SSC CHSL Tier-1 2021: Official Paper (Held On : 6 June 2022 Shift 2) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2021 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Spot the error in the given sentence and select the correct sentence from the options given.

When it was time to chose between staying or leaving the country, she choose to stay back.

(a) When it was time to choose between staying or leaving the country, she chose to stay back.
(b) When it was time to chose between staying or leaving the country, she chose to stay back.
(c) When it was time to choice between staying or leaving the country, she choose to stay back.
(d) When it was time to have chose between staying or leaving the country, she chose to stay back.

Q2. Select the most appropriate option to fill in the blank.

The Young Global Leaders Community is an _____ for a dynamic community of exceptional people with the vision, courage, and influence to drive positive change in the world.

(a) impediment
(b) input
(c) effort
(d) accelerator

Q3. Select the INCORRECTLY spelt word.

(a) Admonish
(b) Avarise
(c) Adverse
(d) Beige

Q4. Select the option that can be used as a one-word substitute for the underlined group of words.

Looking for her father, Minu finally reached the area where animals are slaughtered for the market.

(a) Archive
(b) Arsenal
(c) Abattoir
(d) Apiary

Q5. Select the most appropriate option to fill in the blank.

Constructive thinking should be developed through _____ reading.

(a) avid
(b) narrow
(c) extensive
(d) brief

Q6. Select the most appropriate meaning of the given idiom.

Up in arms

(a) In rebellion
(b) Being fighting

(c) Raise something
(d) In unity

Q7. Select the option that expresses the given sentence in direct speech.

Gogol offered me to go to the market in his car.

(a) "Let me take you to the helmet," Gogol offered.
(b) "Can I take to the market," Gogol asked me.
(c) "Let's go to the market in my car," Gogol told me.
(d) "Can you come with me to the market," Gogol asked me.

Q8. Select the option that expresses the given sentence in active voice.

A lot has been learnt from my experiences.

(a) I will learn a lot from my experiences.
(b) I would learn a lot from my experiences.
(c) I have learnt a lot from my experiences.
(d) I will have learnt a lot from my experiences.

Q9. Select the option that can be used as a one-word substitute for the given group of words.

To renovate or improve

(a) Relocate
(b) Revamp
(c) Resume
(d) Revalue

Q10. Select the most appropriate meaning of the given idiom.

Cut straight to the chase

(a) Allow to introduce an unimportant part
(b) Avoid unnecessary introduction and go to the more important part
(c) Avoid the most important part of text
(d) Disallow important introduction and go to the least important part

Q11. Select the most appropriate option that can substitute the underlined word in the given sentence.

Its time we left to the airport.

(a) It's
(b) It was
(c) It has
(d) It

Q12. In the following questions a statement has been given with highlighted text. Select the options that can replace the text with correct idiom or phrase.

The attitude of the culprit made the judge extemely angry.

(a) Throw caution to the wind
(b) Make one's blood boil
(c) Play by the ear
(d) Back to the drawing board.

Q13. Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

A. To work as a journeyman he needed to have had the seven years of apprenticeship under his belt.

B. Under advice from his well-wishers at the University, Watt proceeded to London to learn his trade.

C. Watt made acquaintances with folks at the University of Glasgow.

D. In London, he found out that as an apprentice he had to spend seven years learning the trade.

(a) BCDA
(b) DABC

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(c) CBDA
(d) ABCD

Q14. Select the INCORRECTLY spelt word
(a) Investigate
(b) Invite
(c) Invent
(d) Involv

Q15. Select the most appropriate ANTONYM of the given word.
Terse
(a) Succinct
(b) Verbose
(c) Loathe
(d) Concise

Q16. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.
Me and my friends / often go / to the cinema / together.
(a) together
(b) often go
(c) to the cinema
(d) Me and my friends

Q17. Select the denotation of the highlighted word.
He was bereft of hope after the tragedy struck.
(a) Filled
(b) Devoid
(c) Roused
(d) Strained

Q18. Select the most appropriate synonym of the given word.
Excruciating
(a) Facile
(b) Enticing
(c) Alluring
(d) Piercing

Q19. Select the INCORRECTLY spelt word.
(a) Sinister
(b) Adrointness
(c) Dexterous
(d) Gauche

Q20. Select the INCORRECTLY spelt word.
(a) Hegemony
(b) Nebulous
(c) Elephantine
(d) Comittee

Directions

In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

Cloud computing is a type of internet-based computing that provides (1) ____ computer processing resources and data to computers and other devices on demand. Cloud computing and storage solutions provide users and enterprises (2) __ various capabilities to store and process their data in third-party data centres. Local computers no longer have to do all the heavy lifting

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when it comes to running applications. The goal of cloud computing is to apply traditional supercomputing or high-performance computing power, normally used by military and research (3) __, to perform tens of trillions of computations per second., in consumer-oriented application such as financial (4) __, to deliver personalised information and to provide data storage. In 2013, it was reported that cloud computing had become a highly demanded services or (5) ____ due to the advantages of high computing power, cheap cost services, high performance, scalability, accessibility as well as availability.

Q21. Select the most appropriate option to fill in blank number 1.

(a) unsolicited
(b) prohibited
(c) unspecified
(d) shared

Q22. Select the most appropriate option to fill in blank number 2.

(a) from
(b) into
(c) for
(d) with

Q23. Select the most appropriate option to fill in blank number 3.

(a) facilities
(b) support
(c) methodologies
(d) designs

Q24. Select the most appropriate option to fill in blank number 4.

(a) marketplace
(b) literacy
(c) portfolios
(d) burden

Q25. Select the most appropriate option to fill in blank number 5.

(a) authentication
(b) utility
(c) performance
(d) subscription

GENERAL INTELLIGENCE

Q26. The second number in the given number-pairs is obtained by performing certain mathematical operation(s) on the first number. The same operation(s) is/are followed in all the number-pairs, except one. Find that odd number-pair.

(a) 12 : 9
(b) 8 : 4
(c) 4 : 15
(d) 20 : 25

Q27. In a certain code language, 'MEAL' is written as 'BMNF' and 'FOOD' is written as 'PEGP'. How will 'FARE' be written in that language?

(a) GBSF
(b) SFGB
(c) FSBG
(d) ERFA

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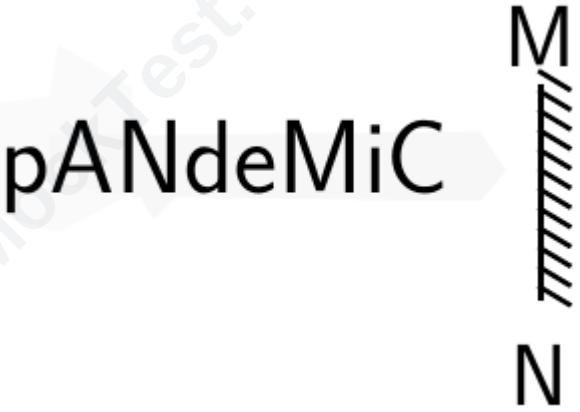
Q28. Seven friends L, M, N, O, P, Q and R, each has a different height. R is taller than L and shorter than Q. L is taller than M. N is the tallest among all. Only two people are taller than Q. O is not the shortest among all. Only one person is shorter than M. How many people are taller than R?

(a) 6
(b) 1
(c) 3
(d) 4

Q29. The second number in the given number pairs is obtained by performing certain mathematical operation(s) on the first number. The same operation(s) are followed in all the number pairs except one. Find that odd number pair.

(a) 29 : 225
(b) 17 : 81
(c) 45 : 576
(d) 31 : 256

Q30. Select the correct mirror image of the given combination when the mirror is placed at MN as shown.



(a)



(b)



(c)



(d)



Q31. Three Statements are given followed by Three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All reds are roses.

No violet is red.

Some tulips are violets.

Conclusions:

I. Some roses are violets.

II. No tulip is a red.

III. No rose is a tulip.

(a) Only conclusion II follows.
(b) Both conclusions I and III follow.
(c) None of the conclusion follow.
(d) Both conclusions I and II follow.

Q32. If the 12^(th) February 2011 was a Saturday, then what was the day of the week on 13^(th) February 2015?

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

Q33. Select the correct combination of mathematical signs to replace the * signs and to balance the given equation.

25 * 7 * 56 * 8 * 88 * 14

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

Q34. If 'A' denotes '+', 'B' denotes '×', 'C' denotes '-' and 'D' denotes '÷', then what will come in place of '?' in the following equation?

11 B (25 D 5) A 7 B 3 C 24 A 1 B (16 D 4) = ?

(a) 56
(b) 7
(c) 17
(d) 46

Q35. The second number in the given number-pairs is obtained by performing certain mathematical operation(s) on the first number. The same operation(s) is/are followed in all the number-pairs, except one. Find that odd number-pair.

(a) 4 : 18
(b) 16 : 6
(c) 25 : 8
(d) 49 : 12

Q36. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

First row - 15, 62, 120

Second row - 18, 74, ?

Third row - 21, 86, 168

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such ass adding / deleting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is NOT allowed)

(a) 144
(b) 142
(c) 122
(d) 124

Q37. Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

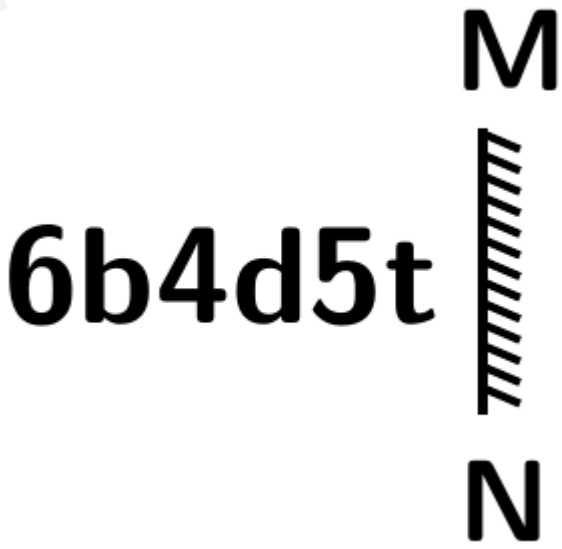
121 : 9 :: 212 : 10 :: 508 : ?

(a) 10
(b) 13
(c) 12
(d) 11

Q38. If 01 February 2011 was Tuesday, then what was the day of the week on 01 January 2012?

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

Q39. Select the correct mirror image of the given combination when the mirror is placed at MN as shown below.



(a)



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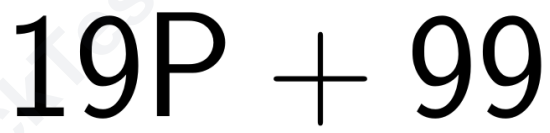
(b)



(c)



(d)



Q40. Which of the following numbers will replace the question mark (?) in the given series?

150, 154, 1232, 1244, 19904, ?

(a) 19928
(b) 19925
(c) 19924
(d) 19926

Q41. Select the correct mirror image of the given combination when the mirror is placed at MN as shown.



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(a)



(b)



(c)



(d)



Q42. If A denotes '+', B denotes '×', C denotes '-' and D denotes '÷', then what will come in the place of '?' in the following equation?

(84 D 6) B 7 A (22 B 4) C 16 A (15 B 8) = ?

(a) 290
(b) 285
(c) 310
(d) 255

Q43. Which letter-cluster will replace the question mark (?) to complete the given series?

HIRC, ACYI, TWFO, MQMU, ?

(a) HKTA
(b) GKTA
(c) FKTA
(d) HKTZ

Q44. Select the option that represents the letter that, when sequentially placed from left to right in the blanks below, will complete the letter series.

_ M _ _ G _ D _ _ M _ C G _ D C

(a) G D C M C G D G
(b) M D C M C G D M
(c) G D C M C G D M

(d) G D C D C G D M

Q45. In a certain code language, 'GIRL' is written as '*$#!' and 'BOY' is written as '@∑£'. How will 'LILY' be written that language?

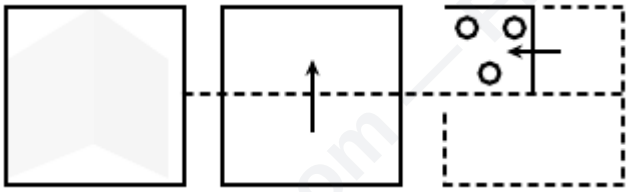
(a) !*!£

(b) #$!£

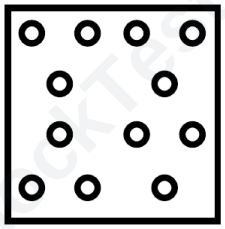
(c) !@!£

(d) !$!£

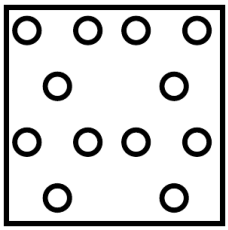
Q46. A paper is folded and cut as shown. How ill it appear when unfolded?



