

• Cellulase is any of several enzymes produced chiefly by fungi, bacteria, and protozoans that catalyze cellulolysis, the decomposition of cellulose and of some related polysaccharides. The name is also used for any naturally occurring mixture or complex of various such enzymes, that act serially or synergistically to decompose cellulosic material.

Q38. Answer: (b) Tuesday

Given that:-

• No of days from 2 January 2017 to 31 March 2017 = 30 + 28 + 31 = 89 as 2017 is a non-leap year.

• Since, it was Thursday on 1 January 2017, every 7th day from 1 January will be a Thursday.

• Thus, no. of odd days = 89/7 = 5

• Now, 1 January 2017 (Thursday) + 5 odd days = 31 March 2017 (Tuesday)

• 31st March 2017 will be Tuesday.

Hence, "option 2" is the correct answer.

Q39. Answer: (d) 2

Given:

56 ÷ 14 × 22 - 12 × 6 ÷ 3 + 10 = z

Concept used:

Calculation:

56 ÷ 14 × 22 - 12 × 6 ÷ 3 + 10

=> 4 × 22 - 12 × 2 + 10

=> 4 × 4 - 12 × 2 + 10

=> 16 - 24 + 10

=> 2

Therefore The value of z is 2.

Q40. Answer: (c) 25, 42

The logic followed here is:-

From option 1:-

• (22, 34)

• 22 × 2 = 44 - 10 = 34

From option 2:-

• (11, 12)

• 11 × 2 = 22 - 10 = 12

From option 3:-

• (25, 42)

• 25 × 2 = 50 - 10 = 40 ≠ 42,

• It is different from others.

From option 4:-

• (17, 24)

• 17 × 2 = 34 - 10 = 24

Hence, "option 3" is the correct answer.

Q41. Answer: (b) Only conclusion III follows

The logical Venn diagram is given below:-

Conclusions:

I. All dolphins are donkeys. → False → (it is possible but not definite.)

II. Some dolphins are donkeys. → False → (it is possible but not definite.)

III. Some donkeys are cats. → True → (All camels are donkeys, Some cats are camels. So some donkeys are cats is correct.)

IV. All cats are donkeys. → False → (it is possible but not definite.)

Hence, "option 2" is the correct answer.

Q42. Answer: (a) 72

The correct answer is 72.

Key Points

• In contemporary Carnatic music, 72 Melakarta ragas are there.

• In Carnatic music, Melakarta is a collection of fundamental music scales.

• In this ragas contai all seven swaras.

• Ascending and descending notes have the same notes sometimes.

• 72 Melakarta is divided into two parts "Sudha Madhyama" and "Prati Madhyama".

• This 72 Melakarta rag has 12 groups that are called chakras.

• The chakras are Indu chakra, Netra chakra, Agni chakra, Veda chakra, Bana chakra, Rutu chakra, Rishi chakra, Vasu chakra, Bramha chakra, Disi chakra, Rudra chakra, Aditiya chakra.

• Hanumatodi is one of the ragas from Netra Chakra.

Q43. Answer: (b) Sasmita Lenka

The correct answer is Sasmita Lenka.

Key Points

• Sasmita Lenka became the first official in India to be felicitated with United Nations Asia Environmental Enforcement Award in February 2021 under the Gender Leadership and impact category.

• Sasmita Lenka, who is a divisional forest officer in Athgarh, Cuttack, received the award under the 'Gender Leadership and Impact' category for her work in helping in busting pangolin smuggling rackets in the state.

Additional Information

• Namita Gokhale is the author of twenty books and the Sahitya Akademi (National Academy of Letters) awardee for 2021. She is co-founder and co-director (with William Dalrymple) of the Jaipur Literature Festival. Her acclaimed debut novel, ‘Paro: Dreams of Passion’, was published in 1984.

• Inspector Sudarshan Panthee received the Asia Environmental Enforcement Award from the United Nations for their role in arresting notorious wildlife smuggler Kunjok Chhiring Lama in June 2020.

Q44. Answer: (b) 5

Shortcut Trick

Efficiency of 1 Man = 1/20 and 1 Woman = 1/30.

Required Efficiency for 2 Men and 3 Women = (2 × 1/20) + (3 × 1/30).

=> 1/10 + 1/10 = 2/10 = 1/5.

Total Time taken = Reciprocal of combined efficiency = 5 days.

Therefore The correct answer is 5 days.

Alternate Method

Given:

Time taken by one man = 20 days

Time taken by one woman = 30 days

Formula Used:

Total Work = Efficiency × Time

Person	Days	Total Work	Efficiency
1 Man	20	60 (LCM of 20, 30)	3
1 Woman	30	2	

Calculations:

=> Total Work = LCM(20, 30) = 60 units.

=> Efficiency of 1 man = 60 ÷ 20 = 3 units/day.

=> Efficiency of 1 woman = 60 ÷ 30 = 2 units/day.

=> Efficiency of 2 men = 2 × 3 = 6 units/day.

=> Efficiency of 3 women = 3 × 2 = 6 units/day.

=> Combined Efficiency (2 men + 3 women) = 6 + 6 = 12 units/day.

=> Time required = Total Work ÷ Total Efficiency

=> Time = 60 ÷ 12 = 5 days.

Therefore The correct answer is 5 days.

Additional Information

Work and Efficiency Relationship

Efficiency is inversely proportional to the time taken to complete a task. Efficiency = 1 ÷ Time.

Combined Work Formula

If A takes 'x' days and B takes 'y' days, together they take (x × y) ÷ (x + y) days to finish the work.

Wages and Efficiency

In Time and Work, wages are always distributed in the ratio of the work done or the ratio of efficiencies of the workers.

Q45. Answer: (b) 60

Given:

0.17y = 10.2

Calculation:

0.17y = 10.2

=> y = 10.2 ÷ 0.17

=> y = 60

Therefore The value of y is 60.

Q46. Answer: (a) 1974

The correct answer is 1974.

Key Points

• The Central Pollution Control Board was set up by the government in the year 1974.

• The Central Pollution Control Board (CPCB) of India is a statutory organization under the Ministry of Environment, Forest and Climate Change (Mo.E.F.C.C.).

• It was established in 1974 under the Water (Prevention and Control of Pollution) Act, 1974.

• The CPCB is also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

• The board has approximately 500 full-time employees.

• It Coordinates the activities of the State Pollution Control Boards by providing technical assistance and guidance and also resolves disputes among them.

• It is the apex organization in the country in the field of pollution control, as a technical wing of MoEFCC.

Q47. Answer: (d) Rana Kumbha

The correct answer is Rana Kumbha.

Key Points

• Rana Kumbha defeated Mahmud Khilji and erected the tower of victory (Vijay Stambha) in Chittorgarh.

• Situated in Chittor Fort of Chittorgarh or Vijay Stambh (1440-48) was built by Maharana Kumbha (King of Mewar).

• It is representative of victory because Maharana Kumbha defeated Mahmood Khilji in 1437.

• Its architect was Rao Jaita.

• It is also called Kriti Stambha/Kiriti Stambha or Vishnu Stambha.

• Mahmood Khilji had a combined army of Gujarat & Malwa which he had used in the Sarangpur war.

• The statue is the symbol of the Rajasthan Police & Secondary Education Board.

Additional Information

• Rana Kumbha achievements

• Rana Kumbha defeated Sultan Mehmood Khilji of Malwa.

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• According to inscriptions, he brought Mehmood Khilji as a prisoner.
• He kept him in prison for six months and sent him back to his Kingdom.
• Later After making military preparations, Mehmood Khilji invaded Mewar.
• He destroyed the temple at Kumbhalgarh but failed to conquer Mewar.

Q48. Answer: (c) F

Given that:-
• H is shorter than E only.
E > H > - > - > -
• F is not as tall as P. P is shorter than G.
F < P < G
• H is taller than G
H>G
• Then final arrangement is:-
F < P < G < H < E
• Thus, F is the shortest person.
Hence, "option 3" is the correct answer.

Q49. Answer: (a) 4

Given:
4, 5, 6, 7, 8, 12, 9, 12, 5, 12
Concept used:
The mode is the most frequently occurring value on the list.
Total = Mean (Average) × number of entities
Calculation:
Given series is
4, 5, 6, 7, 8, 12, 9, 12, 5, 12
Mean of the series = 80 ÷ 10 = 8
Mode of the series = 12
Difference in the mode and the mean of the observations = 12 - 8 = 4
Therefore 4 is the difference in the mode and the mean of the observations.

