SSC CHSL Tier-1 2022: Official Paper (Held On: 21 March, 2023 Shift 4) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2022 • 100 questions • 60 minutes • Answer key and solutions

Take this paper as a timed mock test

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

yourmocktest.com/pyq/ssc-chsl/ssc-chsl-tier-1-2022-official-paper-held-on-21-march-2023-shift…

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

YourMockTest.com — Free Study Material

ENGLISH LANGUAGE

Q1. In the following question, select the odd letter/letters from the given alternatives.

(a) GJJL
(b) EHHK
(c) ADDG
(d) VYYB

Q2. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits.

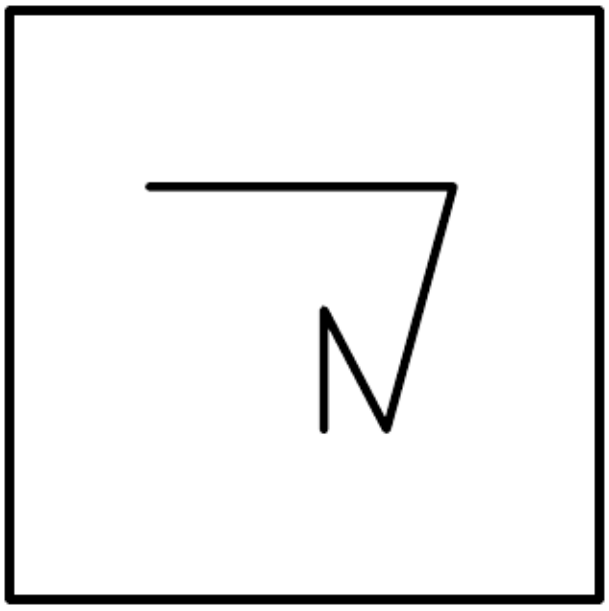
E.g.13 - Operations on 13 such as adding/subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(14, 17, 970)

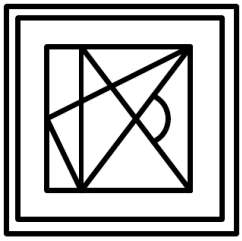
(15, 23, 1508)

(a) (17, 24, 1730)
(b) (16, 22, 1580)
(c) (18, 32, 2686)
(d) (19, 31, 2642)

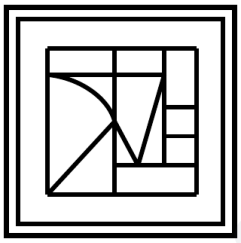
Q3. Select the option figure in which the given figure is embedded. (rotation is NOT allowed)



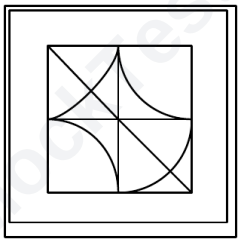
(a)



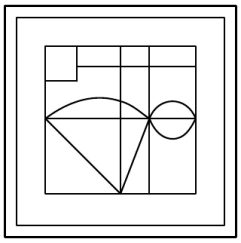
(b)



(c)



(d)

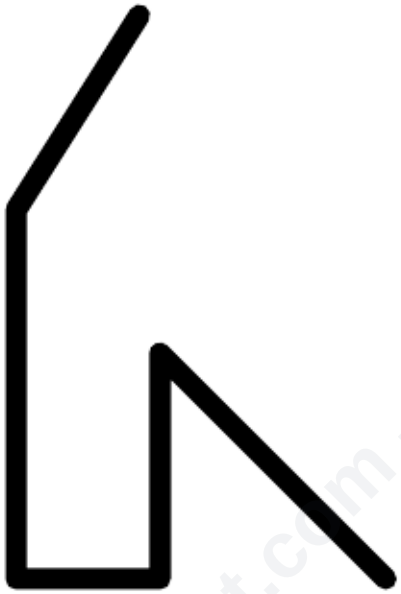


Q4. In a certain code language, 'BOLT' is coded as '2965', 'DOLE' is coded as '5723', 'TADY' is coded as '0368', 'MASB' is coded as '4819'. What is the code for 'BTO' in that code language?