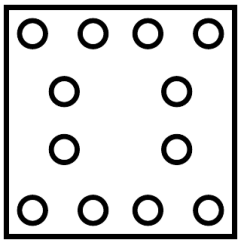
(a)



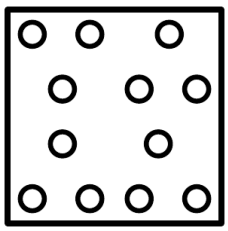
(b)



(c)



(d)



Q47. Select the option that is related to the fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term.

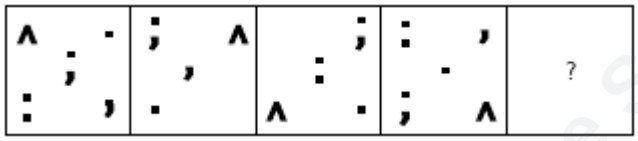
STEADY : ETSYDA :: WORTHY : ROWYHT :: ANKLET : ?

(a) KANELT

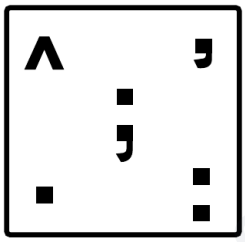
(b) KANLET

(c) KANTLE
(d) KNATEL

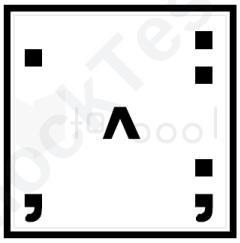
Q48. Select the figure that will replace the question mark (?) in the following figure series.



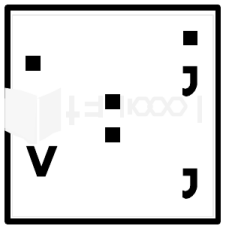
(a)



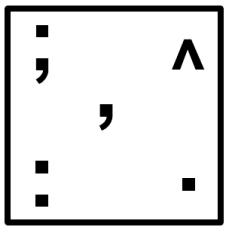
(b)



(c)

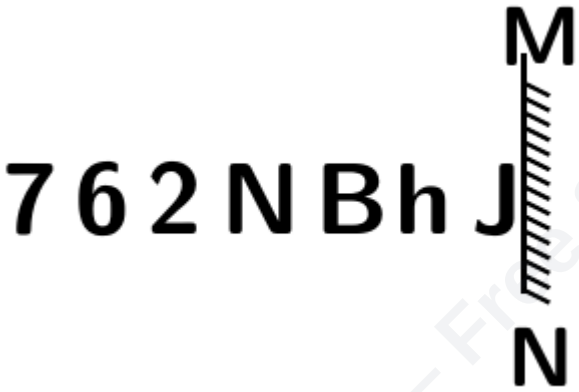


(d)



Q49. Select the correct mirror image of the given combination when the mirror is placed at MN as shown.

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(a)



(b)



(c)



(d)



Q50. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

First row: 32, 40, 18

Second row: 38, 46, 21

Third row: 33, 43, ?

(NOTE: Operations should be performed on the whole numbers, without breaking down the number into its constituent digits. For example, 13 - Operations on 13 such as adding / deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed).

(a) 21

(b) 19

(c) 17

(d) 23

QUANTITATIVE APTITUDE

Q51. $16a^2 + 4b^2 + 9c^2 - 16ab + 12bc - 24ca = ?$

(a) $(4a - 2b + 3c)^2$
(b) $(4a - 2b - 3c)^2$
(c) $(4a + 2b - 3c)^2$
(d) $(4a + 2b + 3c)^2$

Q52. The table below shows the expenditure of a company (in lakhs of rupees per annum) in five consecutive years as mentioned. Study the table and answer the question that follows.

Expenditure (in lakh rupees) per annum over the given years.					
Year	Item of Expenditure				
Salaries	Fuel and Transport	Marketing	Bonus	Taxes	
2016	332	80	35	2	102
2017	368	125	40	3.68	128
2018	444	140	44	4.12	88
2019	480	156	50	4.82	96
2020	516	180	54	5.26	116

As per the information provided in the table, the positive difference between the yearly average expenditure on salaries and taxes of the company is _____.

(a) Rs. 286 lakhs
(b) Rs. 342 lakhs
(c) Rs. 298 lakhs
(d) Rs. 322 lakhs

Q53. Simplify the following equation:

$$\frac{(2.01 \times 2.01 \times 2.01) + (39.75 \times 39.75 \times 39.75) + (28.24 \times 28.24 \times 28.24) - 3(2.01 \times 39.75 \times 28.24)}{(2.01 \times 2.01) + (39.75 \times 39.75) + (28.24 \times 28.24) - (2.01 \times 39.75) - (39.75 \times 28.24) - (28.24 \times 2.01)}$$

(a) 140
(b) 50
(c) 70
(d) 100

Q54. If the corresponding angles of two triangles are equal and satisfy PX/ER = ZX/RF = PZ/EF, then:

(a) vartriangle PXZ is similar to vartriangle EFR
(b) vartriangle PXZ is similar to vartriangle ERF
(c) vartriangle XPZ is similar to vartriangle ERF
(d) vartriangle PXZ is similar to vartriangle REF

Q55. If the length of diagonal of a cube is 8 √3 cm, then what is its surface area?

(a) 164 cm^2
(b) 64 cm^2
(c) 384 cm^2
(d) 204 cm^2

Q56. The value of sin 18° is given as √5 - 1 over 4. Find the value of cosec 18°.

(a) √5 + 1 over 4
(b) √5 +1 over 2
(c) √5 - 1

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(d) √5 + 1

Q57. The value of (7 + 8 - 9 ÷ 3 × 2) + [52 - 4 of 5 + 4 × 7] is:

(a) 61
(b) 277
(c) 69
(d) 64

Q58. A work is done by P & Q, Q & R, and R & P in 12, 15, and 20 days, respectively. How many days will P alone take to complete the work?

(a) 35 days
(b) 25 days
(c) 40 days
(d) 30 days

Q59. A man can swim in still water at a speed of 6 km/h, but he takes thrice as long to swim upstream as downstream. The speed of the man, when swimming downstream is:

(a) 3 km/h
(b) 2 km/h
(c) 9 km/h
(d) 6 km/h

Q60. If 30 men can harvest a meadow in 7 days, in how many days can 21 men harvest the same meadow?

(a) 10
(b) 14
(c) 12
(d) 15

Q61. A shopkeeper gives 15% and 35% discounts on a bottle. If the selling price of the bottle is Rs. 1,547, then the marked price of the bottle is:

(a) Rs. 2,400
(b) Rs. 2,500
(c) Rs. 2,700
(d) Rs. 2,800

Q62. A batsman in his 11^(th) inning scores 88 runs, thereby increasing his average score by 4. What is his average after the 11^(th) innings?

(a) 49
(b) 47
(c) 48
(d) 46

Q63. In an election between two candidates, one got 40% of the total valid votes, and 30% of total votes are invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got was:

(a) 1540
(b) 3250
(c) 2350
(d) 3150

Q64. The table below shows the number of cakes sold by six different bakeries in a town on five different days of a particular week.

Days Bakery	Monday	Tuesday	Thursday	Saturday	Sunday
A	222	255	215	250	266
B	205	275	314	295	260

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C	245	266	305	195	235
D	221	230	185	300	280
E	312	325	298	272	254
F	175	205	255	240	308

The total number of cakes sold by Bakery C on Saturday and Sunday, taken together, is approximate what percentage of the number of cakes sold by Bakery E on Tuesday?

(a) 125%
(b) 130%
(c) 128%
(d) 132%

Q65. It the diagonal of a rhombus is 8 cm and its area is 48 cm², then the length of each side of the rhombus is:

(a) √13 cm
(b) 2√13 cm
(c) 6√13 cm
(d) 5√13 cm

Q66. A dishonest dealer is selling sugar at Rs. 40 per kg and pretending that he is selling it at a loss of Rs. 5 per kg but he actually gives 800 g instead of 1 kg, using a faulty weight. What is his actual profit or loss percent?

(a) Gain, 11%
(b) Gain, 11 1/9% %
(c) Loss, 10 1/9% %
(d) Loss, 9 1/9 %

Q67. The number 5132832 is divisible by _____.

(a) 5
(b) 6
(c) 7
(d) 9

Q68. The diagonal of a rectangle is 17 cm long and its perimeter is 46 cm. The area of the rectangle is:

(a) 120 cm²
(b) 125 cm²
(c) 115 cm²
(d) 130 cm²

Q69. If a + b = 8 and a - b = 6, then find the value of 'ab'.

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

Q70. What is the average of the following data?

1.2, 1.7, 3, 4.8, 10.5, 17.3 and 24.5

(a) 9
(b) 7
(c) 6
(d) 11

Q71. The selling price of a watch after successive discounts of 20%, and 20% is Rs. 640. What is the market price of the watch?

(a) Rs. 1,000
(b) Rs. 800

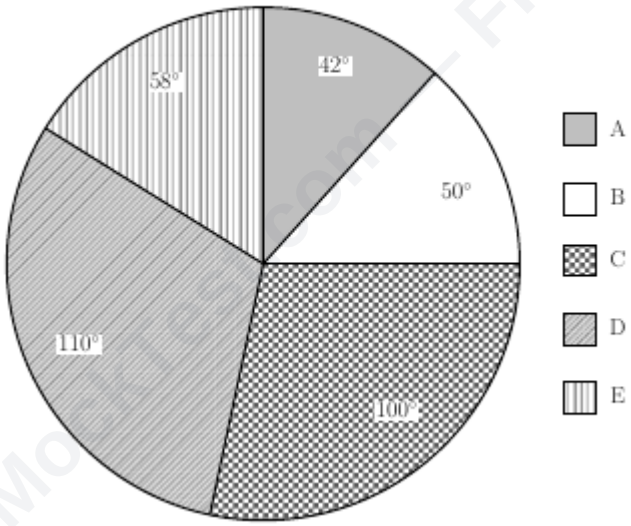
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(c) Rs. 900
(d) Rs. 1,200

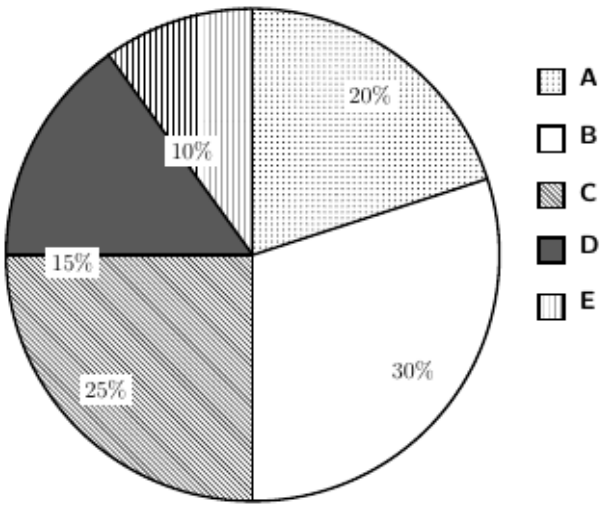
Q72. The pie-chart given below given information about the number of students from five sections A, B, C, D, and E, of class 12 of a school to have appeared and to have passed in the final examination.

The pie-chart on the left given the central angles of the sectors represent the students appearing in the exam from the five different sections, while the pie-chart on the right gives the section-wise numbers of students to pass the exam as percentage of the total number of students who passed the exam from all the five sections taken together.

Apperared students = 1800



Passed students = 800



Find the ratio of the average of the number of students who appeared in the exam from section A, B and C to the average of the number of students who passed from Section B, C and D.

(a) 102 : 28
(b) 13 : 6
(c) 28 : 53
(d) 12 : 7

Q73. What will be the present value of Rs. 484 due in 2 years at 10% per annum compound interest?

(a) Rs. 600
(b) Rs. 400
(c) Rs. 200
(d) Rs. 800

Q74. A train takes 3 hours to travel from place A to B at the speed of 60 km/h. The same train takes 2 hours to travel from B to C at 50% increased speed. What is the average speed of the train from place A to C?

(a) 60 km/h
(b) 90 km/h
(c) 80 km/h
(d) 72 km/h

Q75. In an election four candidates were there in the fray, out of which three were nominated from the three national parties and they got votes in a ratio of 2 : 3 : 4. The total votes polled were 1,89,000 and the fourth candidate got 18,000 votes. The votes obtained by the three candidates of the national parties are respectively: (assuming all votes valid)

(a) 38,000, 57,000 and 76,000
(b) 34,000, 51,000 and 68,000
(c) 36,000, 54,000 and 72,000
(d) 40,000, 60,000 and 80,000

GENERAL AWARENESS

Q76. Which of the following is a large group of rock-forming silicate minerals that constitutes more than 50% of the Earth's crust and is widely used in the glass and ceramic industries?