Q50. Answer: (b) B or C

Given that:-
• D is taller than A and E.
• A is taller than F.
• E is taller than F.
Case 1: D > A > E > F
Case 2: D > E > A > F
• F is taller than B and C.
Case 1: D > A > E > F > B/C > C/B
Case 2: D > E > A > F > B/C > C/B
• Either B or C is the shortest person.
Hence, "option 2" is the correct answer.

Q51. Answer: (d) Chittaranjan Locomotive Works

The correct answer is Chittaranjan Locomotive Works.
Key Points
• Chittaranjan Locomotive Works is located in Chittaranjan, West Bengal (32 km from Asansol).
• Production began on January 26, 1950, and the first steam locomotive rolled out of the Chittaranjan Locomotive Works (CLW) factory on November 1.
• Known as Loco Manufacturing Works earlier, it was renamed on November 1 as a tribute to the famous freedom fighter from Bengal, Deshbandhu Chittaranjan Das.

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• LW is the first production unit of its kind in the developing world, second in Asia and fifth in the world, to manufacture the three-phase state-of-the-art GTO thyristor-controlled electric loco, and the 6,000 hp freight electric loco WAG-9, called Navyug.

• It is to CLW's credit that today, India is among the select band of five nations with the capability to manufacture the three-phase electric locomotives.

Additional Information

• Rail Wheel Factory formerly known as Wheel and Axle Plant is situated in Bangalore, Karnataka.

• Integral Coach Factory is located in Perambur (Chennai). India's fastest train, Train 18 which is also known as the "Vande Bharat" express was developed in ICF, Chennai.

• The Diesel Locomotive Works (DLW) in Varanasi, India, is a production unit owned by Indian Railways, that manufactures diesel-electric locomotives and their spare parts.

Q52. Answer: (b) 7546 m²

Given:

The circumference of a circle is given as 308 m.

Concept used:

The circumference of a circle = 2πR

The area of a circle = πR2

Where R is the radius.

Calculation:

Let the radius of the circle be R meter.

According to the question,

2πR = 308

=> 2 × 22/7 × R = 308

=> R = 49

=> $\pi R^2 = 22/7 \times 49^2$

=> πR2 = 7546

Therefore The area of the circle is 7546m².

Q53. Answer: (b) 25%

Shortcut Trick

Let the Cost Price (CP) be 100.

Selling Price (SP) with 12.5% gain = 100 + 12.5 = 112.5.

This SP is after a 10% discount on Marked Price (MP), so 90% of MP = 112.5.

MP = 112.5 ÷ 0.9 = 125.

If sold at MP, Profit = 125 − 100 = 25.

Profit% = (25 ÷ 100) × 100 = 25%.

Therefore The correct answer is 25%.

Alternate Method

Given: Discount = 10%, Profit = 12.5%.

Formula: CP ÷ MP = (100 − Discount%) ÷ (100 + Profit%)

=> CP ÷ MP = (100 − 10) ÷ (100 + 12.5)

=> CP ÷ MP = 90 ÷ 112.5

=> CP ÷ MP = 900 ÷ 1125 = 4 ÷ 5

=> If sold at MP, Profit = MP − CP = 5 − 4 = 1 unit

=> Profit% = (1 ÷ 4) × 100 = 25%

Therefore The correct answer is 25%.

Additional Information

Relation between CP and MP

The ratio of Cost Price to Marked Price is always (100 − D%) : (100 + P%).

Profit at Marked Price

When no discount is offered, the Marked Price becomes the Selling Price.

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Q54. Answer: (b) administration of union territories by President

The correct answer is the administration of union territories by the President.

Key Points

• Article 239

• Administration of union territories.

• The president may appoint the governor of the state as the administrator, where he exercises his functions as such administrative independently of his council of ministers

Confusion Points

• Article 239AA. Special provisions concerning Delhi

• From the date of commencement of the Constitution (Sixty-ninth Amendment) Act, 1991.

• The Union Territory of Delhi shall be called the National Capital Territory of Delhi.

Additional Information

• Part-8 of the Indian Constitution deals with the Union Territory.

• The Union Territory of India is described between articles 239 to 242 in our constitution.

• There were 9 union territories in India but from 26th January 2020, Dadra and Nager Haveli and Daman and Diu are to be combined into a single territory, thus resulting in 8 Union Territories in India now.

Q55. Answer: (a) 71

Given:

The average of 30 numbers is 55. The average of the first 15 numbers is 51 and the average of the last 12 numbers is 56.

Concept used:

Total = Average × Number of Entities

Calculation:

Sum of all 30 terms = 30 × 55 = 1650

Sum of first 15 terms = 15× 51 = 765

Sum of last 12 terms = 12 × 56 = 672

After removing first 15 and last 12 terms out of, there will be 3 terms remaining

=> Sum of remaining 3 terms = 1650 - (765 + 672) = 213

According to the question, 68 and 74 are added to the sum of 3 terms

Thus, the number of total terms becomes 5

Average of 5 terms = (213 + 68 + 74)/5 = 71

Therefore 71 is the average of 68, 74 and the remaining 3 numbers.

Q56. Answer: (b) The United States of America

The correct answer is The United States of America.

Key Points

• According to Renewable Fuel Association (RFA) data 2020, The United States is the world's largest producer of ethanol, having produced over 13.94 billion gallons followed by Brazil at 8.08 billion gallons in 2020.

• Together, the United States and Brazil produce 82% of the world's ethanol.

Additional Information

• Ethanol can be produced from sugarcane, maize, wheat, etc which are having high starch content.

• In India, ethanol is mainly produced from sugarcane molasses by the fermentation process.

• Ethanol can be mixed with the gasoline to form different blends.

• As the ethanol molecule contains oxygen, it allows the engine to completely combust the fuel, resulting in fewer emissions and thereby reducing the occurrence of environmental pollution.

• Since ethanol is produced from plants that harness the power of the sun, ethanol is also considered a renewable fuel.

Important Points

• The government of India has been promoting the use of ethanol as a blendstock with main automotive fuels like petrol in line with the National Policy on Biofuels (NBP) -2018 under the Ethanol Blended Petrol (EBP) Program.

• This policy envisages an indicative target of blending 20 per cent ethanol in petrol by 5 years to 2025-26.

Q57. Answer: (a) USA

The correct answer is the USA.

Key Points

• The USA is the highest per capita total spending on health worldwide.

• The total health expenditure in the U.S. exceeded four trillion dollars.

Additional Information

• Organization for Economic Co-operation and Development (OECD)

• It is an intergovernmental economic organization with 38 member countries, founded in 1961 to stimulate economic progress and world trade.

• India is not a member of OECD but has been a key economic partner.

• OECD Headquarters: Paris, France

• OECD Founded: 30 September 1961

Q58. Answer: (a) Profit, Rs. 324

Given:

The ratio between the marked price and the cost price of an article is 5 : 3.

Selling price = Rs. 3024

Concept used:

Final discount percentage after two successive discounts of A% and B% = (A + B - AB/100)%

Selling Price = Marked Price × (1 - Discount%)

Profit = Selling Price - Cost Price

Calculation:

Let the common ratio be Q.

Hence, the marked and cost price of the article is 5Q and 3Q respectively.

Final discount percentage after two successive discounts of A% and B% = (16 + 20 - (16 × 20)/100)% = 32.8%

According to the question,

5Q × (1 - 0.328) = 3024

=> 5Q = 4500

=> Q = 900

=> 3Q = 2700

Hence, profit made = 3024 - 2700 = Rs. 324

Therefore The profit is Rs. 324.

Q59. Answer: (b) 16

Shortcut Trick

The circle touches the parallel sides AB and CD of the rectangle.

Diameter of the circle = Distance between AB and CD = BC = 8 cm.

Radius (r) of the circle = 8 ÷ 2 = 4 cm.

In ΔOBC, the base is BC = 8 cm and the height (altitude from O) is the radius = 4 cm.

Area of ΔOBC = 1/2 × base × height = 1/2 × 8 × 4 = 16 cm².

Therefore The correct answer is 16 cm².

Alternate Method

Given: AB = 10 cm, BC = 8 cm. Circle touches AB, BC, and CD.

Formula: Area of Triangle = 1/2 × base × height.

=> In rectangle ABCD, side AB is parallel to CD.

=> The distance between AB and CD is BC = 8 cm.

=> Since the circle touches AB and CD, its diameter = 8 cm.

=> Radius of the circle (r) = 8 ÷ 2 = 4 cm.

=> The circle also touches side BC, so the distance from the center O to BC is the radius.

=> In ΔOBC, let base = BC = 8 cm.

=> Height of ΔOBC = Distance from O to BC = radius = 4 cm.

=> Area of ΔOBC = 1/2 × 8 × 4

=> Area of ΔOBC = 4 × 4 = 16 cm².