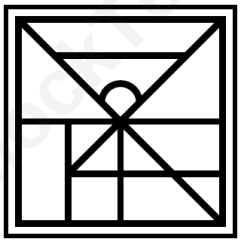
(a) 962
(b) 865
(c) 482
(d) 958

Q5. Select the option figure in which the given figure is embedded. (rotation is NOT allowed)

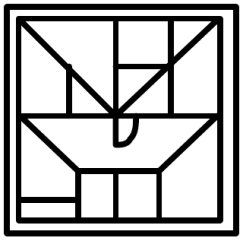
YourMockTest.com — Free Study Material



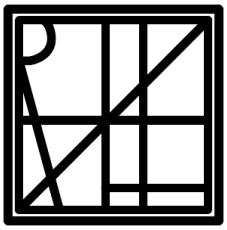
(a)



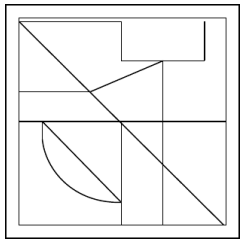
(b)



(c)



(d)

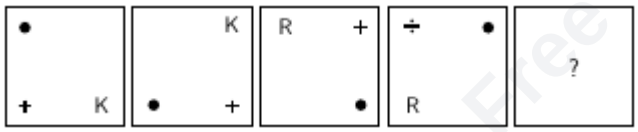


YourMockTest.com — Free Study Material

Q6. If 'P' means '×', 'Q' means '+', 'R' means '÷' and 'S' means '-', then 56 R 8 Q 13 S 42 R 21 P 5 = ?

(a) 12
(b) 8
(c) 24
(d) 10

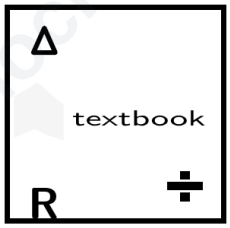
Q7. Select the figure from the given options that can replace the question mark (?) in the following series.



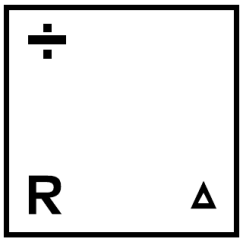
(a)



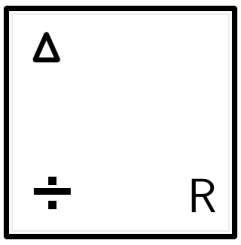
(b)



(c)



(d)



Q8. In the following question, select the odd word pair from the given alternatives.

(a) Write - Pen
(b) Magnify - Microscope
(c) Dig-Spade
(d) Gun-Shoot

Q9. In the following question, select the related letters from the given alternatives.

EI : DF :: HM : ?

(a) ZJ
(b) GJ

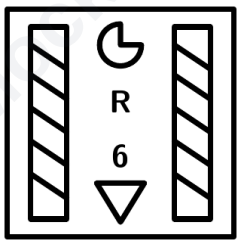
YourMockTest.com — Free Study Material

(c) ST
(d) LT

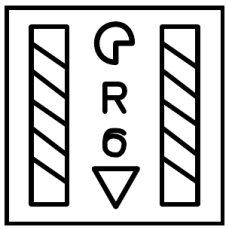
Q10. If a mirror is placed on the line AB, then out of the option figures which figure will be the right image of the question figure?



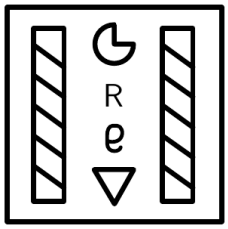
(a)



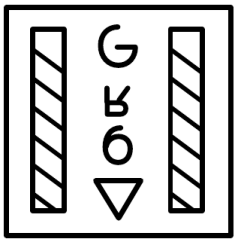
(b)



(c)



(d)



YourMockTest.com - Free Study Material

Q11. In the following question, four number pairs are given. In each pair the number on left side of (-) is related to the number of the right side of (-) with some Logic/Rule/Relation. Three pairs are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.

(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 as adding /subtracting /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) 24-575
(b) 14-197
(c) 12-145
(d) 18-325

Q12. Arrange the given words in the sequence in which they occur in the dictionary.

1. Manger
2. Mango
3. Mangrove
4. Manage
5. Manager

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

Q13. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

I. All Fruits are Vegetables.

II. All Vegetables are Almond.

Conclusions:

I. Some Vegetables are Fruits.

II. All Almond are Vegetables.

III. Some Fruits are Almond.

(a) Both conclusions II and III follows
(b) All conclusion follows
(c) Both conclusions I and II follows
(d) Both conclusions I and III follows

Q14. In the following question, select the missing number from the given series.

10, 10, 20, 60, 240, ?