(a) Amphibole
(b) Feldspar
(c) Zeolites
(d) Pyroxene

Q77. Pandit Shambhu Maharaj, a classical _____ dancer, was awarded Sangeet Natak Akademi Award in 1967.

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

Q78. Which two gases are having the highest percentage of the earth's atmosphere?

(a) Nitrogen and hydrogen
(b) Nitrogen and oxygen
(c) Oxygen and carbon monoxide
(d) Carbon dioxide and nitrogen

Q79. Which of the following teams won the Indian Premier League (IPL) 2021?

(a) Chennai Super Kings
(b) Kolkata Knight Riders
(c) Royal Challengers Bangalore
(d) Mumbai Indians

Q80. Who among the following is a sitar player?

(a) Shivkumar Sharma
(b) Shahid Parvez
(c) Sultan Khan
(d) Sheikh Chinna Moulana

Q81. 'A Champion's Mind: Lessons from a Life in Tennis' is the autobiography of which of the following tennis player?

(a) Maria Sharapova
(b) Pete Sampras
(c) Leander Paes
(d) Boris Becker

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Q82. Which Article of the Indian Constitution deals with the impeachment of the President?

(a) Article 53
(b) Article 58
(c) Article 61
(d) Article 59

Q83. In which of the following sports is 'dunk shot' used?

(a) Tennis
(b) Basketball
(c) Hockey
(d) Baseball

Q84. Kishori Amonkar, Indian classical vocalist of Jaipur Gharana received Padma Vibhushan, India's second highest civilian award, in which of the following years?

(a) 2002
(b) 1998
(c) 1985
(d) 2005

Q85. The number of silver medals won by India in Tokyo Olympics 2020 is _____.

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

Q86. 'The Man Who Made The Elephant Dance' is an autobiography of the famous entrepreneur _____.

(a) Ratan Tata
(b) Mukesh Ambani
(c) Ghanshyam Das Birla
(d) Dr Verghese Kurien

Q87. Which membrane-bound organelles, first discovered in 1857, are often referred to as the 'energy factories' of the cell because they are responsible for making adenosine triphosphate (ATP), the cell's main energy-carrying molecule?

(a) Smooth endoplasmic reticulum
(b) Vacuoles
(c) Mitochondria
(d) Ribosomes

Q88. Padma Bhushan awardee Padma Subrahmanyam is a _____ dancer.

(a) Kathak
(b) Mohiniyattam
(c) Manipuri
(d) Bharatanatyam

Q89. In the Satbir Singh vs _____ case, in 2021, the Supreme Court laid down guidelines for dowry death trials.

(a) State of Rajasthan
(b) State of Haryana
(c) State of Punjab
(d) State of Uttar Pradesh

Q90. Correctly match the following peaks of the Himalayas to their heights.

Peak	Height in metres
1. Mt. Everest	1. 8172
1. Dhaulagiri	1. 8848

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1. Kamet	1. 8078
1. Annapurna	1. 7756

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

Q91. 'GOAL' is an autobiography of which famous Indian player.
(a) Sunil Chetri
(b) Major Dhyan Chand
(c) Balbir Singh
(d) Roop Singh

Q92. Which enzyme is present in saliva?
(a) Amylase
(b) Rennin
(c) Trypsin
(d) Pepsin

Q93. Indian music maestro Bhimsen Joshi was related to the _____ Gharana.
(a) Kirana
(b) Agra
(c) Indore
(d) Patiala

Q94. Choose the correct sequence for central dogma.
(a) Protein translation, DNA Replication, m-RNA transcription
(b) DNA Replication, m-RNA transcription, Protein translation
(c) m-RNA transcription, Protein translation, DNA Replication
(d) m-RNA transcription, DNA Replication, Protein translation

Q95. The First Five Year Plan was released in the year ____.
(a) 1952
(b) 1961
(c) 1951
(d) 1960

Q96. Who among the following won the FIH Women's Hockey Player of the Year at the International Hockey Federation's (FIH) Hockey Stars Awards 2020-21?
(a) Neha Goyal
(b) Monika Malik
(c) Sjoerd Marijne
(d) Gurjit Kaur

Q97. Match column A with column B.

	Column-A		**Column-B**
i.	Powerhouse of a cell	a.	Plastid
ii.	Kitchen of a cell	b.	Mitochondria
iii.	Suicidal bags of a cell	c.	Nucleus
iv.	Brain of a cell	d.	Lysosomes

(a) i - a, ii - b, iii - c, iv - d

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(b) i - b, ii - a, iii - c, iv - d
(c) i - d, ii - b, iii - c, iv - a
(d) i - b, ii - a, iii - d, iv - c

Q98. Who among the following got the Sangeet Natak Akademi 2017 for her contribution to Odissi dance?
(a) Sujata Mohapatra
(b) Shobha Koser
(c) Rama Vaidyanathan
(d) L N Oinam Ongbi Dhoni Devi

Q99. Padma Shri awardee Guru Keezhpadam Kumaran Nair was a dancer of which of the following classical dances of India?
(a) Mohiniyattam
(b) Odissi
(c) Kathak
(d) Kathakali

Q100. Which of the following is the birthplace of Tansen?
(a) Agra
(b) Chanderi
(c) Delhi
(d) Gwalior

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) When it was time to choose between staying or leaving the country, she chose to stay back.

The correct answer is "When it was time to choose between staying or leaving the country, she chose to stay back."

Key Points Here let's see the correct sentence formation:

• When it was time to choose between staying or leaving the country, she chose to stay back.

Additional InformationHere we will the difference between the two words:

• Choose (used in present tense) - to select freely and after consideration

• Eg. He *choose h*is career as a Doctor.

• Chose (used in past tense) - to decide on especially by vote

• Eg. She chose her father over him.

Q2. Answer: (d) accelerator

The correct answer is "accelerator "

Key Points Let's have a look at the correct sentence:

• The Young Global Leaders Community is an accelerator for a dynamic community of exceptional people with the vision, courage, and influence to drive positive change in the world.

Additional InformationHere we will see the meaning of the given word with another example:

• Accelerator - one that accelerates: such as: a muscle or nerve that speeds the performance of an action; a device (such as a gas pedal) for increasing the speed of a motor vehicle engine; a substance that speeds a chemical reaction.

• Eg. Boot the accelerator, and the little four-cylinder engine strains to reach its 6000-rpm redline.

Q3. Answer: (b) Avarise

The correct answer is "Avarise"

Key Points Here let's see the correct spelling of the incorrect word with its meaning:

• Avarice - excessive or insatiable desire for wealth or gain

• Eg. Adherence to the Baldwin model is usually more a sin of thoughtlessness and convenience than of conscious avarice, though it is always an appropriation of moral power, a stealing of thunder.

Additional Information Let's learn some other given words with their meanings:

• Admonish - to indicate duties or obligations to

• Eg. Students were admonished for being late.

• Adverse - acting against or in a contrary direction

• Eg. hindered by adverse winds.

• Beige - of a color that is light grayish-yellowish brown

• Eg. She is wearing a beige skirt.

Q4. Answer: (c) Abattoir

The correct answer is "Abattoir"

Key Points Let's see the meaning of the given word:

• Abattoir - a place where animals are butchered

• Eg. Mr. Foley worked previously at a pig abattoir and reckoned he was beyond such queasiness.

Additional Information Let's learn some other idioms:

• Archive (idiom) - a place in which public records or historical materials (such as documents) are preserved

• Eg. an archive of historical manuscripts

• Arsenal (idiom) - an establishment for the manufacture or storage of arms and military equipment

• Eg. The city is home to a federal arsenal.

• Apiary (idiom) - a place where bees are kept

• Eg. An apiary was built at Lamborghini Park back in 2016 as part of the company’s efforts to help carry out environmental biomonitoring activity.

Q5. Answer: (c) extensive

The correct answer is "extensive"

Key Points Let's see the meaning of the given word:

• Extensive - having wide or considerable extent

• Constructive thinking should be developed through extensive reading.

Additional Information Here we will learn the other words with meanings:

• Avid - characterized by enthusiasm and vigorous pursuit : very eager and enthusiastic

• Narrow - of slender width: a long and narrow room

• Brief - short in duration, extent, or length: a brief meeting

Q6. Answer: (a) In rebellion

The correct answer is "In rebellion "

Key Points Let's see the given idiom with an example:

• Up in arms (idiom) - Very upset or angry about something. Likened to an armed rebellion, from which the phrase originated.

• Eg. The whole town is up in arms about the addition of a new shopping center.

Additional Information Let's learn some other idioms:

• up in (one's) gold ones (idiom) - slang Extremely close to one; right up in one's face. ("Gold ones" refers to gold teeth.)

• Eg. I got right up in his gold ones and told him I would mess him up if he didn't get me my money.

Q7. Answer: (c) "Let's go to the market in my car," Gogol told me.

The correct answer is "Let's go to the market in my car," Gogol told me"

Key Points Here let's see the sentence properly:

• Gogol offered me to go to the market in his car (Direct Speech)

• "Let's go to the market in my car," Gogol told me.

Additional Information Here we will learn some rules of the direct speech:

• Direct speech is a report of the exact words used by a speaker or writer. Contrast with indirect speech. Also called direct discourse.

• Direct speech is usually placed inside quotation marks and accompanied by a reporting verb, signal phrase, or quotative frame.

• Examples - I went in search of the good beer. Along the way, I caught an intriguing snippet of conversation in the sunroom

• “So if I win at that table, I’ll go on to the World Series,” said the mom I know as some kind of government contractor.

Q8. Answer: (c) I have learnt a lot from my experiences.

The correct answer is "I have learnt a lot from my experiences"

Key Points

Let's see the sentence in active voice:

• A lot has been learnt from my experiences (active voice)

• **I have learnt a lot from my experiences

Additional InformationLet's see the rules of the active voice:

• In the active voice, the subject is performing an action

• Eg. The dog chases the ball.

• Notice how the subject, dog, is performing the action, chase, on the target of the action, ball.

• This is a simple, direct example of the active voice.

Q9. Answer: (b) Revamp

The solution is in Hindi. Read it online.

Q10. Answer: (b) Avoid unnecessary introduction and go to the more important part

The correct answer is "Avoid unnecessary introduction and go to the more important part "

Key Points

Here we will learn the idiom with an example:

• Cut straight to the chase (idiom) - come to the point.

• Eg. "Cut to the chase—what is it you want us to do?"

Additional InformationLet's learn some other idioms:

• Cut straight to the point (idiom) - Shorter and less ponderous

• Eg. Bernie was wildly successful here because he cut straight to the point and used a well-known, attention-grabbing phrase to send his message home.

Q11. Answer: (a) It's

The correct answer is "It's"

Key Points Let's see the sentence formation:

• It's time we left to the airport.

Additional Information Here we will learn the difference between the two words:

• So what is the difference between its and it’s? Its (without an apostrophe) is a possessive pronoun, like his or her, for nouns that don’t have a defined gender. In contrast, It’s (with an apostrophe) is the shortened form, or contraction, of it is or it has.

Q12. Answer: (b) Make one's blood boil

The correct answer is "Make one's blood boil"

Key Points Let's see the sentence with the idiom:

• The attitude of the culprit made the judge's blood boil.

Additional InformationLet's see the other idioms:

• Throw caution to the wind - To abandon one's cautiousness in order to take a risk.

• Eg. You can't live life completely reserved, you know. You've got to throw caution to the wind every now and then.

• Play by the ear - perform music without having to read from a score.

• Eg. She could play both by ear and by reading.
• Back to the drawing board - Revising something (such as a plan) from the beginning, typically after it has failed.
• Eg. That ad campaign was not as successful as we had hoped. Back to the drawing board.

Q13. Answer: (c) CBDA

The correct answer is "CBDA"

Key PointsLet's see the correct order of the sentence:

• C. Watt made acquaintances with folks at the University of Glasgow.
• B. Under advice from his well-wishers at the University, Watt proceeded to London to learn his trade.
• D. In London, he found out that as an apprentice he had to spend seven years learning the trade.
• A. To work as a journeyman he needed to have had the seven years of apprenticeship under his belt.

Q14. Answer: (d) Involv

The correct answer is "Involv"

Key Points Let's see the correct word with its meaning:

• Involve - to engage as a participant

Additional Information Let's see the meaning of some other words:

• Investigate - to observe or study by close examination and systematic inquiry
• Invite - to request the presence or participation of
• Invent - to produce (something, such as a useful device or process) for the first time through the use of the imagination or of ingenious thinking and experiment

Q15. Answer: (b) Verbose

The correct answer is "Verbose"

Key Points We will learn the meaning of the given words:

• Terse - sparing in the use of words; abrupt.
• Eg. A terse statement
• Verbose - containing more words than necessary : WORDY
• Eg. A verbose reply

Additional InformationLet's learn the meaning of other words:

• Succinct - marked by compact precise expression without wasted words
• Loathe - to dislike greatly and often with disgust or intolerance
• Concise - marked by brevity of expression or statement : free from all elaboration and superfluous detail

Q16. Answer: (d) Me and my friends

The correct answer is "Me and my friends "

Key Points We will learn the correct sentence:

• My friends and I often go to the cinema together.