Therefore The correct answer is 16 cm².

Additional Information

Properties of Inscribed Circles

When a circle touches two parallel lines, its diameter is equal to the perpendicular distance between those lines.

Area of Triangle

The area of any triangle is calculated as 1/2 × base × height, where the height is the perpendicular distance from the opposite vertex to the base line.

Rectangle Geometry

In a rectangle ABCD, opposite sides are equal and parallel (AB = CD and BC = AD), and all interior angles are 90°.

Q60. Answer: (b) Tauktae

The correct answer is Tauktae.

Key Points

• Cyclone Tauktae

• It was the first cyclonic storm of 2021 that emerged from the Arabian Sea.

• It hit southern Gujarat on 17 May 2021 and was classified as a Very Severe Cyclonic Storm (VSCS).

• It is a tropical cyclone, It has been named by Myanmar.

• It means 'gecko', a highly vocal lizard, in the Burmese language.

Additional Information

• Tropical Cyclones

• Tropical cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas bringing about large-scale destruction due to violent winds (squalls), very heavy rainfall (torrential rainfall) and storm surge.

• They are irregular wind movements involving the closed circulation of air around a low-pressure centre.

• Conditions Favourable for Tropical Cyclone Formation

• Large sea surface with a temperature higher than 27° C,

• The presence of the Coriolis force is enough to create a cyclonic vortex,

• Small variations in the vertical wind speed,

• A pre-existing weak low-pressure area or low-level-cyclonic circulation,

• Upper divergence above the sea level system.

• The depth of warm water (26-27°C) should extend for 60-70 m from the surface of the ocean/sea, so that deep convection currents within the water do not churn and mix the cooler water below with the warmer water near the surface.

• The above condition occurs only in western tropical oceans because of warm ocean currents (easterly trade winds push ocean waters towards the west) that flow from the east towards the west forming a thick layer of water with temperatures greater than 27°C. This supplies enough moisture to the storm.

• The cold currents lower the surface temperatures of the eastern parts of the tropical oceans making them unfit for the breeding of cyclonic storms.

Q61. Answer: (c) 9091/3

Given:

The outer radius of a spherical shell is 9 cm and the thickness of the shell is 1 cm.

Concept used:

Volume of a sphere = 4/3 × π × (Radius^3)

Calculation:

Hence, the radius of the inner part = 9 - 1 = 8 cm

The volume of the metal used for the shell should equal the difference between the volume of the outer and inner parts.

Thus, The volume of the metal used for the shell

=> 4/3 × π × (9^3 - 8^3)

=> 9091/3 cm^3

Therefore The volume of the metal used for the shell is 9091/3 cm3.

Q62. Answer: (d) 10

Given:

Five years ago, ages of father and his son were in the ratio 7 : 2.

Five years hence, ages of the father and his son will be in the ratio 9 : 4.

Concept used:

Ratio Proportion

Calculation:
Let the common ratio be Q.
Hence, five years ago, the ages of the father and his son were 7Q and 2Q years
According to the question,
(7Q + 5 + 5) : (2Q + 5 + 5) = 9 : 4
=> 28Q + 40 = 18Q + 90
=> Q = 5
Present age
Father = 7Q + 5 = 7 × 5 + 5 = 40
Son = 2Q + 5 = 2 × 5 + 5 = 15
Let after P years the father's age will be twice the age of his son.
According to the question,
40 + P = 2 × (15 + P)
=> P = 10
Therefore After 10 years the father's age will be twice the age of his son.

Q63. Answer: (d) East

Given that:-
• Giridhar was at a temple and was facing west.
• He turns 45° in the clockwise direction to collect a token, then another 180° in the clockwise direction.
• He then turned 45° in the anti-clockwise direction.
The diagram is given below:-
• The east direction he is facing now.
Hence, "option 4" is the correct answer.

Q64. Answer: (a) D

Given that:-
B sits second to the right of E.
C sits to the immediate left of E.
F sits second to the right of D.
D sits third to the right of A.

Q65. Answer: (a) 1/2

Concept used:
Calculation:
(12 - 6 ÷ 2 + 4)/(3² × 3 - 7 + 6)
=> 12 - 3 + 4 over 27 - 7 + 6
=> 13/26
=> 1/2
Therefore The simplified value is 1/2.

Q66. Answer: (a) 42

Given:
y = cbrt6 - 4
Concept used:
$(A + B)^3 = A^3 + 3A^2B + 3AB^2 + B^3$
Calculation:
y = cbrt6 - 4
=> y + 4 = cbrt6
=> $(y + 4)^3 = 6$
=> $y^3 + 12y^2 + 48y + 64 = 6$
=> y3 + 12y2 + 48y + 64 + 36 = 6 + 36
=> y3 + 12y2 + 48y + 64 + 36 = 42

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Therefore The value of y3 + 12y2 + 48y + 64 + 36 is 42.

Q67. Answer: (c) 7

Given:

k is average of 16, 25, 13, 26 and 15

Concept used:

Total = Mean (Average) × number of entities

Calculation:

Average of 16, 25, 13, 26 and 15 = Sum (16, 25, 13, 26, 15) ÷ 5 = 19

Hence,

√(2k + 11)

=> √(2 × 19 + 11)

=> √49

=> 7

Therefore The value of √(2k + 11) is 7.

Q68. Answer: (b) 27

Given:

K is the product of the greatest and the smallest of the numbers 1/4, 2/3, 4/5, 5/8, 3/4.

Concept used:

Concept of comparing fractions

Calculation:

Given numbers,

1/4 = 1/4 × 120 = 30

2/3 = 2/3 × 120 = 80

4/5 = 4/5 × 120 = 96

5/8 = 5/8 × 120 = 75

3/4 = 3/4 × 120 = 90

Hence,

Greatest number = 4/5

Smallest number = 1/4

thus,

k = 4/5 × 1/4 = 1/5 and 1/k = 5

Now,

(1/k + 4)(1/k - 2)

=> (5 + 4) (5 - 2)

=> 9 × 3

=> 27

Therefore The value of (1/k + 4)(1/k - 2) is 27.

Q69. Answer: (a) 4 : 5

Shortcut Trick

Equate the coefficients: (2/3) × y = (8/15) × z

Cross-multiply to find the ratio y : z directly.

y : z = (8/15) ÷ (2/3) = (8/15) × (3/2) = 4/5

Therefore The correct answer is 4 : 5.

Alternate Method

Given:

(2/3) × y = (8/15) × z

Calculations:

=> y / z = (8 / 15) / (2 / 3)

=> y / z = (8 / 15) × (3 / 2)

=> y / z = (8 × 3) / (15 × 2)

=> y / z = 24 / 30

=> y / z = 4 / 5

=> y : z = 4 : 5

Therefore The correct answer is 4 : 5.

Additional Information

Ratio of Fractions

To find the ratio a : b when ma = nb, the ratio is always a/b = n/m.

Inverse Proportion

If two quantities are equated with different coefficients, their individual values are in the inverse ratio of those coefficients.

Q70. Answer: (d) direct change of a substance from a solid to a gas state

The correct answer is the direct change of a substance from a solid to a gas state.

Key Points

• Sublimation is a process in which a solid transforms directly into vapours without changing into liquid.

• This phenomenon can be seen in camphor or naphthalene balls.

• In the process snow or ice transforms directly into water vapour without becoming water.

Additional Information

• Deposition - It is the process of conversion of a gas to a solid.

• Evaporation - It is the process of conversion of a liquid into gas.

• Fusion/Melting - It is the process of conversion of a solid into a liquid.

• Condensation - It is the process of conversion of a gas into a liquid.

Q71. Answer: (d) KK Shailaja

The correct answer is KK Shailaja.

Key Points

• Former Kerala Health Minister KK Shailaja has been awarded the prestigious Central European University (CEU) Open Society Prize in recognition of her commitment to public health services.

• The Open Society Prize was announced during the 30th graduation ceremony which was held online.

• The prize is awarded annually to persons of exceptional distinction who serve the ideals of an open society.

Additional Information

• Central European University (CEU)

• It is an undergraduate- and graduate-level “crossroads” university.

• It was founded in 1991.

• It was located in Budapest, Hungary.

Q72. Answer: (c) Rs. 1,800

Shortcut Trick

If the entire Rs. 5,000 was invested at 10%, the interest for 2 years would be = (5000 × 10 × 2) ÷ 100 = Rs. 1,000.

Actual interest accrued is Rs. 1,072, which is an extra 1072 − 1000 = Rs. 72.

This extra Rs. 72 is generated because the first part was invested at an extra 2% (12% − 10%) for 2 years.