(a) 1150
(b) 1400
(c) 1200
(d) 1440

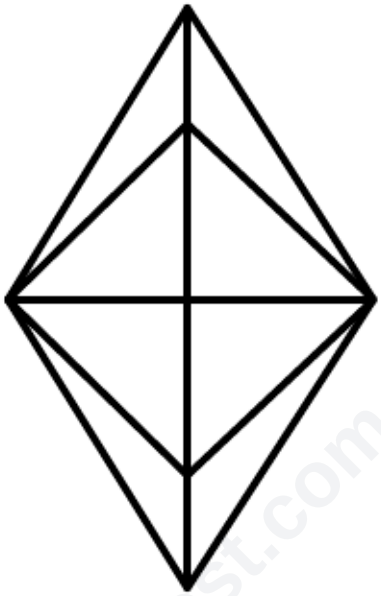
Q15. Words given on the left side of (::) are related with each other by some Logic/Rule /Relation. Select the missing word/word pair on the right side of (::) from the given alternatives based on the same Logic/Rule/Relation.

Plumbline : Mason :: ?

(a) Stethoscope : Sculptor
(b) Saw : Carpenter
(c) Author : Pen
(d) Warrior : Sword

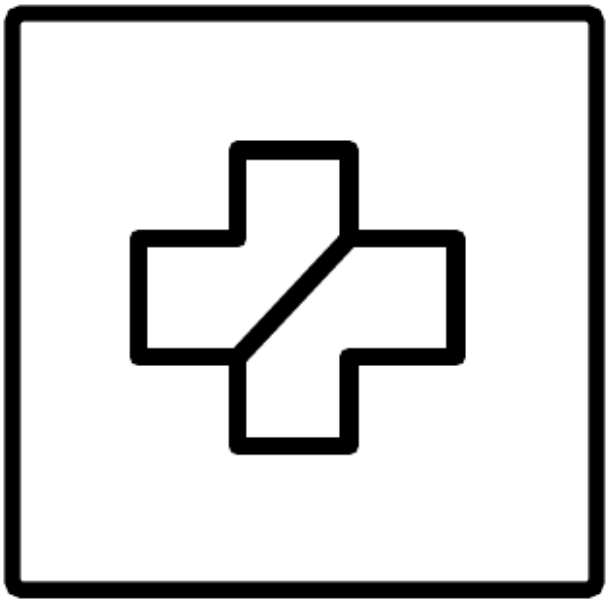
YourMockTest.com — Free Study Material

Q16. Find the total number of triangles in the figure.

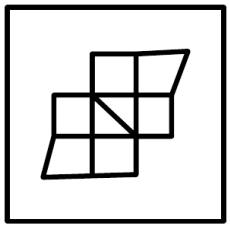


(a) 18
(b) 24
(c) 16
(d) 26

Q17. Select the option figure in which the given figure is embedded. (rotation is NOT allowed)

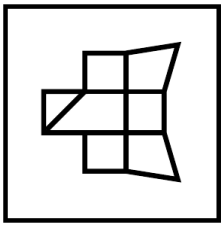


(a)

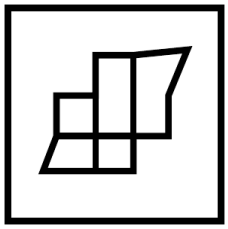


YourMockTest.com — Free Study Material

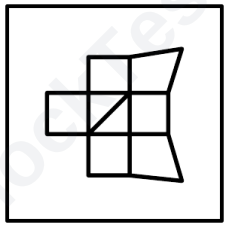
(b)



(c)



(d)



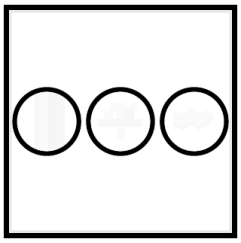
Q18. In a certain code language, 'BOUCLE' is coded as 'AJYSKZ'. What is the code for 'BOUDIN' in that code language?

(a) JGGSKZ
(b) JGZKSZ
(c) JGZSKZ
(d) JGJSKB

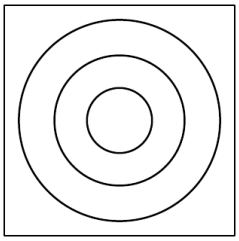
Q19. Select the Venn diagram that best represents the relationship between the following classes.