Additional InformationLet's see how the sentence is correct:

• “I and my friends” is also correct but less common as it is more polite to put your friends first.
• The most important thing to remember is that “I” is the subject pronoun(the person that does the action) and “me” is the object pronoun(the person that receives the action.

Q17. Answer: (b) Devoid

The correct answer is "Devoid"

Key Points Here let's see the word:

• He was of Devoid hope after the tragedy struck.
• Eg. being without a usual, typical, or expected attribute or accompaniment —used with of
• An argument devoid of sense

Q18. Answer: (d) Piercing

The correct answer is "Piercing "

Key Points Let's learn the meaning of the given synonyms:

• Excruciating - very embarrassing, awkward, or tedious.

• Piercing - having or showing shrewdness or keen intelligence.

Additional Information Here we will see the meaning of the other given synonyms:

• Facile - ignoring the true complexities of an issue; superficial.

• Enticing - attractive or tempting; alluring.

• Alluring - powerfully and mysteriously attractive or fascinating; seductive.

Q19. Answer: (b) Adrointness

The correct answer is "Adrointness"

Key PointsLet's see the correct spelling of the following word:

• Adroitness (noun) - having or showing skill, cleverness, or resourcefulness in handling situations

• Eg. She is adroit at handling problems.

Additional Information Here we will be learning some other word meanings:

• Sinister - singularly evil or productive of evil

• Eg. There was something sinister about him.

• Dexterous - mentally adroit and skillful : CLEVER

• Eg. Her dexterous handling of the crisis

• Gauche - lacking social experience or grace

• Eg. So lofty was her depreciatory manner that I felt myself gauche and was put on the defensive.

Q20. Answer: (d) Comittee

The correct answer is "Comittee"

Key Points Here let's learn the correct spelling:

• Committee - a body of persons delegated to consider, investigate, take action on, or report on some matter

• Eg. An advisory committee was established.

Additional Information We will learn some other new word meanings:

• Hegemony - leadership or dominance, especially by one state or social group over others.

• Eg. Germany was united under Prussian hegemony after 1871.

• Nebulous - in the form of a cloud or haze; hazy.

• Eg. A giant nebulous glow

• Elephantine - of, resembling, or characteristic of an elephant or elephants, especially in being large, clumsy, or awkward.

• Eg. There was an elephantine thud from the bathroom

Q21. Answer: (d) shared

The correct answer is "shared"

Key Points

• In the given passage, the most appropriate answer for blank no. 1 is 'shared.'

• Shared: owed, divided.

• Example: The company is in shared ownership.

• Therefore, as per the points mentioned above, we find that the correct answer is option 4.

Additional Information

• Let's look at the usage and meaning of other words given in the options.

Words	Meaning	Example
Unsolicited	not asked for	The proposed law would force senders of unsolicited e-mails to provide a valid return address.
Prohibited	to officially refuse to allow something.	Motor vehicles are prohibited from driving in the town centre.
Unspecified	not told what it is	The court awarded her an unspecified amount of money.

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Q22. Answer: (d) with

The correct answer is "with"

Key Points

• In the given passage, the most appropriate answer for blank no. 2 is 'with.'

• It is a preposition.

• A preposition is one that combines with a noun phrase to form a phrase which usually expresses a modification or predication.

• Example: They graduated from college with honors.

• Therefore, as per the points mentioned above, we find that the correct answer is option 4.

Q23. Answer: (a) facilities

The correct answer is "facilities"

Key Points

• In the given passage, the most appropriate answer for blank no. 3 is 'facilities.'

• Facilities: services provided for a particular purpose.

• Example: They are undertaking training at military facilities near Seoul.

• Therefore, as per the points mentioned above, we find that the correct answer is option 1.

Additional Information

• Let's look at the usage and meaning of other words given in the options.

Words	Meaning	Example
Support	to agree with	My father supported the Labour Party all his life.
Methodologies	a system of ways of doing	The methodology and findings of the research team have been criticized.
Designs	plans	The play is about a nobleman who has designs on the throne.

Q24. Answer: (c) portfolios

The correct answer is "portfolios"

Key Points

• In the given passage, the most appropriate answer for blank no. 4 is 'portfolios.'

• Portfolio: a large, thin case used for carrying documents, drawings, etc.

• Example: She is trying to build up a portfolio of work to show during job interviews.

• Therefore, as per the points mentioned above, we find that the correct answer is option 3.

Additional Information

• Let's look at the usage and meaning of other words given in the options.

Words	Meaning	Example
Marketplace	a set of trading conditions	To remain competitive the company has to be able to adapt to the changing marketplace.
Literacy	the ability to read and write.	The country has a literacy rate of almost 98%.
Burden	a heavy load that you carry.	The burden of responsibility.

Q25. Answer: (b) utility

The correct answer is "utility"

Key Points

• In the given passage, the most appropriate answer for blank no. 5 is 'utility.'

• Utility: a service that is used by the public.

• Example: The biggest financial worries are mortgages followed by utility bills.

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• Therefore, as per the points mentioned above, we find that the correct answer is option 2.

Additional Information

• Let's look at the usage and meaning of other words given in the options.

Words	Meaning	Example
Authentication	the process of proving that something is real.	A technique for identifying the age of the wood can be used for the authentication of violins.
Performance	how well a person or machine does a work or an activity.	He was an experienced player who was always seeking to improve his performance.
Subscription	an amount of money that you pay regularly to receive a product or service.	I decided to take out a subscription to a gardening magazine.

Q26. Answer: (c) 4 : 15

The logic followed here is:

The second number in the given pair is a square of a number and the first number is a multiplied by 4 with the number of which the second number is a square of,

In other words: $4n : n^2$

Now lets see the pairs,

Option 1)12 : 9

$3^2 = 9$

$3 \times 4 = 12$

Option 2) 8 : 4

$2^2 = 4$

$2 \times 4 = 8$

Option 3) 4 : 15

$2^2 = 4$

$4 \times 4 = 16$

Thus this option doesn't follow the same logic.

Option4) 20 : 25

$5^2 = 25$

$5 \times 4 = 20$

Hence, it is very clear that option3) 4:15 is the correct answer.

Q27. Answer: (b) SFGB

The positional values of the English alphabet are as follows:

The pattern followed here is:

'MEAL' is written as 'BMNF'

'FOOD' is written as 'PEGP'

Similarly, 'FARE' will be written as:

Hence, 'option 2' is the correct answer.

Q28. Answer: (c) 3

The logic followed here is:

Seven friends: L, M, N, O, P, Q and R.

1. N is the tallest among all.

N > > > > > >

2. Only one person is shorter than M.

N > > > > > M > __

3. Only two people are taller than Q.

N > > Q > > > M >

4. L is taller than M.

N > > Q > > L > M > __

5. R is taller than L and shorter than Q.

N > > Q > R > L > M >

6. O is not the shortest among all.

N > O > Q > R > L > M > __

The remaining place is for P.

N > O > Q > R > L > M > P

the final order will be => N > O > Q > R > L > M > P

So, 3 persons are taller than R.

Hence, the correct answer is "3".

Q29. Answer: (c) 45 : 576

In the above question, following operations are done with the first number to get the second number.

{(First number + 1) ÷ 2}² = Second Number

Option. 1

{(29 + 1) ÷ 2}² = (30 ÷ 2)² = 15² = 225

Option. 2

{(17 + 1) ÷ 2} 2 = (18 ÷ 2)2 = 92 = 81

Option. 3

{(45 + 1) ÷ 2} 2 = (46 ÷ 2)² = 23² = 529 ≠ 576 (not following the common pattern)

Option. 4

{(31 + 1) ÷ 2} 2 = (32 ÷ 2)2 = 162 = 256

Therefore, only 45 : 576 is not following the common pattern.

Hence, the correct answer is 45 : 576

Q30. Answer: (d) [figure]

Thee logic followed here is:

When a mirror is placed vertically to the object, the mirror image will be laterally inverted. In other words, Left Hand Side and Right Hand Side will interchange their positions, while top and bottom remain same.

Hence, the correct answer is option(4)

Q31. Answer: (c) None of the conclusion follow.

The least possible Venn diagram is as follows:

Conclusions:

I. Some roses are violets. → False (There is no relation between roses and violets, therefore conclusion I is incorrect.)

II. No tulip is a red.→False (Tulips and red also has no relation, therefore conclusion II is also incorrect.)

III. No rose is a tulip. → False (As there is no definite negative relation given between them, definite negative conclusion will also be false.)

None of the conclusion follows here.

Hence, the correct answer is "None of the conclusion follows".

Q32. Answer: (c) Friday

The logic followed here is:

On 12th February 2011 = Saturday

12th February 2012 = Sunday

If a leap year comes immediately after an ordinary year, then the day on a certain date of the leap year will be 1 days ahead of the same date on the ordinary year upto February.

12th February 2013 = Tuesday

If a leap year comes immediately after an ordinary year, then the day on a certain date of the leap year will be 2 days ahead of the same date on the ordinary year from March to December.

In any two consecutive ordinary years, date of the next year will be one day ahead of the same date of the previous year

12th February 2014 = Wednesday

12th February 2015 = Thursday

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13th February 2015 = Friday (13th February comes just after 12th February)

Hence, the correct answer is Friday.

Q33. Answer: (d) +, ×, ÷, =, -

The logic followed here is:

By using BODMAS and going by the options

Given equation :- 25 * 7 * 56 * 8 * 88 * 14

Interchanging * with signs given in the options

Option. 1 +, -, =, ×, -

25 * 7 * 56 * 8 * 88 * 14

25 + 7 - 56 = 8 × 88 - 14

25 + 7- 56 = 704 -14

32 - 56 = 704 -14

-24 = 690

LHS ≠ RHS

Option. 2 -, +, ×, =, ÷

25 * 7 * 56 * 8 * 88 * 14

25 - 7 + 56 × 8 = 88 ÷ 14

25 - 7 + 56 × 8 = 6.285

25 - 7 + 448 = 6.285

473 - 7 = 6.285

466 = 6.285

LHS ≠ RHS

Option. 3 -, ×, ×, =, +

25 * 7 * 56 * 8 * 88 * 14

25 - 7 × 56 × 8 = 88 + 14

25 - 3136 = 88 + 14

25 - 3136 = 102

3111 = 102

LHS ≠ RHS

Option. 4 +, ×, ÷, =, -

25 * 7 * 56 * 8 * 88 * 14

25 + 7 × 56 ÷ 8 = 88 - 14

25 + 7 × 7 = 88 - 14

25 + 49 = 88 - 14

74 = 88 - 14

74 = 74

LHS = RHS

Therefore, option "+, ×, ÷, =, -" satisfies the above equation.

Hence, the correct answer is "+, ×, ÷, =, -"

Q34. Answer: (a) 56

The logic followed here is:

And interchanging alphabets with the signs,

| Symbol | A | B | C | D | | --- | --- | --- | --- | | Meaning | + | × | - | ÷ |	**Symbol**	**A**	**B**	**C**	**D**	**Meaning**	**•**	**×**	**•**	**÷**
Symbol	A	B	C	D						

Meaning	•	×	•	÷						

Given equation - 11 B (25 D 5) A 7 B 3 C 24 A 1 B (16 D 4) = ?

11 × (25 ÷ 5) + 7 × 3 - 24 + 1 × (16 ÷ 4) = ?

11 × 5 + 7 × 3 - 24 + 1 × 4 = ?

55 + 21 - 24 + 4 = ?

80 - 24 = ?

56 = ?

Hence, the 56 will replace the question.

Q35. Answer: (a) 4 : 18

The logic followed here is

In other options one common pattern is followed, and that is second number comes by taking the square root of first number and adding a number which comes after deducting 2 from the square root number in the series.

Option (1)

Second Number = √ 4 + 16 = 2 + 16 = 18(not following the pattern)

Option (2)

Second Number = √16 + 2 = 4 + 2 = 6 (4 - 2 = 2, adding 2 to 4)

Option (3)

Second Number = √ 25 + 3 = 5 + 3 = 8 (5 - 2 = 3, adding 3 to 5)

Option(4)

Second Number = √ 49 + 5 = 7 + 5 = 12(7 - 2 = 5, adding 5 to 7)

Hence, only 4 : 18 is not following this pattern.