Therefore 2% of Sum1 × 2 = Rs. 72 => 4% of Sum1 = Rs. 72

=> Sum1 = 72 × (100 ÷ 4) = Rs. 1,800

Therefore The correct answer is Rs. 1,800.

Alternate Method

Given:

Total Principal = Rs. 5,000

Rate1 = 12% p.a., Rate2 = 10% p.a.

Total Time = 2 years

Total Simple Interest = Rs. 1,072

Formula Used:

Simple Interest (SI) = (P × R × T) ÷ 100

Total Sum = Rs. 5000

Part 1: Rs. x

Rate: 12% | Time: 2 yr

Part 2: Rs. (5000 − x)

Rate: 10% | Time: 2 yr

Interest 1

Interest 2

Total SI = Rs. 1072

Calculation:

Let the sum invested at 12% p.a. be Rs. x.

Then, the sum invested at 10% p.a. will be Rs. (5000 − x).

=> SI1 + SI2 = 1072

=> (x × 12 × 2) ÷ 100 + ((5000 − x) × 10 × 2) ÷ 100 = 1072

=> 24x ÷ 100 + (100000 − 20x) ÷ 100 = 1072

=> 24x + 100000 − 20x = 107200

=> 4x = 107200 − 100000

=> 4x = 7200

=> x = 1800

Therefore The correct answer is Rs. 1,800.

Additional Information

Simple Interest (SI)

Calculated strictly on the original principal. The interest accumulated does not earn further interest. Formula: SI = (P × R × T) ÷ 100

Compound Interest (CI)

Calculated on the initial principal and also on the accumulated interest of previous periods. Formula: Amount = P(1 + R ÷ 100)^T

Alligation Method for Interest

When a total sum is split and invested at two different rates, the ratio of the split principals can be found directly using the net average interest rate through the alligation cross.

Q73. Answer: (c) Brother

The family tree is given below:-

• Z is the brother of P.

Hence, "option 3" is the correct answer.

Q74. Answer: (b) ÷, ×

Given that: 4 ÷ 8 + 5 - 6 × 2 = 34

• From option 1:-

Interchange +, -

4 ÷ 8 - 5 + 6 × 2 = 34

Applying BODMAS rule:-

0.5 - 5 + 6 × 2 = 34

0.5 - 5 + 12 = 34

0.5 - 17 = 34

-16.5 ≠ 34

• From option 2:

Interchange ÷, ×

4 × 8 + 5 - 6 ÷ 2 = 34

Applying BODMAS rule:-

4 × 8 + 5 - 3 = 34

32 + 5 - 3 = 34

37 - 3 = 34

34 = 34

• From option 3:

Interchange ÷, +

4 + 8 ÷ 5 - 6 × 2 = 34

Applying BODMAS rule:-

4 + 1.6 - 6 × 2 = 34

4 + 1.6 - 12 = 34

5.6 - 12 = 34

-6.4 ≠ 34,

• From option 4:-

Interchange ×, +

4 ÷ 8 × 5 - 6 + 2 = 34

Applying BODMAS rule:-

0.5 × 5 - 6 + 2 = 34

2.5 - 6 + 2 = 34

4.5 - 6 = 34

-1.5 ≠ 34

Hence, "option 2" is the correct answer.

Q75. Answer: (b) 41/40

Given:

1 - ((4 ÷ 5 - 1 × 3 + 2) × 8)/(3² × 8 - 4 × 2)

Concept used:

Calculation:

1 - ((4 ÷ 5 - 1 × 3 + 2) × 8)/(3² × 8 - 4 × 2)

=> 1 - ((0.8 - 1 × 3 + 2) × 8)/(3² × 8 - 4 × 2)

=> 1 - ((0.8 - 3 + 2) × 8)/(9 × 8 - 4 × 2)

=> 1 - ((-0.2) × 8)/(72 - 8)

=> 1 - (-1.6)/64

=> 1 + 1.6/64

=> 1 + 0.025

=> 1.025

=> 41/40

Therefore The simplified value of 1 - ((4 ÷ 5 - 1 × 3 + 2) × 8)/(3² × 8 - 4 × 2) is 41/40.

Q76. Answer: (b) 90°

Given:

AB and CD are parallel tangents to a circle with centre O. Points P and Q are on AB and CD, respectively, such that PQ touches the circle at R.

Concept used:

AB, and AC are two tangents drawn from point A. Here, P and Q are points on AB and AC respectively such that PQ touches the circle at R.

Here, the centre is O.

Hence, PO bisects the angles at angle BOR and QO bisects the angle at angle COR.

Calculation:

Since PQ is tangent to the circle at R,

PO bisects the angles at angle EOR.

Thus, angle EOP = angle POR = θ1 (let)

QO bisects the angle at angle FOR.

Thus, angle FOQ = angle QOR = θ2 (let)

Since AB and CD are parallel tangents to the circle, EF has to be a straight line.

Thus from the diagram,

angle EOP + angle POR + angle FOQ + angle QOR = 180°

=> 2 (θ1 + θ2) = 180°

=> (θ1 + θ2) = 90°

=> angle POQ = 90°

Therefore The measure of angle POQ is 90°.

Q77. Answer: (a) Harshit Raja

The correct answer is Harshit Raja.

Key Points

• Harshit Raja, a 20-year-old chess player from Pune, Maharashtra, has become India's 69th Grandmaster of Chess.

• He achieved the feat of becoming the GM at Biel Masters Open 2021 where he drew his game against Dennis Wagner to get his final GM norm with one round to spare.

• He won silver in U-13 National Chess Championship in Jamshedpur in 2014 and gold in the SGFI Nationals held in Tamil Nadu the same year.

• He represented India in World Youth Chess Championship U-14 in Greece in 2015.

Additional Information

• Federation Internationale des Echecs-FIDE is the highest authority of chess.

• It is also known as the "World Chess Federation".

• FIDE was founded on 20 July 1924.

• Chess players are awarded Grandmaster (GM) degrees by the World Chess Federation (FIDE).

• This is the highest book a chess player can get.

• India's First grandmaster - Viswanathan Anand

• India's First woman grandmaster - Subbaraman Vijayalakshmi

• By July 2020, 65 Indian chess players had won the Grand Master title.

Q78. Answer: (d) Rs. 13,500

Given:

The radius of the base of a conical tent is 9 m and its height is 12 m

Concept used:

Curved surface area of a cone = π × Radius × Slant Height

Slant height = √(Radius² + Height²)

Calculation:

Slant height of the conical tent = √(12² + 9²) = 15 cm

Hence, the curved surface area of the conical tent = π × 9 × 15 = 135π m²

Thus, the cost of the material = (135π × 100) ÷ π = Rs. 13,500

Therefore The cost of the material is Rs. 13,500.

Q79. Answer: (a) Assam

The correct answer is Assam.

Key Points

• Bodo language is spoken mainly in Assam.

• Boro, also called Bodo, is the largest ethnolinguistic group in the Assam state of India.

• They are spread across north-eastern India.

• They are concentrated mainly in the Bodoland Territorial Region of Assam, though Bodos inhabit all other districts of Assam and Meghalaya.

• Bodos are officially identified as "Boro, Borokachari" scheduled tribe under the Constitution of India.

• Bodos speak Bodo language, which is recognised as one of twenty-two Scheduled languages of India.

Additional Information

• In May 2022, President Ram Nath Kovind attended the concluding session of the 61st Bodo Sahitya Sabha at Kachubri in Tamulpur district, Assam.

• It was a historic moment for Bodo Sahitya Sabha as no President of India has ever participated in a literary program of any language in the Northeast region.

Q80. Answer: (a) Coulomb

The correct answer is Coulomb.

Key Points

• The SI unit of electric charge is Coulomb.

SI Unit	Physical Quantity
Watt	Power

Ohm	Electrical Resistance
Volt	Potential Difference

Additional Information

• There are 7 base Units, which are -

Quantity	Unit
Length	Metre
Time	Second
Amount of Substance	Mole
Electric Current	Ampere
Temperature	Kelvin
Luminous Intensity	Candela
Mass	Kilogram

Q81. Answer: (d) 27

Given that -

• Aman's rank is 11th from the top and Nikhil's rank is 13th from the bottom. Only three students ranked between Aman and Nikhil.

• Total number of students are = 11 + 13 + 3 = 27

• The total number of students is an odd number divisible by 3. i.e. 27.

Hence, "option 4" is the correct answer.

Q82. Answer: (a) 7

The correct answer is 7.

Key Points

• As of December 2021, the total number of nuclear power plants in India is 7.

• Following coal, gas, hydroelectricity, and wind power, nuclear power is India's fifth-largest source of electricity.