Mango, Fruit, Banana

(a)

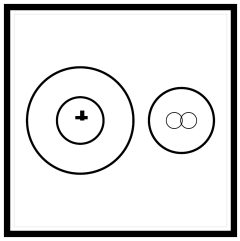


(b)

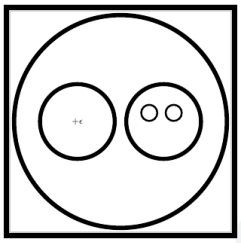


YourMockTest.com — Free Study Material

(c)



(d)



Q20. In the following question, four number pairs are given. In each pair the number on the left side of (-) is related to the number on the right side of (-) with some Logic/Rule /Relation. Three pairs are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.

(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 as adding /subtracting /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) 13-163
(b) 9-77
(c) 18-320
(d) 24-572

Q21. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

PHDT, PDVH, ?, PVFJ, PRXX

(a) PXNV
(b) PZNV
(c) PZMV
(d) PZNY

Q22. Select the option that is related to the fourth number in the same way as the first number is related to the second number and fifth number is related to sixth number.

15 : 210 :: ? : 90 :: 20 : 380

(a) 10
(b) 8
(c) 18
(d) 12

Q23. Words given on the left side of (::) are related with each other by some Logic/Rule /Relation. Select the missing word/word pair on the right side of (::) from the given alternatives based on the same Logic/Rule/Relation.

Horse : Mare :: ?

(a) Nephew : Uncle
(b) Son : Father
(c) Brother : Sister
(d) Cow : Bull

YourMockTest.com — Free Study Material

Q24. By interchanging which two signs and two numbers (not digits) the equation will be correct?

7 - 5 × 2 + 8 ÷ 4 = 17

(a) • and ÷, 8 and 5
(b) × and ÷, 5 and 4
(c) • and -, 4 and 5
(d) • and-, 7 and 5

Q25. Pointing towards a photo of a lady, Pawan said, "She is the sister of my mother's daughter". How that lady is related to Pawan?

(a) Mother
(b) Maternal Aunt
(c) Sister
(d) Daughter in law

GENERAL INTELLIGENCE

Q26. Which among the following is the highest peak of Andaman and Nicobar Islands?

(a) Deomali
(b) Saddle
(c) Phawngpui
(d) Kalsubai

Q27. Which of the following provision of the Indian constitution is not borrowed from the constitution of Britain?

(a) Fundamental Rights
(b) Legislative procedure
(c) Bicameralism
(d) Rule of law

Q28. Certain plants have green and tender stems. They are usually short and may not have many branches. What are they called as?

(a) Herbs
(b) Shrubs
(c) Trees
(d) Creepers

Q29. On learning about the Jallianwala Bagh massacre, _____ expressed the pain and anger of the country by renouncing his knighthood.

(a) Dadabhai Naoroji
(b) Badruddin Tyabji
(c) Rabindranath Tagore
(d) Surendranath Banerji

Q30. A megabyte (MB) consists of 1024 _____.

(a) Gigabytes
(b) Kilobytes
(c) Terabytes
(d) Bytes

Q31. Which of the following pairs of "term - definition" is correct?

I. Strait - a narrow strip of land joining two landmasses

II. Isthmus - a narrow passage of water connecting two large water bodies

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

YourMockTest.com — Free Study Material

(d) Only I

Q32. Which of the following is NOT a play written by Shakespeare?

(a) Antony and Cleopatra
(b) The Comedy of Errors
(c) The Candlestand
(d) Othello

Q33. In MS-Excel 365 which of the following shortcut is used to copy the contents and format of the topmost cell of a selected range into the cells below?

(a) Alt + D
(b) Ctrl + D
(c) Alt + C
(d) Ctrl + C

Q34. Which dance is performed by women of Maharashtra?

(a) Ghoomer dance
(b) Bihu dance
(c) Lavani dance
(d) Bhangra dance

Q35. Which article of the Indian constitution is related with the special provision with respect to the States of Maharashtra and Gujarat?

(a) Article 371
(b) Article 386
(c) Article 377
(d) Article 380

Q36. What is the Pradhan Mantri Mudra Yojana?

(a) A loan Scheme
(b) A scheme for free medicines
(c) An insurance Scheme
(d) An employment Scheme

Q37. The 'Karmayoddha Granth' book was released by which of the following politician?

(a) Amit Shah
(b) Rahul Gandhi
(c) Nitin Gadkari
(d) Smriti Irani

Q38. Which of the following is the largest peninsular river in India?

(a) Krishna
(b) Godavari
(c) Kaveri
(d) Mahanadi

Q39. Which of the following pairs of 'elements - valency' is correct?