Q36. Answer: (a) 144

The pattern followed above is as follows

First row

First number = 15

Second number = 15 × 4 + 2 = 62

Third number = 62 × 2 - 4 = 120

Second row

First number = 18

Second number = 18 × 4 + 2 = 74

Third number = 74 × 2 - 4 = 144

Third row

First number = 21

Second number = 21 × 4 + 2 = 86

Third number = 86 × 2 - 4 = 168

? will be replaced with 144

Hence, the correct answer is 144.

Q37. Answer: (c) 12

The pattern followed here is:

121 : 9 → 5^3 - 4 : 5 + 4

212 : 10 → 63 - 4 : 6 + 4

Similarly, we get

508 : 12 → 83 - 4 : 8 + 4

Hence, 12 is the correct answer.

Q38. Answer: (d) Sunday

The logic followed here is:

01 February 2011 = Tuesday

01 February 2012 = Wednesday

If a leap year comes immediately after an ordinary year, then the day on a certain date of the leap year will be 1 days ahead of the

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same date on the ordinary year upto February.

01 January 2012 is 31 days before 01 February 2012. (31 = 4 × 7 + 3, 3 = odd days)

Number of odds days = 3 days

01 January = Sunday (three days before Wednesday)

Hence, the correct answer is Sunday.

Q39. Answer: (a) [figure]

The logic followed here is:

When a mirror is placed vertically to the object, the mirror so formed will be laterally inverted. In other words, the Left Hand Side and Right Hand Side will interchange their position while top and bottom remains same.

Hence, only option(1) shows the correct image.

Q40. Answer: (c) 19924

The pattern is as followed

Hence, the correct answer is 19924.

Q41. Answer: (d) [figure]

The logic followed here is:

\When is mirror is placed vertically to the object, the mirror image will be laterally inverted. In other words, the Left Hand Side and Right Hand Side interchange their positions while top and bottom will remain same.

Hence, the correct answer is option(4)

Q42. Answer: (a) 290

The logic followed here is:

By using BODMAS

And interchanging alphabets with the signs,

| Symbol | A | B | C | D | | --- | --- | --- | --- | --- | | Meaning | + | × | - | ÷ |	**Symbol**	**A**	**B**	**C**	**D**	**Meaning**	**•**	**×**	**•**	**÷**
Symbol	A	B	C	D						
Meaning	•	×	•	÷						

Given equation :- (84 D 6) B 7 A (22 B 4) C 16 A (15 B 8) = ?

(84 ÷ 6) × 7 + (22 × 4) - 16 + (15 × 8) = ?

14 × 7 + 88 - 16 + 120 = ?

98 + 88 - 16 + 120 = ?

306 - 16 = ?

290 = ?

Hence, ? will be replaced by 290

Q43. Answer: (c) FKTA

The positional value table is as follows:

Given series:- HIRC, ACYI, TWFO, MQMU, ?

The pattern is as follows,

HIRC, ACYI, TWFO, MQMU, FKTA

Therefore, the ? will be replaced by FKTA

Hence, the correct answer is option(3)

Q44. Answer: (c) G D C M C G D M

The logic followed here is:

Given: _ M _ _ G _ D _ _ M _ C G _ D C

Let's check each option:
1) G D C M C G D G → G M D C - G M D C - G M D C - G G D C
2) M D C M C G D M → M M D C - G M D C - G M D C - G M D C
3) G D C M C G D M → G M D C - G M D C - G M D C - G M D C
• Here, we can see a pattern.
• 'G M D C' is repeating itself.
4) G D C D C G D M → G M D C - G D D C - G M D C - G M D C
Hence, "G D C M C G D M" is the correct answer.

Q45. Answer: (d) !$!£

The logic followed here:
GIRL → *$#!
BOY → @∑£
Here, G = *, I = $, R = #, L = !
and B = @, O = ∑, Y = £.
So, LILY = !$!£.
Hence, !$!£ is the correct answer.

Q46. Answer: (c) [figure]

When the folded paper is opened, the cuts will appear as follows: →
Hence, option 3) is the correct answer.

Q47. Answer: (d) KNATEL

The pattern followed here is:
• In STEADY : ETSYDA.

• In WORTHY : ROWYHT

• Similarly, In ANKLET : ?
We get 'KNATEL'.
Hence, "KNATEL" is the correct answer.

Q48. Answer: (b) [figure]

The figure that will replace the question mark (?) in the given figure series is:
The pattern followed in the first figure is common in every figure and is:
• The center piece moves to top left corner.
• The top left corner piece moves to top right corner.
• The top right corner piece moves to bottom left corner.
• The bottom left corner piece moves to bottom right corner.
• And, the bottom right corner piece moves to the center.
Hence, option 2) is the correct answer.

Q49. Answer: (d) [figure]

The correct mirror image of the given combination when the mirror is placed at MN is as shown below :-
Detailed Explanation :-
• The line MN is the mirror.
• The word "
"ends with "
". So, the mirror image will start with "
" → Options 2, 3 are eliminated.
• The first letter is "
". So, the last word in the mirror image will be "
"→ Options 1 is eliminated.
Hence, Option 4) is the correct answer.

Additional Information

• In a mirror image Left changes to right and the right changes to leftwheretop and bottom remains the same.

• When placement of mirror not given, by default we will assume it in vertical direction.

• The starting letter word will be at last after the mirror image drawn with left changes to right and right changes to left.

Q50. Answer: (b) 19

The logic followed here:

(First number + Second number) ÷ Third number = 4

First row: 32, 40, 18 → (32 + 40) ÷ 18 = 72 ÷ 18 = 4

Second row: 38, 46, 21 → (38 + 46) ÷ 21 = 84 ÷ 21 = 4

Similarly,

Third row: 33, 43, ? → (33 + 43) ÷ 19 = 76 ÷ 19 = 4

Hence, option 2) is the correct answer.

Q51. Answer: (b) $(4a - 2b - 3c)^2$

Given:

16a2 + 4b2 + 9c2 - 16ab + 12bc - 24ca

Formula used:

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

Calculations:

=> 16a2 + 4b2 + 9c2 - 16ab + 12bc - 24ca

=> $(4a)^2 + (-2b)^2 + (-3c)^2 + 2\{ 4a(-2b) + (-2b)(-3c) + 4a(-3c) \}$

=> $(4a - 2b - 3c)^2$

Therefore the required value is $(4a - 2b - 3c)^2$.

Q52. Answer: (d) Rs. 322 lakhs

Given:

Tabular data showing expenditure in the company.

Calculations:

Average yearly expenditure on salaries

= (332 + 368 + 444 + 480 + 516)/5

= 428 lakhs

And the average yearly expenditure on taxes

= (102 + 128 + 88 + 96 + 116)/5

= 106 lakhs

The positive difference between the yearly average expenditure on salaries and taxes of the company is:

= 428 - 106

= 322 lakhs

Therefore The Required difference is 322 lakhs.

Q53. Answer: (c) 70

Given:

Formula used:

$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$

Calculations:

= 2.01 + 39.75 + 28.24

= 70

Therefore The Required simplified value is 70.

Q54. Answer: (b) vartriangle PXZ is similar to vartriangle ERF

Given:

The corresponding angles of two triangles are equal and satisfy PX/ER = ZX/RF = PZ/EF

Concept used:

If corresponding angles of two triangles are equal then they are said to be similar triangles.

Calculations:
If corresponding angles of two triangles are equal then they are said to be similar triangles.
Let us find the respective corresponding equal angles of the two triangles.
According to question, we have :
PX and ER are corresponding sides,
ZX and RF are corresponding sides
and PZ and EF are corresponding sides
Hence, angle P and E are corresponding angles,
angle X and angle R are the corresponding angles and angle Z and angle F are the corresponding angles.
Hence, this concludes that ΔPXZ is similar to ΔERF.

Q55. Answer: (c) 384 cm²

Given:
Length of diagonal = 8√3cm
Formula used:
Diagonal of cube = a√3
Surface area of cube = 6a²
Where, a = side
Calculations:
According to question,
Diagonal of cube = a√3
=> a√3 = 8√3
=> a = 8 cm
Now, surface area of cube
= 6a²
= 6(8)²
= 384 cm²
Therefore The surface area of the cube is 384 cm².

Q56. Answer: (d) √5 + 1

Given:- sin 18° = √5 - 1 over 4
To find:- cosec 18°
Formula used:- cosec θ = 1/sin θ
Calculation:- By using the relation between sin θ and cosec θ,
=>cosec 18° = 1/(sin 18°)
Substituting the value of sin 18° by √5 - 1 over 4,
=>cosec 18° = 1/((√5-1)/4)
=>cosec 18° = 4/(√5-1)
Rationalising the denominator by multiplying the numerator and denominator by √5+1
=>cosec 18° = (4 × (√5+1))/((√5+1) × (√5-1))
By using the formula (a - b) × (a + b) = a² - b²
=>cosec 18° = (4 × (√5+1))/((√5)²-(1)²)
=>cosec 18° = (4 × (√5+1))/4
=>cosec 18° = √5+1
The value of cosec 18° is √5+1

Q57. Answer: (c) 69

Given: (7 + 8 - 9 ÷ 3 × 2) + [52 - 4 of 5 + 4 × 7]
Concept used:
Calculation:
=>52 - 4 of 5 + 4 × 7
=>52 - 4 × 5 + 4 × 7
=>52 - 20 + 4 × 7

=>52 - 20+ 28

=>80 - 20 = 60

=>7 + 8 - 9 ÷ 3 × 2

=>7 + 8 - 3 × 2

=>7 + 8 - 6

=>9

=> (7 + 8 - 9 ÷ 3 × 2) + [52 - 4 of 5 + 4 × 7] = (60) + [9]

=> (7 + 8 - 9 ÷ 3 × 2) + [52 - 4 of 5 + 4 × 7] = 69

Therefore The value of the expression is 69.

Q58. Answer: (d) 30 days

Given:- Work done by P & Q = 12 days, Q & R = 15 days, and R & P = 20 days

To find:- Time taken by P alone to complete the work

Formula used:- work done = Efficiency × time taken

Calculation:- According to the question,

=>P & Q = 12 days

=>Q & R = 15 days

=>R & P = 20 days

Let the total work be the LCM(12, 15, 20)

=>Total work = 4 × 3 × 5 = 60 units

The efficiency can be calculated by using (work done)/(time taken),

=>Effciency of P & Q = 60/12 = 5

=>Effciency of Q & R = 60/15 = 4

=>Effciency of R & P = 60/20 = 3

Let the efficiency of P, Q, and R be p, q, and r

=>p + q = 5, q + r = 4 and r + p = 3

In solving the above three equations,

The efficiency of P, Q, and R will be 2, 3, and 1 respectively

So, If P works alone to complete the work then the time can be calculated by using the formula, work done = Efficiency × time taken

=>60 = 2 × Time taken

=>30 = Time taken

The time taken by the P to complete the work is 30 days.

Shortcut Trick Time Work Efficiency

=> (P + Q) 12 60 5

=> (Q + R) 15 60 4

=> (P + R) 20 60 3

=> (P + Q + R) = 6 (efficiency)

=> P = (P + Q + R) - (Q + R)

=> P = 6 - 4

=> P = 2

Time is taken by P to complete the work alone

=> 60/2

=> 30

Therefore The answer is 30 days.

Q59. Answer: (c) 9 km/h

Given:-

To find:- Speed of man, swimming downstream

Formula used:- Distance = speed × time

Calculation:- Let the speed of the river be ' x km/h '

=>Speed of man during upstream = 6 - x

=>Speed of man during downstream = 6 + x
Let the distance be D km
Time taken in the upstream = 3 × (Time taken in the downstream)
Since, Time = Distance/speed
=> D/(6-x)= 3D/(6+x)
=>3(6 - x) = (6 + x)
=>18 - 3x = 6 + x
=>4x = 12
=>x = 3 km/h
The speed of the stream is 3 km/h
The speed of man when going downstream = 6 + x = 6 + 3 = 9 km/h
The speed of man when swimming downstream is 9 km/h

Q60. Answer: (a) 10

Given:- 30 men can harvest a meadow in 7 days
To find:- Number of days taken by 21 men to harvest the same meadow
Concept used:- Number of men doing the work is inversely proportional to the number of days
Calculation:- Let the number of days taken by 21 men is ' x ',
=>30 : 21 = x : 7
=>x = 10
The number of days taken by 21 men is 10 days

Q61. Answer: (d) Rs. 2,800

Given:-The given discount on the MRP of the bottle is 15% and 35%
To find:- The Marked price of the bottle
Formula used:- Selling price = Marked price × (100 - discount %)
Calculation:- Let the Marked price of the bottle be ' x ',
Total discount of 15% and 35% = 15 + 35 - (15 × 35)/100 = 50 - 5.25
Total discount = 44.75%
By using the formula,
Selling price = Marked price × (100% - discount %)
=>SP = x × (100% - 44.75%)
=>1547 = x × 55.25%
=>x = (1547× 100)/55.25 = 2800
The marked price of the bottle is Rs 2,800.