• India also stands at 7th position in terms of the number of nuclear reactors in the world, with over 23 nuclear reactors in 7 power plants as of December 2021, which produces 6780 MW of nuclear power.

Additional Information

Nuclear Plants	Location
Kakrapar Atomic Power Station – 1993	Gujarat
(Kalpakkam) Madras Atomic Power Station – 1984	Tamil Nadu
Narora Atomic Power Station- 1991	Uttar Pradesh
Kaiga Nuclear Power Plant -2000	Karnataka
Rajasthan Atomic Power Station – 1973	Rajasthan
Tarapur Atomic Power Station – 1969	Maharashtra
Kudankulam Nuclear Power Plant – 2013	Tamil Nadu

Q83. Answer: (d) (3, 2)

Shortcut Trick

The second equation $y^2 - 4y + 4 = 0$ directly factors into a perfect square: $(y - 2)^2 = 0$.

This gives y = 2 immediately without calculation.

Substitute y = 2 mentally into the first equation: 3x + 2(2) = 13.

3x + 4 = 13 => 3x = 9 => x = 3.

Therefore The correct answer is (3, 2).

Alternate Method

Given:

Equation 1: 3x + 2y = 13

Equation 2: $y^2 - 4y + 4 = 0$

Calculations:

=> $y^2 - 4y + 4 = 0$

=> $y^2 - 2y - 2y + 4 = 0$

=> $y(y - 2) - 2(y - 2) = 0$

=> $(y - 2)(y - 2) = 0$

=> $y = 2$

Substitute the value of y in Equation 1:

=> $3x + 2(2) = 13$

=> $3x + 4 = 13$

=> $3x = 13 - 4$

=> $3x = 9$

=> $x = 3$

Hence, the coordinates (x, y) are (3, 2).

Therefore The correct answer is (3, 2).

Additional Information

Perfect Square Trinomial

An algebraic expression of the form $a^2 - 2ab + b^2$ can be directly factored into $(a - b)^2$. Identifying perfect squares saves calculation time in quadratic equations.

Nature of Roots (Quadratic Equation)

For a standard quadratic equation $ay^2 + by + c = 0$, the discriminant is given by $D = b^2 - 4ac$. When D = 0, the roots are real and equal, indicating that the graph touches the axis at exactly one point.

Solving Linear Equations in Two Variables

Once the exact value of one variable is known (e.g., y = 2), the substitution method is the fastest approach. Substitute the known value into the linear equation to solve for the second variable.

Q84. Answer: (c) √5 + 2

Given:

$2\sin y + \cos y = \sqrt{5} \sin y$

Concept used:

$\tan y = \sin y/\cos y$

$(a + b)(a - b) = a^2 - b^2$

Calculation:

$2\sin y + \cos y = \sqrt{5} \sin y$

=> $\sin y (\sqrt{5} - 2) = \cos y$

=> $\tan y = 1/(\sqrt{5} - 2)$

=> $\tan y = (\sqrt{5} + 2)$ over $(\sqrt{5} + 2) \times (\sqrt{5} - 2)$

=> $\tan y = \sqrt{5} + 2$

Therefore The value of tan y is √5 + 2.

Q85. Answer: (c) International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

The correct answer is International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

Key Points

• Hyderabad-based International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has been awarded the Africa Food Prize 2021 for improving food security in sub-Saharan Africa.

• The award was given away at the Africa Forum for Green Revolution (AGRF) 2021 Summit in September 2021.

• ICRISAT got the award for the Tropical Legumes Project.

Additional Information

• The project has been implemented in Burkina Faso, Ghana, Mali, Niger, Nigeria, Senegal, Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda, and Zimbabwe.

• Between 2007 and 2019, ICRISAT, which has its headquarters at Patancheru on the outskirts of Hyderabad, led a collaboration of partners to deliver the Tropical Legumes Project.

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• As a part of the Tropical Legumes Project, in India, the national program on developing improved varieties of chickpea resulted in area enhancement of up to 68 %.

• The project, undertaken with national and international institutions, developed 266 improved legume varieties and almost half a million tons of seed for a range of legume crops, including cowpeas, pigeon peas, chickpea, common bean, groundnut, and soybean.

Q86. Answer: (c) 15

Given that Ramesh ranked 16th from the top and 21st from the bottom in his class in an examination.

• Total number of students = rank from top + rank from bottom - 1

• Total number of students = 16 + 21 - 1 = 36

• Only 21 students passed the exam.

• Number of student failed in his class = 36 - 21 = 15

Hence, "option 3" is the correct answer.

Q87. Answer: (c) One

Given that:-

E sits fourth from one of the extreme ends of the line.

H sits third to the right of E.

As many people sit to the right of H as to the left of M.

Only one person sits between M and P. Therefore case 1 gets eliminated.

S sits to the immediate right of Z.

Only one person sits between Z and T.

• Thus, only one person sits to the left of Y.

Q88. Answer: (c) Hong Kong, China (SAR)

The correct answer is Hong Kong, China (SAR).

Key Points

• As per Human Development Index Ranking (2020), Hong Kong, China (SAR) has the highest life expectancy at birth (years), which is 84.9 years.84.9

• India has been positioned at 131 out of 189 countries and territories, according to Human Development Index report (2020).

• As per Human Development Index Ranking (2020), India's life expectancy at birth (years) is 69.7 years.

• According to all three Dimensions (Life expectancy, Access to knowledge, and standard of living) of HDI-2020, Norway (1st) topped the index, followed by Ireland (2nd), Switzerland (3rd), Hong Kong (4th), and Iceland (5th).

• The report is released by the United Nations Development Programme (UNDP).

Important Points

• Human Development Report has based on three Basic Dimensions:

• Life expectancy at birth (years) SDG3

• Access to knowledge/ Expected years of schooling (years).

• A decent standard of living./Gross national income (GNI) per capita

• The HDI is the geometric mean of the previous three normalized indices given above.

• Life expectancy at birth

• It is defined as how long a newborn can expect to live on average.

Q89. Answer: (c) Rs. 3,500

Shortcut Trick

Effective SI for 3 years at 20% = 20% × 3 = 60%

Effective CI for 3 years at 20% = 72.8%

Difference in effective rate = 72.8% − 60% = 12.8%

=> 12.8% of Principal = 448

=> Principal = (448 ÷ 12.8) × 100 = 3500

Therefore The correct answer is Rs. 3500.

Alternate Method

Given:

Rate of interest (R) = 20% per annum

Time (T) = 3 years

Difference between CI and SI (D) = Rs. 448

Formula Used:

For 3 years, the difference between CI and SI is given by:

$D = P \times (R/100)^2 \times (3 + R/100)$

Calculations:

$\Rightarrow 448 = P \times (20/100)^2 \times (3 + 20/100)$

$\Rightarrow 448 = P \times (1/5)^2 \times (15/5 + 1/5)$

$\Rightarrow 448 = P \times (1/25) \times (16/5)$

$\Rightarrow 448 = P \times (16/125)$

$\Rightarrow P = (448 \times 125) \div 16$

$\Rightarrow P = 28 \times 125$

$\Rightarrow P = 3500$

Therefore The correct answer is Rs. 3500.

Additional Information

Difference between CI and SI for 2 years

For a 2-year period, the difference formula simplifies to $D = P \times (R/100)^2$.

Effective Rate Method

For 3 years at rate R%, the effective CI is calculated as $(3R + 3R^2/100 + R^3/10000)\%$.

Compound Interest Formula

The amount after T years is A = P × (1 + R/100)^T, and Compound Interest = A − P.

Q90. Answer: (d) 1917

The correct answer is 1917.

Key Points

• The Champaran satyagraha took place on 19 April 1917.

• Champaran is a district in the state of Bihar.

• Champaran satyagraha came into force because farmers were forced to grow indigo in a part of their land. This created much anger among farmers.

• The European planters had been forcing the peasants to grow indigo on 3/20 part of the total land (called tinkathia system).

• Gandhi travelled across the district to different villages, meeting farmers and taking note of their sufferings and complaints against the forced indigo cultivation.

• His protest led to the abolishing of the exploitative tinkathia system.

• The victory at Champaran established Gandhiji in India's struggle against the British raj.

• This was the first Civil Disobedience Movement by Gandhi Ji in India.

Q91. Answer: (b) Sindhu Netra Satellite

The correct answer is Sindhu Netra Satellite.

Key Points

• The Sindhu Netra satellite has been developed by the young scientists of the Defence Research and Development Organisation (DRDO).

• ISRO launched the 'Sindhu Netra' satellite using, PSLV-C51 from the Satish Dhawan Space Centre in Sriharikota in Andhra Pradesh on 28 February 2021.

• It is capable of automatically identifying the warships and merchant ships operating in the Indian Ocean region.