I. Boron - 2
II. Fluorine -3

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

YourMockTest.com — Free Study Material

Q40. Which of the following assumptions is made to determine the level of aggregate demand for final goods in the economy?

I. A constant final goods price and constant rate of interest over short run are assumed.

II. The aggregate supply is assumed to be perfectly elastic.

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

Q41. Who among the following Indian athletes won a Gold medal in 2022 Common Wealth Games?

I. Saurav Ghosal

II. Anshu Malik

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

Q42. Which of the following pairs of "sports - medal" is correct regarding performance of India in 2020 Tokyo Olympic Games?

I. Javelin Throw - Silver

II. Men's Hockey - Gold

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

Q43. The book titled 'The Immortals of Meluha' is written by _____.

(a) Sushil Kumar
(b) Devdutt Pattanaik
(c) Amish Tripathi
(d) Chetan Bhagat

Q44. Ain-i Akbari, a document on life of Mughal ruler Akbar does not contain information about _____.

(a) Revenues
(b) Ancestors
(c) Army
(d) Administration

Q45. Which of the following statements is/are NOT correct?

I. The property of metals by which they can be beaten into thin sheets is called malleability.

II. The property of metal by which it can be drawn into wires is called ductility.

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

Q46. Chandigarh International Airport has been renamed as _____.

(a) Manmohan Singh International Airport
(b) Shaheed Bhagat Singh International Airport
(c) Guru Gobind Singh International Airport
(d) Rajguru International Airport

YourMockTest.com — Free Study Material

Q47. The Sattriya dance form originated in which of the following Indian States?

(a) Assam
(b) Tamil Nadu
(c) Uttar Pradesh
(d) Manipur

Q48. India has won 8 olympic gold medals in which sport till 2020?

(a) Boxing
(b) Field Hockey
(c) 10 m air rifle
(d) Wrestling

Q49. As of 2022, there are _____ Union Territories of India.

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

Q50. The curve giving the maximum amount of corn that can be produced in the economy for any given amount of cotton and vice-versa. This curve is called the ____.

(a) Total revenue curve
(b) Indifference curve
(c) Production possibility frontier
(d) Demand curve

QUANTITATIVE APTITUDE

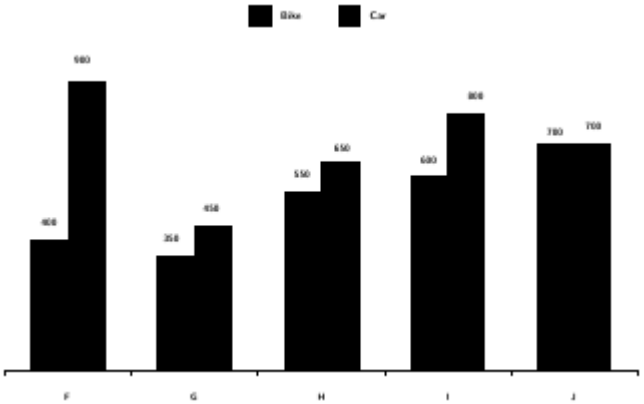
Q51. If A = cot 30° tan 60° + cot 60° tan 30°, then what is the value of A?

(a) 1/√3
(b) 10/3
(c) 10/√3
(d) 1/3

Q52. A person borrows Rs. 20000 at the rate of 6 percent per annum on simple interest for 3 years. He immediately lends it to another person at the rate of 8.5 percent per annum on simple interest for 3 years. What is the value of gain per year?

(a) Rs. 1500
(b) Rs. 500
(c) Rs. 800
(d) Rs. 200

Q53. The bar graph given below shows the sales of bikes and cars of five companies.



P1 = The difference between the average sales of bikes and average sales of cars of all 5 companies.

P2 = The total value of the sales of bikes and cars of all 5 companies.

What is the value of (P2 - P1)?

(a) 5320
(b) 4926
(c) 6100
(d) 5920

Q54. The cost price of 44 items is the same as the selling price of x items. If the profit is 10%, then what is the value of x?

(a) 55
(b) 40
(c) 60
(d) 50

Q55. Tangent drawn from a point X, touches the circle at U. O is the centre of this circle. If XU = 15 cm and OU = 8 cm, then what is the value of OX?

(a) 12 cm
(b) 19 cm
(c) 21 cm
(d) 17 cm

Q56. If (x-1/x=4), then what is the value of (x^6+1/(x^6)) ?

(a) 4689
(b) 4786
(c) 5832
(d) 5778

Q57. A solid sphere of diameter 7 cm is cut into two equal halves. What will be the increase in its total surface area?