Q62. Answer: (c) 48

Shortcut Trick
New Average = Runs in current innings − (Previous innings × Increase in average)
Runs scored in current (11^(th)) innings = 88 runs
Total runs used to increase the average of previous 10 innings = 10 × 4 = 40 runs
New Average = 88 − 40 = 48 runs
Therefore The correct answer is 48 runs.
Alternate Method
Given:
Score in 11^(th) innings = 88 runs
Increase in average score = 4 runs
Formula Used:
Average = Sum of all observations ÷ Total number of observations
Calculations:
=> Let the average score after 10 innings be x.
=> Total runs after 10 innings = 10 × x = 10x
=> Total runs after 11 innings = 10x + 88

=> New average after 11 innings = x + 4

=> (10x + 88) ÷ 11 = x + 4

=> 10x + 88 = 11 × (x + 4)

=> 10x + 88 = 11x + 44

=> 11x − 10x = 88 − 44

=> x = 44

=> Average after 11^(th) innings = x + 4 = 44 + 4 = 48

Therefore The correct answer is 48 runs.

Additional Information

Basic Average Formula

Average = Sum of all observations ÷ Total number of observations.

Net Deviation Method

The sum of deviations of all items from their average is always zero. A new average can be calculated directly by adjusting the net deviation.

Change in Every Observation

If every observation in a set is increased, decreased, multiplied, or divided by a constant value, the new average will also undergo the same mathematical operation.

Q63. Answer: (d) 3150

Given:

One candidate got 40% of the valid vote

30% of total votes are invalid

The total number of votes was 7500

Concept Used:

To determine the percentage, we have to divide the value by the total value and then multiply the result by 100

Calculation:-

According to the Question,

One candidate got 40% of the total valid votes and 30% of the total votes are invalid

=> Total invalid votes = 7500×30/100=2250

=> Total valid votes are=Total votes-Invalid votes=7500-2250=5250

=>The First candidate got valid votes are=40% of valid votes= (5250 × 40)/100=2100

=> Second candidate get valid votes= Total valid votes- votes got the first candidate=5250-2100=3150 votes

Hence, the Other candidate won by 3150 valid votes

Q64. Answer: (d) 132%

Calculation:

The total number of cakes sold by Bakery C on Saturday and Sunday,

=> 195 + 235 = 430

The total number of cakes sold by Bakery E on Tuesday,

=> 325

According to the question,

=> 430/325 × 100

=> 430/13 × 4

=> 132.30

Therefore It is approximately 132%

Q65. Answer: (b) 2√13 cm

Given:

The diagonal of a rhombus is 8 cm

The area of a rhombus is 48 cm2

Formula Used:

Area of rhombus= (d1× d2)/2

Calculation:-

=> The area of rhombus= (d1× d2)/2
=> 48=(8× d2)/2
=> d2=12cm
=> The diagonal divide each other in equal part and cuts each other at 90º
=> From the above figure, we can say that
=> AE=EC= d1/2=8/2=4cm
=> DE=EB= d2/2=12/2=6cm
=> In triangle AEB,
=> using Pythagoras theorem,
=> $AE^2+EB^2=AB^2$
=> $4^2+6^2=AB^2$
=> $AB^2=16+36$
=> $AB^2=52$
=> AB=√(52)=√(13×4)=2√(13)
=> HenceThe side of the rhombus is 2√13

Q66. Answer: (b) Gain, 11 1/9% %

Given:- SP = Rs. 40 /kg, used faulty weight and gave 800g in place of 1 kg
To find:- Actual profit and loss percent
Formula used:- % profit = (SP-CP)/CP× 100, Loss % = (CP-SP)/CP× 100
Calculation:- It is mentioned in the question that he is pretending to sell a kg of sugar at a loss of Rs. 5 per kg
=>CP - SP = 5
=>CP = 45 per Kg (Since, SP = 40 per kg)
As given, he is using faulty weight and gives 800g instead of 1 kg,
Suppose he sells a 1 kg sugar to a customer,
=>The CP of the 1 kg of sugar = Rs. 45
But he actually gave 800g to a customer so the cost paid by the dealer to purchase that sugar will be,
=> The CP of the 800 kg of sugar = 45/1000× 800 = Rs. 36
Profit % = (SP-CP)/CP× 100
Profit % = (40-36)/36× 100
% profit = 100/9
The actual profit of a dealer is of 11 1/9% %.

Q67. Answer: (b) 6

Given:- Number = 5132832
To find:- Divisibility of a number
Concept used:- Divisibility of 5, 6, 7 and 9
Calculation:- As we have to check the number whether it is divisible by 5, 6, 7, or 9 then we have to go by options,
Checking option- 1
Divisibility of 5,
If the last number is either 0 or 5, the entire number is divisible by 5
Last digit of the given number is 2
Hence the given number is not divisible by 5.
Checking option- 2
Divisibility of 6 states that the number which is divisible by 2 and 3 is also divisible by 6
Since the number is even so it is divisible by 2
For a number to be divisible by 3, the sum of digit must have 3 as a multiple
=>Sum = 5 +1+ 3 + 2 + 8 + 3 + 2 = 24
24 is divisible by 3 hence the number is also divisible by 3
=>The number is divisible by 6
Checking option- 3
Divisibility of 7 states that twice the unit digit when subtracted from the remaining part then the outcome must be a multiple of 7

=>513283 - 4 = 513279

On repeating this several times,

=>51328 - 6 = 51322

=>5132 - 4 = 5128

=>512 - 16 = 496

=>49 - 12 = 37

Since 37 is not a multiple of 7 hence the number is not divisible by 7

Checking option- 4

Divisibility of 9 states that if the sum of the digits of a number is divisible by 9 then the number is divisible by 9

=>The sum of digit is 24 which is not divisible by 9 hence the number is not divisible by 9.

∴ The number is divisible by 6.

Q68. Answer: (a) 120 cm²

Given:- Diagonal = 17 cm, Permiter = 45 cm

To find:- Area of rectangle

Formula used:- Area of rectangle = Length × breadth

Calculation:- The diagonal divides the rectangle into two equal right-angled triangle

=>Hypotenuse of right angle will be the diagonal = 17 cm

Let the length and breadth of the rectangle be 'l' and 'b' respectively

As given, Perimeter = 46 cm

=>2(l + b) = 46

=>(l + b) = 23

On squaring both sides,

=>$(l + b)^2 = 23^2$

=>$l^2 + b^2 + 2lb = 529$ --------- (i)

Since the diagonal divided the rectangle into two equal right-angled triangles then by using Pythagorean theoram,

=>$(\text{hypotenuse})^2 = (\text{length})^2 + (\text{breadth})^2$

=>$17^2 = l^2 + b^2$

=>289 = l2 + b2

Substituting the value of l2 + b2 in eq(i),

=>289 + 2lb = 529

=>2lb = 240

=>lb = 120 cm²

The area of the rectangle is 120 cm²

Q69. Answer: (d) 7

Give:- a + b = 8 and a - b = 6

To find:- The value of ab

Formula used:- $(a + b)^2 = a^2 + b^2 + 2ab$ and $(a - b)^2 = a^2 + b^2 - 2ab$

Calculation:- As given in the question,

=>a + b = 8

On squaring both sides by using the formula mentioned above

=>(a + b)2 = 8²

=>a2 + b2 + 2ab = 64 ------- (i)

It is also given that,

=> a - b = 6

On squaring both sides by using the formula mentioned above

=>(a - b)2 = 62

=>a2 + b2 - 2ab = 36 ------ (ii)

Subtracting eq(ii) from (i)

=>a2 + b2 + 2ab - (a2 + b2 - 2ab) = 64 - 36

=>4ab = 28

=>ab = 7

The value of 'ab' is 28.

Q70. Answer: (a) 9

Given:- 1.2, 1.7, 3, 4.8, 10.5, 17.3 and 24.5

To find:- Average of the given numbers

Formula used:- (sum of observation)/(total number of observation)

Calculation:- Total number of observations = 7

SUM of observations = 1.2 + 1.7 + 3 + 4.8 + 10.5 + 17.3 + 24.5 = 63

Average = 63/7

=>Average = 9

The average of given numbers is 9.

Q71. Answer: (a) Rs. 1,000

GIVEN:

Selling price = Rs640

Successive discounts% = 20% and 20%

FORMULA USED:

S.P. = (1-d1/100) × (1- d2/100) × M.P.

Where, S.P. = Selling price, M.P. = Marked price, d1 and d1 = successive discounts respectively

CALCULATION:

Here, d1 = 20%, d2 = 20% and S.P. = Rs640

640 = (1- 20/100) × (1- 20/100) × M.P.

640 = (1-1/5) × (1-1/5) × M.P.

=> M.P. = 640 × 5/4 × 5/4 = Rs1,000.

Hence, Marked price is Rs1000.

Q72. Answer: (d) 12 : 7

Given:

Concept Used:

Basic Percentage Calculation

Calculation:

=> Total number of appeared students = 1800

=> Number of students who appeared from section A = 42/360× 1800=210 students

=> Number of students who appeared from section B = 50/360× 1800=250 students

=> Number of students who appeared from section C = 100/360× 1800=500 students

=> Total number of students appeared from section A, B and C = 210+250+500=960

=> Average number of students appeared from section A, B and C = 960/3

=> Total number of passed students = 800

=> Number of students passed from section B = 30/100× 800=240 students

=> Number of students passed from section C = 25/100× 800=200 students

=> Number of students passed from section D = 15/100× 800=120 students

=> Total number of students passed from section B, C and D = 240+200+120=560

=> Average number of students passed from section B, C and D = 560/3

=> Ratio of total appeared to the passed students = 960/560=12:7

Hence, the ratio of total number of students appeared from section A, B and C to the number of students passed from B, C and D is 12 : 7.

Q73. Answer: (b) Rs. 400

GIVEN:

Amount = Rs. 484

Time = 2 years

Rate = 10%

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FORMULA USED:
A = P × (1 +R/100)^t
Where, A = Amount, P = Principal, R = Rate of interest, t= Time
CALCULATION:
Here, A= Rs484, R = 10% t = 2 years
484 = P × (1 + 10/100)²
=> 484 = P × 11/10 × 11/10
=> P = 484 × 10/11 × 10/11 = 400.
Hence, the Present value is Rs400.

Q74. Answer: (d) 72 km/h

GIVEN:
From A to B
Time = 3 hours, Speed = 60 km/h
From B to C
Time = 2 hours, Speed = 50% increased speed than A to B
FORMULA USED:
Distance = Speed × Time
Average Speed = Total Distance travelled/ Total time taken
CALCULATION:
According to the Question,
When train travels from A to B then,
Time = 3 h ,Speed = 60 km/h
=> Distance = 60 × 3 = 180 km.
Now, when train travels from B to C then,
Time = 2 h, Speed = (60 + 60 ×1/2) = 90 km/h
=> Distance = 90 × 2 = 180 km.
=> Now, Total Distance travelled from A to B and from B to C = (180 +180) = 360 km.
=> Total time taken = (3 + 2) = 5 hours.
=> Average Speed from A to C = Total Distance travelled/ Total time taken = 360 / 5 = 72 km/h.
Hence, Average Speed = 72 km/h.

Q75. Answer: (a) 38,000, 57,000 and 76,000

GIVEN:
Total polled votes = 189000
fourth candidate votes = 18000
CALCULATION:
According to the Question,
Total polled votes = 189000, 4th candidate got = 18000
Ratio of votes of three candidates = 2: 3 :4
Now, let the vote of three candidates be 2x, 3x and 4x.
=> 2x + 3x + 4x + 18000 = 189000
=> 9x = 171000
=> x = 19000.
Now, the votes of three candidates are,
=> 2x = (2 × 19000) = 38000.
=> 3x = (3 × 19000) = 57000.
=> 4x = (4 × 19000) = 76000.
Hence, the votes obtained by three candidates are 38,000, 57,000, and 76,000 respectively.

Q76. Answer: (b) Feldspar

The correct answer is Feldspar.
Key Points

• Feldspar is the name of a large organization of rock-forming silicate minerals that make up over 50% of Earth's crust.

• They are discovered in igneous, metamorphic, and sedimentary rocks in all components of the sector.

• Feldspar minerals have very similar structures, chemical compositions, and physical properties.

• Silicate minerals are rock-forming minerals made up of silicate groups. They are the largest and most important class of minerals and make up approximately 90 per cent of Earth's crust.

Additional Information

• Amphiboles are a major group of hydrous minerals that occur in a wide range of rock types

• They occur predominantly in metamorphic and igneous rocks of the Earth's crust and upper mantle.

• Zeolites are microporous, three-dimensional crystalline solids of aluminium silicate.

• Zeolites have small openings of fixed size in them which allow small molecules to pass through them easily but larger molecules cannot pass through them; that is why they are sometimes called molecular sieves.