Important Points

• India's Polar Satellite Launch Vehicle PSLV-C51 also launched Amazonia-1 along with 18 co-passenger satellites from Satish Dhawan Space Centre SHAR, Sriharikota.

• Amazônia-1 or SSR-1 is the first Earth observation satellite developed by Brazil and launched by NSIL with the help of ISRO.

• It is the 1st dedicated commercial mission of NewSpace India Limited (NSIL), a GoI company under the Space Department

Additional Information

• DRDO

• DRDO stands for Defence Research and Development Organisation.

• Headquarters: New Delhi

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• Founded: 1958
• Motto : Balasya Mulam Vigyanam (Strength's Origin is in Science)
• Chairperson: Dr Samir V Kamat

Q92. Answer: (d) Y

Given that:-
• N sits second from one of the extreme ends of the line.
• Only three people sit between M and N.
• P sits second to the right of M.
• As many people sit to the right of P as to the left of S.
• Exactly three people sit between T and S.
• T does not sit at any of the extreme ends of the line. Thus, case 2 gets eliminated.
• Y sits to the immediate right of X.
• Y sits third to the left of V.
Hence, "option 4" is the correct answer.

Q93. Answer: (c) HTTP

The correct answer is HTTP.
Key Points
• HTTP allows us to access the data over the World Wide Web.
• HTTP stands for Hypertext Transfer Protocol.
• Hypertext Transfer Protocol is an application protocol used for data communication.
• It is the base of data communication in the World Wide Web.
• It provides a standard for web browsers that facilitates users to exchange information over the internet.
• HTTP is used by most websites to access any file or page.
• HTTP is a request-response protocol in the client-server computing model. It is an application layer protocol designed within the framework of the Internet Protocol Suite.
• Hypertext - A text containing a link within it, is known as hypertext. If you click on a word on a webpage and it redirects you to a new page, it means you have clicked on a hypertext.

Q94. Answer: (a) 510

Given:
499.37 + 1.95 × 4.79 - 2.87 ÷ 19.70
Concept used:
Calculation:
499.37 + 1.95 × 4.79 - 2.87 ÷ 19.70
taking all approximate values as per convenience
=> 500 + 2 × 4.8 - 3 ÷ 20
=> 500 + 2 × 4.8 - (0.15)
=> 500 + 2 × 4.8 - 0.15
=> 509.45
which is the closest to 510.
Therefore The required answer is 510.

Q95. Answer: (b) Avani Lekhara

The correct answer is Avani Lekhara.
Key Points
• Avani Lekhara, an Indian shooter, won two Paralympic medals in the single edition of the Paralympic on 3 September 2021.
• Avani Lekhara won bronze in the women's 50m rifle 3 positions SH1 event with a score of 445.9 to become the first Indian woman to win two medals at the Paralympics.
• China's Zhang Cuiping won gold with a Paralympic Record score of 457.9, while Germany's Natascha Hiltrop took silver with a score of 457.1.
• Lekhara had also won gold in the 10m air rifle standing SH1 event.
• Avani Lekhara won the gold medal in the women’s 10 m air rifle Standing event in the SH 1 category at the Tokyo Paralympics.

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• She became the first Indian woman to win a gold medal at the Paralympics.
• Avani shot 249.6 points in the R2 women's 10m air rifle SH1 category for a Paralympic Record and equal to the World Record.

Important Points

• Avani Lekhara
• She is from Jaipur, Rajasthan.
• She is only a 19-year-old Indian Sports Talent.
• Avani has won many World Cup medals since 2017 including a Silver with a Junior World Record in R2 at the WSPS World Cup 2017, bronze at the WSPS World Cup Bangkok 2017, silver in the WSPS World Cup in Osijek, Croatia 2019 and silver in the WSPS World Cup Al-Ain 2021. She won the Tokyo Paralympics quota in February 2019 in the UAE.
• In 2012, the whole Lekhara family met with an accident on their way to Dholpur from Jaipur.
• The then 11-year-old Avani suffered a spinal cord injury and was paralysed below the waist.

Additional Information

• Manish Narwal
• He is a 19-year-old Indian shooter who won a gold medal in the mixed 50m pistol SH1 final at the Tokyo Paralympics.
• He hails from Sonipat, Haryana.
• Singhraj Adhana
• He bagged the bronze medal in the P1 men's 10m air pistol SH1 event at the Tokyo Paralympics.
• He belongs to Faridabad in Haryana.

Q96. Answer: (c) Wind

The correct answer is Wind.

Key Points

• Energy is one of the major parts of the economic infrastructure, being the basic input needed to sustain economic growth.
• There exists a strong relationship between economic development and energy consumption.
• The more developed a country is, the higher the per capita of energy consumption and vice-versa.
• Human civilization relies on different sources of energy.

Source of Non - conventional energy

Additional Information

• Wood:
• Wood forms the source of energy for a lot of people still living in rural areas.
• It has a low calorific value and cannot be used for industrial processes.
• Crop Residue:
• Crop residue is used as an energy source on farms.
• They have the least calorific value and are not found in abundant quantities.
• Petrol:
• Petrol is obtained from petroleum.
• products of petroleum are known as black gold.
• The caloric value of petrol is 45000 KJ/kg Where K = Kelvin, J = Joule and Kg = Kilogram.
• Coal:
• Coal is a sedimentary black or dark brown rock that varies in composition.
• Some types of coal burn hotter and cleaner, while others contain high moisture content.
• It contains compounds that contribute to acid rain and other pollution when burned.
• Used in industrial processes.

Q97. Answer: (a) 53

The correct answer is 53.

Key Points

• By the 2011 census, there were 53 million-plus cities in India, with Delhi, Mumbai, and Kolkata having populations over 10 million.
• There are 53 urban agglomerations in India with a population of 1 million or more by the 2011 census.
• According to the 2001 census, there were 35 cities in India that have more than 1 million population.
• 31.165 % population can be categorized under Urban as per the 2011 Census.
• By census 2011, Goa is the most urbanized state with 62.17% of the population living in urban areas.

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Additional Information

• According to Census 2001, over 70% lived in rural areas.

• By the 2001 census, 35 urban agglomerations in India with a population of 1 million or more.

Q98. Answer: (d) Only conclusion I follows.

The logical Venn diagram is given below:-

Conclusions:

I. Some athletes are rich. → True → (Some athletes are businessmen, All businessmen are rich. So some athletes are rich is also correct.)

II. No athlete is rich. → False → (because some athletes are rich.)

Hence, "option 4" is the correct answer.

Q99. Answer: (c) Kerala

The correct answer is Kerala.

Key Points

• A ceremonial dance involving masks is an ancient ritual performed in Bhagavati temples.

• The dance is performed in honor of Bhadrakaali. Meaning, a 'row of warriors',

• Padayani is an art form that blends music, dance, theatre, satire, facial masks, and paintings.

Additional Information

• Dance forms of Karnataka:

• Kunitha, Yakshagana, Sannatas, Parijata, Doddatas, etc.

• Dance forms of Maharashtra:

• Dhangari Gaja, Koli Dance, Lavani Dance, Povadas Dance,Tamasha etc.

• Dance forms of Kerala:

• Theyyam, Thiruvathirakali, Chakyar Koothu Koodiyattam, Ottamthullal, Mohiniyattam, Kathakali, Padayani, etc.

• Dance forms of Kerala:

• Theyyam, Thiruvathirakali, Chakyar Koothu Koodiyattam, Ottamthullal, Mohiniyattam, Kathakali, Padayani, etc.

• Dance forms of Tamilnadu:

• Kumi, Kollatam, Mayil attam, Pulliyattam, Bharathnatyam etc.

Q100. Answer: (b) 1954

The correct answer is 1954.

Key Points

• Sahitya Akademi:

• The Sahitya Akademi is India's National Academy of Letters.

• It is an organization dedicated to the promotion of literature in the languages of India.

• It was founded on 12 March 1954.

• Its office is located in Rabindra Bhavan, Delhi.

• Rabindra Bhawan, Delhi is also the headquarters of the Sangeet Natak Akademi and Lalit Kala Akademi.

Important Points

• Sahitya Akademi Award:

• The Sahitya Akademi award established in 1954, is a literary honour that is conferred annually by Sahitya Akademi, India’s National Academy of letters.

• Akademi gives 24 awards annually to literary works in the languages it has recognized and an equal number of awards to literary translations from and into the languages of India.

• The Sahitya Akademi award is the second-highest literary honour by the Government of India, after the Jnanpith award.

-

Q101. Answer: (a) Garadi

The correct answer is Garadi.

Key Points

• Garadi:

• This dance has a mythological origin.