• Pyroxenes are the most significant and abundant group of rock-forming ferromagnesian silicates.

• They are found in almost every variety of igneous rock and also occur in rocks of widely different compositions formed under conditions of regional and contact metamorphism.

Q77. Answer: (b) Kathak

The correct answer is Kathak.

Key Points

• Pandit Shambhu Maharaj was a classical Kathak dancer who was awarded Sangeet Natak Akademi in 1967.

• Pandit Shambhu Maharaj was a Guru of the Lucknow Gharana (school) of the Indian classical dance form, Kathak.

• The world-famous Kathak dancer, Pandit Birju Maharaj is the face of the Kalka-Bindadin gharana of Lucknow.

• Kathak, a north Indian dance form, is a mixture of dance and drama which is usually performed by both men and women.

• He was the youngest son of Kalka Prasad Maharaj who was at the court of the Nawab of Awadh Wajid Ali Shah.

Additional Information

• Shobha was among the greatest performers of her generation and one of the best exponents of the Kuchipudi art form.

• Shobha was also a dedicated teacher and strove to spread the chaste values of classical dance among her students.

• Mayadhar Raut, is known as the exponent of the Indian classical dance form Odissi.

Q78. Answer: (b) Nitrogen and oxygen

The correct answer is Nitrogen and Oxygen.

Key Points

• Nitrogen and Oxygen are having the highest percentage of the Earth's atmosphere.

• The most abundant naturally occurring gas is Nitrogen (N2), which makes up about 78% of air.

• Oxygen (O2) is the second most abundant gas at about 21%.

• The inert gas argon (Ar) is the third most abundant gas at 0.93%.

• Trace amounts of carbon dioxide, methane, water vapour, and neon are some of the other gases that make up the remaining 0.1 per cent.

Additional Information

• Hydrogen is found in great quantities on Earth combined with other elements, such as in water and hydrocarbons, but it is barely present in our atmosphere, which contains just 0.00005%. The air in Earth's atmosphere is made up of approximately 78 per cent nitrogen.

• Global background concentrations of carbon monoxide range between 0.06 and 0.14 mg/m3

• CO2 makes up only about 0.04% of the atmosphere, and water vapour can vary from 0 to 4%.

Q79. Answer: (a) Chennai Super Kings

The correct answer is Chennai super kings.

Key Points

• Chennai Super kings won the Indian Premier League 2021 by 27 runs.

• The 2021 IPL was held in Dubai International Cricket Stadium, Dubai.

• Chennai Super kings won the match by 27 runs beating Kolkata knight riders, to win their fourth IPL title.

Additional Information

• Chennai Super Kings are a franchise cricket team based in Chennai, Tamil Nadu, India.

• They play in the Indian Premier League. Founded in 2008, the team plays its home matches at the M. A. Chidambaram Stadium in Chennai.

Q80. Answer: (b) Shahid Parvez

The correct answer is Shahid Parvez.

Key Points

• Ustad Shahid Parvez Khan is an Indian classical sitar maestro from the Imdadkhani Gharana.

• He represents the seventh generation of the Etawah Gharana as its primary exponent.

• Shahid Parvez Khan is a sitar maestro of g lobal acclaim and is regarded as one of the finest Indian Classical musicians alive.

• The recipient of numerous prestigious awards, including the Government of India's Padma Shri and the Sangeet Natak Academy Award, Shahid Parvez Khan regularly tours across India, Europe, North America, Asia and Australia, enthralling audiences everywhere.

Additional Information

• Shiv Kumar Sharma is the exponent of Santoor.

• Sultan Khan, a renowned Indian classical musician who carried forward the tradition of a disappearing instrument, the bowed lute called a sarangi.

• Sheikh Chinna Moulana is the exponent of Nadhaswarm. He was awarded the Madras Music Academy's Sangeetha Kalanidhi in 1998.

Q81. Answer: (b) Pete Sampras

The correct answer is Pete Sampras.

Key Points

• 'A Champion's Mind: Lessons from a Life in Tennis' is the autobiography of Pete Sampras.

• A man whose hard-nosed work ethic led to an unprecedented number one world ranking for 286 weeks and whose prodigious talent made possible a record-setting fourteen Grand Slam titles.

• Pete Sampras holds the distinction of being the youngest male player to win the U.S. Open.

• During his career, he won sixty-four top-level singles titles (including fourteen Grand Slams, eleven ATP Masters Series titles, and five Tennis Masters Cup titles).

Additional Information

• Maria Sharapova announced in 2020 about her retirement. Her memoir, Unstoppable: My Life So Far (written with Rich Cohen), was published in 2017.

• Leander Adrian Paes OLY is a retired professional tennis player from India. He is regarded as one of the greatest doubles tennis players.

• Becker burst onto the international tennis scene when, as a 17-year-old, he won Wimbledon in 1985.

• He was a sporting genius with a turbulent personal life he tells of his extraordinary career - he was the second youngest player to be inducted into tennis's Hall of Fame - and also the stories behind the front page headlines.

Q82. Answer: (c) Article 61

The correct answer is Article 61.

Key Points

• Article 61 of the Constitution of India prescribes the procedure for the impeachment of the President.

• When the President is to be impeached for violation of the Constitution, the charge shall be preferred by either House of Parliament.

• The president may also be removed before the expiry of the term through impeachment for violating the Constitution of India by the Parliament of India.

• The process may start in either of the two houses of the parliament.

• The house initiates the process by leveling the charges against the president.

Additional Information

• Process of Impeachment:

• After the House of Representatives sends its articles of impeachment to the Senate, the Senate sits as a High Court of Impeachment to consider evidence, hear witnesses, and vote to acquit or convict the impeached official. A committee of representatives, called “managers,” act as prosecutors before the Senate.

• The President, Vice President, and all civil Officers of the United States shall be removed from Office on Impeachment for, and Conviction of, Treason, Bribery, or other high Crimes and Misdemeanors.

• Meaning of Impeachment:

• To charge with a crime or misconduct specifically: to charge (a public official) before a competent tribunal (as the U.S. Senate) with misconduct in office. Note: Impeachment is the first step in removing an officer from office.

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Q83. Answer: (b) Basketball

The correct answer is Basketball.

Key Points

• Dunk Shot:

• a shot in which a player near the basket jumps with the ball and thrusts it through the basket with one hand or both hands held above the rim.

• Basketball is a team sport in which two teams, most commonly of five players each, opposing one another on a rectangular court, compete with the primary objective of shooting a basketball through the defender's hoop.

• The history of basketball began with its invention in 1891 in Springfield, Massachusetts by Canadian physical education instructor James Naismith as a less injury-prone sport than football.

Additional Information

• Some famous Basketball Players:

• Rudy Gobert.

• Trae Young.

• LeBron James.

• Joel Embiid.

• Stephen Curry. Paul Rutherford.

• Luka Dončić credit: Kevin Jairaj.

• Giannis Antetokounmpo. credit: Thomas Shea.

• Nikola Jokić credit Cary Edmondson.

Q84. Answer: (a) 2002

The correct answer is 2002.

Key Points

• Amonkar received several of India's national awards and civilian honours, including the Padma Bhushan, in 1987, and Padma Vibhushan in 2002.

• Ustad Alladiya Khan, who founded the Jaipur-Atrauli Gharana, wrote many a bandish on the Hindu gods.

• One of his foremost disciples Mogubai Kurdikar and her renowned vocalist-daughter Kishori Amonkar took this musical tradition to greater heights of popularity.

Additional Information

• Famous Hindustani Gharanas in Music

• Kirana Gharana: This is the most profuse Gharana in Indian traditional music.

• Gwalior Gharana: This is one of the most seasoned Gharanas of Indian traditional music and has a decent and simple singing tune,tone, and beat.

• Patiala Gharana.

• Sham Chaurasia Gharana.

Q85. Answer: (c) 2

The correct answer is 2.

Key Points

• India Medal Tally Tokyo Olympics - 1 Gold, 2 Silver, 4 Bronze Medal.

• India made a big comeback to beat Germany 5-4 and claim the bronze medal. It is their third Olympic bronze medal - after the 1968 and 1972 Games - and their 12th Olympic medal overall. It is India's fifth medal at Tokyo 2020.

• At Tokyo Olympics, India surpassed its previous best haul of six medals achieved in the 2012 London Games. Apart from Chopra's gold, India has won two silver and four bronze medals.

Additional Information

• The 2020 Summer Olympics, officially the Games of the XXXII Olympiad and also known as Tokyo 2020, was an international multi-sport event held from 23 July to 8 August 2021 in Tokyo, Japan, with some preliminary events that began on 21 July.

• Future Olympic locations as per 2022:

• Paris, France, from 26 July to 11 August 2024,

• Milan and Cortina d'Ampezzo, in Italy, in 2026.

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Q86. Answer: (d) Dr Verghese Kurien

The correct answer is Dr Verghese Kurien.

Key Points

• The Man Who Made the Elephant Dance, by Dr Verghese Kurien, is the authorized audio-autobiography of the Father of the White Revolution.

• This audiobook, in the voice of Tom Alter, narrates the glorious saga of the globally acclaimed entrepreneur, Dr. Verghese Kurien.

• Nirmala Kurien shared her childhood memories with her father of how he always believed in equal opportunity for all and excellence in any work that you do.

• The participants shared their memories and experiences that they had while working with Dr. Kurien.

Additional Information

• Ratan Tata continues to head the main two Tata trusts Sir Dorabji Tata and Allied Trusts and Sir Ratan Tata Trust and their allied trusts, with a combined stake of 66% in Tata Sons, Tata group's holding company.

• Mukesh Ambani is the firstborn son of Dhirubhai Ambani, the creator of Reliance Industries, one of the biggest private companies in India, with interests in refining, oil & gas, petrochemicals, telecom, retail and media. Mukesh Ambani owns approximately 45% of Reliance Industries, making his net worth roughly US$ 24 billion.

• Ghanshyam Das Birla was the Founder of Birla Brothers Limited, a leading producer of tea, textiles, cement, chemicals, rayon, steel tubes, among others.

Q87. Answer: (c) Mitochondria

The corrrect answer is Mitochondria.

Key Points

• Mitochondria are frequently called the “powerhouses” or “energy factories” of a cell because they are incharge of making adenosine triphosphate (ATP), the cell's main energy-carrying molecule.

• Mitochondria, frequently referred to as the “powerhouses of the cell”, were first discovered in 1857 by physiologist Albert von Kolliker, and later coined “bioblasts” (life germs) by Richard Altman in 1886.

• Mitochondria are membrane-bound cell organelles that generate most of the chemical energy needed to power the cell's biochemical reactions.

• Chemical energy produced by the mitochondria is stored in a small molecule called adenosine triphosphate (ATP).

Additional Information

• The smooth endoplasmic reticulum functions in many metabolic processes. It synthesizes lipids, phospholipids as in plasma membranes, and steroids.

• A vacuole is a membrane-bound cell organelle. In animal cells, vacuoles are commonly small and help sequester waste products. In plant cells, vacuoles help maintain water balance. Sometimes a single vacuole can take up most of the interior space of the plant cell.

• A ribosome is an intercellular structure made of both RNA and protein, and it is the site of protein synthesis in the cell.

Q88. Answer: (d) Bharatanatyam

The correct answer is Bharatanatyam.

Key Points

• Padma Subrahmanyam is an Indian classical Bharata Natyam dancer.

• She is also a research scholar, choreographer, teacher, Indologist and author.

• She is famous in India and also abroad; several films and documentaries have been made in her honour by countries such as Japan, Australia and Russia.

• The Padma received Padma Shri in 1981 and Padma Bhushan in 2003, which are among the highest civilian awards of India.

Additional Information

• The world-famous Kathak dancer, Pandit Birju Maharaj is the face of the Kalka-Bindadin gharana of Lucknow.

• Smitha Rajan is an Indian Mohiniyattam performer from Kerala and granddaughter of the legendary Indian classical dancer couple of Padma Shri Kalamandalam Krishnan Nair and Kalamandalam Kalyanikutty Amma.

• Elam Endira Devi, is an Indian classical dancer and teacher, known for her expertise and scholarship in the classical dance form of Manipuri, especially in the genres of Lai Haraoba and Raas.

Q89. Answer: (b) State of Haryana

The correct answer is State of Haryana.

Key Points

• In the Satbir Singh vs State of Haryana case, in 2021, the Supreme Court laid down guidelines for dowry death trials.

• The evil of dowry also gives rise to more vicious evil of dowry death.

• Since the burden of proof is on the accused thus it creates more responsibility on courts to confirm that the principle of Audi Alteram Partem is followed by courts.

• The court in this case clarify the term' soon before' and also gave guidelines to be followed by the trial courts while recording the statement of the accused.

• The facts of the case are that on 01.07.1994 the accused (appellant 01) married the deceased.