• When Rama defeated Ravana, the vanars danced to celebrate his victory.

• It is performed during all festivals of the region.
• It lasts for five to eight hours.

Additional Information

• Hulivesha:
• Hulivesha is a dance form of Karnataka.
• It is performed to pay tribute to Goddess Durga.
• Hulivesha performance often involves a group of people dressing up in tiger costumes.
• Dalkhai:
• The Dalkhai dance of Odisha is usually performed to please Goddess Durga.
• The dance Dalkai originates from the Sambalpur district of Odisha.
• The main theme of this dance form is Radha and Krishna.
• Tippani:
• Tippani is a folk dance style originating from the Saurashtra Chorwad area of Gujarat, India.
• The dance was only done by women.
• The main musical instruments used for music are Zanz, Manjira, Tabla, Dhol, and Shehnai.

Q102. Answer: (c) Q

Given that:-

• T sits at one of the mid-positions of the sides.
• S sits to the immediate left of U.
• U sits to the immediate left of T.
• R sits third to the right of U.
• P is an immediate neighbour of both V and R.
• W is not an immediate neighbour of T.
• Q is sitting at one of the corners.

Hence, "option 3" is the correct answer.

Q103. Answer: (a) Dollar ($)

The correct answer is Dollar ($).

Key Points

• Absolute reference in excel is used when we want to fix the position of the selected cell in any formula so that its value will be not changed whenever we are changing the cell or copying the formula to other cells or sheets.
• This is done by putting the dollar (“$”) sign before and after the column name of the selected cell.
• Or else, we can type the F4 function key, which will automatically cover the column alphabet with the dollar.
• For example, if you want to fix cell A1, then it will look as “=$A$1”.

Important Points

• Step to create an absolute cell reference in excel:
• Select a cell where you want to create an absolute cell reference. Suppose cell A1.
• =A1, it’s a relative reference.
• =$A1, if we put a $ dollar sign before the column coordinate, it locked the only column. This means when we drag this cell, the only row keeps changing in that particular column, and the column remains constant.
• =A$1, if we put a $ dollar sign before the row coordinate, it locked the only row. This means when we drag this cell, only the column keeps changing in that particular row, and the row remains constant.
• =$A$1, it’s called an absolute cell reference. It locked both the row and the column. If we drag this cell or copy this cell, the cell or formula cell will remain constant.

Q104. Answer: (b) Exactly between K and O

Given that:-

• P is an immediate neighbour of both K and R.
• O is second to the right of K.
• N is an immediate neighbour of both L and Q.
• "M is exactly between K and O" is a definitely true statement about M's position.

Hence, "option 2" is the correct answer.

Q105. Answer: (a) 50

Given:

23.5% of a number is 11.75

Calculation:

Let the required number be K.

According to the question,

23.5% of K = 11.75

=> K = 11.75 ÷ 23.5%

=> K = 50

Therefore The number is 50.

Q106. Answer: (b) Lord Buddha

The correct answer is Lord Buddha.

Key Points

• Lord Buddha

• He was born as Siddhartha Gautama in circa 563 BCE, in a royal family in Lumbini which is situated near the Indo-Nepal border.

• His family belonged to the Sakya clan which ruled from Kapilvastu, Lumbini.

• At the age of 29, Gautama left home and rejected his life of riches and embraced a lifestyle of asceticism or extreme self-discipline.

• After 49 consecutive days of meditation, Gautam attained Bodhi (enlightenment) under a pipal tree at Bodhgaya, Bihar.

• He died at the age of 80 in 483 BCE at Kushinagar, Uttar Pradesh. The event is known as Mahaparinibban or Mahaparinirvana.

Additional Information

• Lord Vishnu:

• According to Hindu Mythology, there are ten complete incarnations of the Lord Vishnu.

Position	Incarnation
First	Matsya
Second	Kurma
Third	Varaha
Fourth	Narsimha
Fifth	Vamana
Sixth	Parshurama
Seventh	Rama
Eighth	Krishna
Ninth	Gautam Buddha
Tenth	Kalki

• Lord Shiva:

• Nataraja meaning "the lord of dance", is a depiction of the Hindu god Shiva as the cosmic ecstatic dancer.

• His dance is called Tandavam or Nadanta, depending on the context of the dance.

• Lord Mahaviira:

• Mahavir was the 24th and last Tirthankara of Jainism.

• Lord Mahaveera was born in 540 BC near Vaishali in Kundagrama (Bihar).

• He got enlightened under a Sal Tree.

• He got kaivalya (death) on the bank of the Rijupalika River.

Q107. Answer: (d) Odissi

The correct answer is Odissi.

Key Points

• Odissi:

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• Odissi is one of the Classical dance forms of India which originates from the Odisha state of India.
• The examples of this dance can be seen from the Udayagiri and Khandagiri Caves in Odisha.
• The name came from ‘odra nritya’ which is mentioned in Natya Shastra.
• "Odissi” dance form represents Water.

Additional Information

• Kathak:
• Kathak originated from Uttar Pradesh and is one of the eight forms of ancient classical dances of India.
• Famous Kathak dance is derived from Katha or story-tellers, people who narrate stories during the whole art of Kathak dance.
• Kathakali:
• Kathakali is one performing art that distinguishes Kerala.
• The words ‘Katha’ mean story and ‘Kali’ mean drama.
• It is traditionally performed within the temple precincts after sunset to elucidate the ideas and stories from the Indian epics and Puranas.
• The language used for Kathakali songs is Manipravalam, i.e., a mixture of Malayalam and Sanskrit.
• Bharatanatyam:
• Bharata Natyam is considered to be the oldest form of dance and mother of all other styles of classical dance in India.
• The classical Indian dance Bharatanatyam originated from the art of temple dancers in the South India state of Tamil Nadu.

Q108. Answer: (c) either 'sn' or 'um'

The logic followed here is:-

• count is coded as either 'sn' or 'um'.

Hence, "option 3" is the correct answer.

Q109. Answer: (c) Only conclusion I is true

Conclusions:

• I. T ≤ W → True (T ≤ C = G ≤ H = W)
• II.C ≥ M → False (the relationship between C and M cannot be determined as C ≥ T ≤ L ≤ M)

Thus, only conclusion I is true.

Hence, "option 3" is the correct answer.

Q110. Answer: (d) 9

Shortcut Trick

Total sum of 8 observations = 21.25 × 8 = 170.

Sum of given 6 numbers (29, 36, 21, 18, 7, 19) = 130. Therefore 2k = 170 − 130 = 40 => k = 20.

For the mode to be 29 in the second set, 29 must appear more times than any other number. Therefore p = 29.

Value of (p − k) = 29 − 20 = 9.

Therefore The correct answer is 9.

Alternate Method

Given: Mean of (29, 36, 21, 18, 7, 19, k, k) = 21.25. Mode of (29, 22, 15, 15, 22, 18, 21, p, p) = 29.

Formula Used: Mean = (Sum of observations) ÷ (Number of observations); Mode = Observation with the highest frequency.

Calculation for k:

=> (29 + 36 + 21 + 18 + 7 + 19 + k + k) ÷ 8 = 21.25

=> (130 + 2k) = 21.25 × 8

=> 130 + 2k = 170

=> 2k = 170 − 130 = 40

=> k = 20

Calculation for p:

=> Observations: 29, 22, 15, 15, 22, 18, 21, p, p

=> Frequencies without p: 15 (2 times), 22 (2 times), 29 (1 time), 18 (1 time), 21 (1 time).

=> Since the Mode is 29, the number 29 must have the highest frequency.

=> If p = 29, the frequency of 29 becomes 1 + 2 = 3 times.

=> Therefore p = 29

Finding (p − k):

=> 29 − 20 = 9

Therefore The correct answer is 9.

Additional Information

Arithmetic Mean

The sum of all observations divided by the total number of observations. Formula: Mean = (Σx_i) ÷ n.

Mode of Data

The value that appears most frequently in a data set. A set can be unimodal, bimodal, or multimodal.

Empirical Relation

The relationship between central tendencies: Mode = 3 × Median − 2 × Mean.

Q111. Answer: (a) 92

Given that:-

• 11 × 8 - 5 × 9 = 43

• Applying BODMAS rule:-

• 88 - 45= 43

• 43= 43.

And,

• 12 × 9 - 7 × 6 = 66

• Applying BODMAS rule:-

• 108 - 42 = 66

• 66 = 66.

Similarly,

• 14 × 13 - 9 × 10 = ?

• Applying BODMAS rule:-

• 182 - 90 = ?

• 92 = ?

Hence, "option 1" is the correct answer.

Q112. Answer: (b) Rs. 3,300

Given:

A right circular cone is surmounted on a hemisphere. Base radius of the cone is equal to radius of the hemisphere.

The diameter of the hemisphere is 12 cm while the height of the cone is 8 cm.

Concept used:

Slant height = √(Radius² + Height²)

Curved surface area of a sphere = 4π (Radius)²

Curved surface area of a cone = π × Radius × Slant Height

Calculation:

Radius = 12 ÷ 2 = 6 cm

Since the right circular cone is surmounted on a hemisphere, the area of the base = 2π × 6² = 72π cm²

Slant Height = √(6² + 8²) = 10 cm

Hence, the total surface area of the cone surmounted on the hemisphere

=> Curved surface area of the cone + area of the base

=> π × 6 × 10 + 72π

=> 132π

Thus, the cost of painting the compound object = (25 × 132π) ÷ π = Rs. 3300

Therefore The cost of painting the compound object is Rs. 3300.

Q113. Answer: (a) Umeshchandra Dutta

The correct answer is Umeshchandra Dutta.

Key Points

• Bamabodhini Patrika

• Bamabodhini Patrika a monthly journal edited by Umeshchandra Dutta.

• He along with some other young Brahmo activists established the Bamabodhini Sabha in 1863.

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• Its aim was to educate Bengali housewives and to publish suitable books and journals for them.

• Bethune School was founded in 1849, and the total number of girls' schools in Bengal in 1863 was 35 with students numbering only 1183.

• Umesh Chandra and others tried to educate Bengali families through the medium of a journal.

• The outcome was the' Bamabodhini Patrika.

• Bamabodhini Sabha started the journal in August 1863.

Important Points

• Umesh Chandra Dutta (1840-1907)

• He was an educationist, organizer, writer, and journalist.

• He had been a teacher in a number of educational institutions like Bijoynagar School, Calcutta Training Academy, Dattapukur Nibadhoi Middle English School, etc

• When Umesh Chandra embraced the Brahma faith, he came into contact with the leading personalities like Devendranath Thakur, Akshay Kumar Datta, Ramtanu Lahiri, and Anand Mohan Bose, Keshav Chandra Sen.

• After going through the writings of Akshay Kumar Datta, he devoted himself to social reformist activities, especially to the fostering of female education.

• As part of his reformist activism, he edited the Bamabodhini Patrika (1863-1902) for long 40 years.

• This newspaper had an important role in the emancipation of women and the spread of female education.

• He also edited two weeklies, the Dharmasadhon (1872) and the Bharat Sanskarak (1880).

• Umesh Chandra was a symbol of simplicity, plain living, and nobility.

• Liberal and generous, Umesh Chandra devoted his whole life to the service of society.

• He was in favor of fostering western education with the utmost desire that the women would be able to ameliorate their condition and emancipate themselves through western education.

• Besides the Romer Itihaas (1859) he wrote a book titled Nari Shiksha (1884).

• He died on 19 June 1907.

Q114. Answer: (b) 128/23

Shortcut Trick

Total Work = LCM(40, 90, 36) = 360 units.

Efficiency: P = 9, Q = 4, R = 10.

Work done before R joins (at day 8): (P × 8 days) + (Q × 1 day) = (9 × 8) + (4 × 1) = 76 units.

Remaining work = 360 − 76 = 284 units.

Time for (P+Q+R) = 284 ÷ (9 + 4 + 10) = 284 ÷ 23 = 12 ^8/23 days.

Therefore The correct option is B.

Alternate Method

Given:

Time taken by P = 40 days

Time taken by Q = 90 days

Time taken by R = 36 days

Formula Used:

Total Work = Time × Efficiency

Persons	Time	Quantity	Efficiency
P	40	360	9
Q	90	4	
R	36	10	

Calculations:

=> Work done by P alone for 7 days = 7 × 9 = 63 units

=> Q joined P on the 8th day, so work done by (P+Q) on day 8 = 1 × (9 + 4) = 13 units

=> Total work completed in 8 days = 63 + 13 = 76 units

=> Remaining work = 360 − 76 = 284 units

=> Now R also joins, so combined efficiency of (P+Q+R) = 9 + 4 + 10 = 23 units/day

=> Time for which R worked = 284 ÷ 23 = 12 ^8/23 days

Therefore The correct option is B.

Additional Information

Pipes and Cisterns

This logic is similar to Time and Work, where an inlet pipe has positive efficiency and an outlet pipe has negative efficiency.

Work and Wages

Wages are distributed in the ratio of the total units of work done by each individual (Efficiency × Time).

Alternate Work

In alternate work, efficiencies are added for one full cycle to find the number of cycles required to complete the total work.

Q115. Answer: (b) L

Given that:-

• Box M is placed above box N.

• Box O is placed below box K.

• Box L is placed below O.

• Box N is placed above K.

• After combining the statements:-

• Thus, L is the bottom-most box.

Hence, "option 2" is the correct answer.

Q116. Answer: (a) EGHILNS

The logic followed here is:-

• CONSUME

• Alphabetical order of letters: C < E < M < N < O < S < U

• Therefore, code = CEMNOSU

• COMPEL

• Alphabetical order of letters: C < E < L < M < O < P

• Therefore, code = CELMOP

• ENGLISH

• Alphabetical order of letters: E < G < H < I < L < N < S

• Therefore, code = EGHILNS

Hence, "option 1" is the correct answer.

Q117. Answer: (b) Sunday

Given that:-

• Shamita's birthday was on 15 March 2020 and it was a Sunday.

• Her husband's birthday was on 31 May 2020.

• No of days from 15 March 2020 to 31 May 2020 = 16(days in March) + 30(April) + 31(May) = 77.

• Since it was Sunday on 15 March 2020, every 7th day from 15 March will be a Sunday.

• Thus, no. of odd days = 77/7 = 0

• Therefore, 31st May 2020 will be Sunday.

Hence, "option 2" is the correct answer.

Q118. Answer: (c) Kumarasambhava

The correct answer is Kumarasambhava.

Key Points

• Kumarasambhava:

• Kumarasambhava poem is one of the greatest epic poems written by the famous poet Kalidasa.

• It is one of the gems of Sanskrit literature

• The poem is often called Kumarasambhavam Kalidasa.

• Given here is a short summary of the Kumarasambhava, which basically talks about the birth of Kumara, the first son of Lord Shiva and Parvati.

• The poem has been divided into seventeen chapters and basically talks about the courtship of Lord Shiva and Parvati.

• It is said that a powerful demon named Tarakasur was blessed that none except the child of Lord Shiva could kill him.

• However, Shiva had curtailed the desire for love through intense meditation.
• Due to the great efforts of Parvati and through much penance, she won the love of Lord Shiva.
• After some time, Shiva and Parvati were blessed with a son whom they named Karthikeya.
• He grew up and killed the demon and restored peace and the glory of Lord Indra and the divine world.
• Thus ends the beautiful Kumarasambhava written by Kalidasa.
• It is regarded as one of the greatest literary works of all time.

Additional Information

• Kalidasa:
• Kalidasa (active late 4th-early 5th century) was classical India's master poet and dramatist.
• He demonstrated the expressive and suggestive heights of which the Sanskrit language is capable and revealed the very essence of an entire civilization.
• Literary work of Kalidasa:

Literary work - Plays	Description
1 Malavikaagnimitra	It depicts love story of Agnimitra and Malvika
2 Vikramorvashiiya	It is based story of Pururavaas and Urvashii
3 AbhiGYaanashaakuntala	The story of Dushyanta and Shakuntala
Literary work - Poems	Description
1 Kumarasambhava	It is based on the context of the birth of Kartikeya, the son of God Shiva and Goddess Parvati
2 Raghuvamsha	It depicts the life of Rama, together with a record of his ancestors and descendants
Literary work – Lyric Poems	Description
1 Meghaduta	The theme of this long lyrical poem is a message sent by an exiled Yaksha in Central India to his wife in the Himalayas, his envoy being a megha or cloud
2 Ritusamhara	A poem describing the six seasons of the year in all their changing aspects.

Q119. Answer: (d) Both the conclusions follow

The logical Venn diagram is given below:-

Conclusions:

I. Some jazz is salsa. → Follows (A part of Jazz is Salsa)

II. No salsa is kathak. True → (All salsa are jazz. No jazz is kathak. So no salsa is kathak.)

Hence, "option 4" is the correct answer.

Q120. Answer: (a) 2008

Calculation:

Average profit percentage of the annual profit percentage in all the years = (40 + 55 + 45 + 65 + 70 + 60) ÷ 6 ≈ 55.83, which is the closest to the one of 2008.

Therefore In 2008 the annual profit percentage was the closest to the average of the annual profit percentage in all the years given in the graph.

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