Additional Information

• Some famous cases of Supreme Court Cases against dowry:

• Dinesh Seth vs State Of N.C.T. Of Delhi on 18 August 2008

• Nidhan Biswas And Ors. vs State Of Tripura on 31 March, 2006

• Sangita Devi And Anr vs The State Of Jharkhand And Anr on 4 July, 2014

• Smt.Sunita Goyal & Ors vs State Of Punjab & Anr on 21 February, 2012

• Radhey Sham And Others vs State Of Haryana on 3 October ,2013

• Prakash Naik vs State Of Orissa on 16 March, 2016

• Sri Sukha Ranjan Das vs The State Of Tripura on 18 March, 2019

Q90. Answer: (c) 1 - b, 2 - a, 3 - d, 4 - c

The correct answer is 1 - b, 2 - a, 3 - d, 4 - c.

Key Points

• Nepal and China have officially announced the new height of 8848.86M of Mount Everest.

• The tallest, Dhaulagiri I, reaches an elevation of 26,795 feet (8,167 metres) and is the world's seventh highest mountain.

• Kamet was the first summit over 25,000 ft (7,620 m) to be climbed and was the highest summit reached until the first ascent of Nanda Devi five years later.

• Annapurna is the tenth highest mountain in the world at 8,091 metres (26,545 ft) above sea level and is well known for the difficulty and danger involved in its ascent.

Additional Information

• Mount Everest is Earth's highest mountain above sea level, located in the Mahalangur Himal sub-range of the Himalayas.

• Dhaulagiri is the seventh highest mountain in the world at 8,167 metres (26,795 ft) above sea level, and the highest mountain within the borders of a single country (Nepal).

• Kamet Peak is the highest point, and the most main passes are Shipki, Lipu Lekh (Lipulieke), and Mana. Peaks of the Zaskar Range from the vicinity of Sonamarg, Jammu and Kashmir union territory, India.

• Annapurna is a mountain situated in the Annapurna mountain range of Gandaki Province, north-central Nepal.

Q91. Answer: (b) Major Dhyan Chand

Correct answer is Major Dhyan Chand.

Key Points

• Hockey magician Dhyan Chand's autobiography titled "Goal" was published in 1952.

• Dhyan Singh joined the Indian Army at the age of 16 and started playing hockey there.

• GOAL, published by Sportstar, is a 261-page book where Dhyan Chand takes the reader on his hockey journey.

• But for memories of his playing days, the legendary forward gives important tips on the technicality of the sport.

Additional Information

• Playing It My Way is the autobiography of former Indian cricketer Sachin Tendulkar. It was launched on 5 November 2014 in Mumbai.

• One of the first feelings you get time reading Bharat Sundaresan's The Dhoni Touch: Unravelling the Enigma that is Mahendra Singh Dhoni, is that this is the book kind of the official biopic of the former India captain that was released a couple of years ago, MS Dhoni: The Untold Story.

• Kapil dev has written four books – three autobiographical and one book on Sikhism.

• Autobiographical works include — By God's Decree which came out in 1985, Cricket My Style in 1987, and Straight from the Heart in 2004.

• His latest book titled We, The Sikhs was released in 2019.

Q92. Answer: (a) Amylase

The correct answer is Amylase.

Key Points

• Salivary amylase is a glucose-polymer cleavage enzyme that is produced by the salivary glands.

• Amylases' main function is to hydrolyze the glycosidic bonds in starch molecules, converting complex carbohydrates to simple sugars.

• There are three main classes of amylase enzymes; Alpha-, beta- and gamma-amylase, and each act on different parts of the carbohydrate molecule.

• Amylases are used in breadmaking and to break down complex sugars, such as starch (found in flour), into simple sugars.

Additional Information

• Renin is an enzyme that helps control your blood pressure and maintain healthy levels of sodium and potassium in your body.

• Trypsin is an enzyme that aids with digestion. An enzyme is a protein that speeds up a certain biochemical reaction.

• An enzyme made in the stomach that breaks down proteins in food during digestion. Stomach acid changes a protein called pepsinogen into pepsin.

Q93. Answer: (a) Kirana

The correct answer is Kirana.

Key Points

• Joshi belongs to the Kirana Gharana tradition of Hindustani Classical Music.

• Abdul Karim Khan was an extremely popular musician and was thus highly influential in popularizing the Gharana.

• Pandit Bhimsen Gururaj Joshi also known by the honorific prefix Pandit, was one of the greatest Indian vocalists from India, in the Hindustani classical tradition.

• He is known for the khayal form of singing, as well as for his popular renditions of devotional music.

Additional Information

• The major vocal forms or styles associated with Hindustani classical music are dhrupad, khyal, and tarana.

• Light classical forms include dhamar, trivat, chaiti, kajari, tappa, tap-khyal, ashtapadis, thumri, dadra, ghazal and bhajan; these do not adhere to the rigorous rules of classical music.

• Hindustani classical music is the classical music of northern regions of the Indian subcontinent.

• It can also be called North Indian classical music or, in Hindustani, shastriya sangeet.

• Its start date from the 12th century CE, when it separated from Carnatic music, the classical tradition in South India.

Q94. Answer: (b) DNA Replication, m-RNA transcription, Protein translation

The correct answer is DNA Replication, mRNA transcription, Protein translation.

Key Points

• The process by which DNA is copied to RNA is called transcription, and that by which RNA is used to produce proteins is called translation.

• The major steps of transcription are initiation, promoter clearance, elongation, and termination.

• Essentially, what happens during transcription is that an mRNA “copies down” the instructions for making a protein from DNA.

• DNA replication is the process by which the genome's DNA is copied in cells.

• The process of translation can be seen as the decoding of instructions for making proteins, involving mRNA in transcription as well as tRNA.

Additional Information

• Deoxyribonucleic acid (abbreviated DNA) is the molecule that carries genetic information for the development and functioning of an organism.

• Ribonucleic acid (abbreviated RNA) is a nucleic acid present in all living cells that has structural similarities to DNA.

• Proteins are made up of hundreds or thousands of smaller units called amino acids, which are attached to one another in long chains.

• Proteins are 20 different types of amino acids that can be combined to make a protein.

Q95. Answer: (c) 1951

The correct answer is 1951.

Key Points

• The First Five-year Plan was floated in 1951 which mainly focused in the development of the primary sector.

• The First Five-Year Plan was based on the Harrod–Domar model with few modifications.

• This five years plan's president was Jawaharlal Nehru and Gulzarilal Nanda was the vice-president.

• The Five-year plan was an economic initiative drafted by India's first Prime Minister, Jawaharlal Nehru.

Additional Information

• The Second Five Year Plan covers the period from April 1956 through March 1961. The second plan was to put India on a path toward industrialization.

• The Third Five-year Plan stressed agriculture and improvement in the production of wheat, but the brief Sino-Indian War of 1962 exposed defects in the economy and shifted the focus towards the defence industry and the Indian Army. From 1965–1966, India fought a War with Pakistan.

• The Fourth Five-Year Plan adopted the objective of correcting the earlier trend of increased concentration of wealth and economic power.

• The fifth five year plan was terminated in 1978, its fourth year, due to change in the Government at the Centre.

Q96. Answer: (d) Gurjit Kaur

The correct answer is Gurjit Kaur.

Key Points

• Harmanpreet Singh and Gurjit Kaur were named the FIH Player of the Year in the men's and women's categories, respectively.

• Gurjit Kaur is an Indian female field hockey player.

• She plays the position of a defender and is also the team's designated drag-flicker.

• She has represented India internationally, at the Hockey World Cup 2018.

• She was the most successful goal-scorer throughout India's Asia Cup title triumph with 8 goals.

Additional Information

• Neha Goyal is an Indian field hockey player and is a member of the India national team.

• Monika Malik is an Indian field hockey player who represented India in the 2014 Asian Games and was part of the bronze-medal winning squad.

• Sjoerd Marijne is a Dutch former field hockey player and former coach of the Indian women's national team.

Q97. Answer: (d) i - b, ii - a, iii - d, iv - c

The correct answer is i - b, ii - a, iii - d, iv - c.

Key Points

• The proteins synthesized by the proteins in mitochondria are utilized to generate adenosine triphosphate (ATP) from the food.

• This ATP acts as the energy currency of the cell, because of which the whole cell and body get energy.

• Thus, mitochondria are called the powerhouse of the cells.

• Chloroplast is a plastid that is involved in the synthesis of carbohydrates through photosynthesis and is hence called the kitchen of the cell.

• Lysosomes are known as suicide bags of cell because it contains digestive enzymes.

• The nucleus is like the remote control centre of the cell. It acts as the cell's brain by telling it what to do, how to grow, and when to reproduce.

Additional Information

• In addition to producing energy, mitochondria perform some other functions for the cell including cellular metabolism, the citric acid cycle, producing heat, controlling the concentration of calcium, and producing certain steroids.

• Plastids are pivotal subcellular organelles that have evolved to perform specialized functions in plant cells, including photosynthesis and the production and storage of metabolites.

• A nucleus, as related to genomics, is the membrane-enclosed organelle within a cell that contains the chromosomes.

• Lysosomes are membrane-enclosed organelles that contain an array of enzymes capable of breaking down all types of biological polymers—proteins, nucleic acids, carbohydrates, and lipids.

Q98. Answer: (a) Sujata Mohapatra

The correct answer is Sujata Mohapatra.

Key Points

• Shrimati Sujata Mohapatra receives the Sangeet Natak Akademi Award for 2017 for her contribution to Odissi dance.

• Sujata Mohapatra is actively involved in teaching Odissi.

• She is the Principal of 'Srjan' (Odissi Nrityabasa), a prime Odissi Dance Institution established by MGuru Kelucharan Mohapatra She holds a master's degree in Oriya Literature from Utkal University, and has done research work at the Odissi Research Centre, Bhubaneshwar..

• In July 2011, she opened an Odissi Institute - Guru Keerti Srjan, in her hometown, Balasore.

Additional Information

• Shobha Koser is an Indian Kathak dancer, writer and teacher.

• Rama Vaidyanathan is an Indian bharatnatyam artist from Delhi. She is one of the directors of Ganesha Natyalaya, one of the best Bharatanatyam institutes of the country.

• New Delhi: President Ram Nath Kovind confers Sangeet Natak Akademi Award 2017 on Manipuri dancer L.N. Oinam Ongbi Dhoni Devi.

Q99. Answer: (d) Kathakali

The correct answer is Kathakali.

Key Points

• Keezhpadam Kumaran Nair (1916–2007) was a Kathakali artist from Kerala, India.

• Kumaran Nair was one of very few Kathakali artists to have directly interrelated with allied art forms like Bharatanatyam from south India and Kathak from the north of his country besides also Odissi from the eastern belt.

• Kumaran Nair retired from stage three years before his death in 2007 and led a completely reclusive life in his house in a quiet, northern corner of his native Vellinezhi.

Additional Information

• Smitha Rajan (born in 1969) is an Indian Mohiniyattam performer from Kerala and granddaughter of the legendary Indian classical dancer couple of Padma Shri Kalamandalam Krishnan Nair and Kalamandalam Kalyanikutty Amma.

• Sonal Mansingh, (born April 30, 1944, in Bombay, India), is a dancer of Odissi, a classical Indian dance form that originated in Orissa, and other Indian classical forms.

• The world famous Kathak dancer, Pandit Birju Maharaj is the face of the Kalka-Bindadin Gharana of Lucknow.

Q100. Answer: (d) Gwalior

The correct answer is Gwalior.

Key Points

• Tansen born in Behata or Gwalior was an Indian musician and poet who was an important figure in the North Indian tradition of Hindustani classical music.

• Born in a Hindu brahmin family, he learnt and perfected his art in the northwest region of modern Madhya Pradesh.

• Tansen was a composer, musician and vocalist, to whom many compositions have been attributed in northern regions of the Indian subcontinent.

• He was also an instrumentalist who popularized and improved musical instruments. He is among the most influential personalities in the North Indian tradition of Indian classical music, called Hindustani.

Additional Information

• The navratnas of Akbar's Court are Abul Fazl, Abdul Rahim Khan-I-Khana, Birbal, Mulla Do-Piyaza Faizi, Raja Man Singh, Raja Todar Mal, Fakir Aziao-Din and Tansen.

• Abul Fazl, Akbar's friend and counsellor, helped him frame the idea of Sulh-i Kul so that he could govern a society composed of many religions, cultures and castes.

• Khanzada Mirza Khan Abdul Rahim, generally known as simply Rahim and titled Khan-i-Khanan, was a poet who lived in India during the rule of Mughal emperor Akbar, who was his mentor.

• He was one of the nine main ministers in his court, known as the Navaratnas.

• Man Singh I, popularly known as Mirza Raja Man Singh was the 29th Kachwaha Rajput Raja of Amer, later known as Jaipur state, in Rajputana.

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