(a) 77 cm^2
(b) 60.5 cm^2
(c) 65.5 cm^2
(d) 55 cm^2

Q58. The following histogram shows the weekly wages of workers at a factory.

How many workers get wages of more than Rs. 200?



(a) 95
(b) 85
(c) 70
(d) 80

Q59. The angle subtended by a chord on the center of a circle is 180 degrees. What will be the angle subtended by the same chord on the circumference of this circle?

(a) 120 degree
(b) 95 degree

YourMockTest.com — Free Study Material

(c) 90 degree
(d) 45 degree

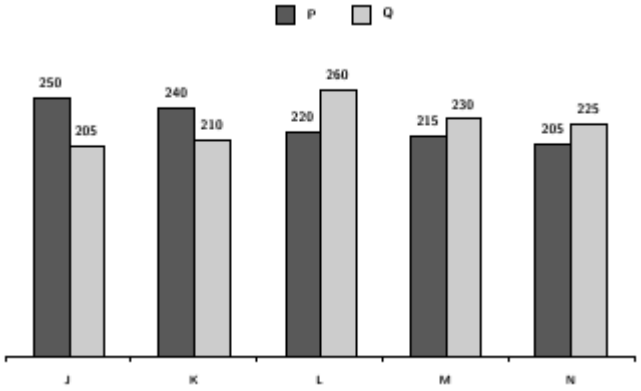
Q60. What is the value of (k+1/k)(k-1/k)(k²+1/(k²))(k^4+1/(k^4)) ?
(a) k^(16)+1/(k^(16))
(b) k^(16)-1/(k^(16))
(c) k^8-1/(k^8)
(d) k^8+1/(k^8)

Q61. A train starts from a place S at 10:00 a.m. and arrives at another place T at 2 : 30 p. m. on the same day. If the speed of the train is 40 m/s, then what will be the distance covered by the train?
(a) 706 km
(b) 648 km
(c) 726 km
(d) 616 km

Q62. If price of rice is increased by 25 percent, then by what percentage consumption of rice should be decreased so that the expenditure incurred on rice gets decreased by 40 percent?
(a) 52 percent
(b) 43.33 percent
(c) 42 percent
(d) 48 percent

Q63. Two vessels of equal capacity contain juice and water in the ratio of 3 : 5 and 3 : 1 respectively. The mixture of both the vessels are mixed and transferred into a bigger vessel. What is the ratio of juice and water in the new mixture?
(a) 13 : 9
(b) 9 : 7
(c) 8 : 9
(d) 7 : 3

Q64. The bar graph given below shows the number of eraser sold by two shopkeepers P and Q in 5 months.



Which of the following statement is NOT correct?
I. The ratio of total number of eraser sold by P in J and K to the total number of eraser sold by Q in M and N is 93 : 98.
II. The difference between the total number of eraser sold by P and Q is 0.
(a) Only II
(b) Both I and II
(c) Only I
(d) Neither I nor II

Q65. If a + b = 6 and ab = 4, then what is the value of a³ + b³?
(a) 125
(b) 120
(c) 144

(d) 81

Q66. Sum of the angles made by a chord at the centre and on the major arc of a circle is 180 degree. What will be the angle made at the centre of the circle?

(a) 60 degree
(b) 90 degree
(c) 75 degree
(d) 120 degree

Q67. Two medians JX and KY of ΔJKL intersect each other at Z at right angles. If KL = 22 cm and KY = 12 cm, then what is the length of JX?

(a) 6 √19 cm
(b) 3 √57 cm
(c) 2 √57 cm
(d) 4 √19 cm

Q68. The marked price of an item was Rs. 480 but the shopkeeper offered a discount of 5%. At what price does he finally sell the item?

(a) Rs. 435
(b) Rs. 450
(c) Rs. 466
(d) Rs. 456

Q69. If $\tan\theta + \sin\theta = A$ and $\tan\theta - \sin\theta = B$, then what is the value of $A^2 - B^2$?

(a) $\tan\theta \sin\theta$
(b) $4 \cot\theta$
(c) $4 \tan\theta \sin\theta$
(d) $2 \tan\theta \sin\theta$

Q70. ΔABC is a right angled triangle. angle C = 90 degree, AB = 25 cm and BC = 20 cm. What is the value of sec A?

(a) 5/3
(b) 4/5
(c) 4/3
(d) 5/4

Q71. The average marks obtained by 80 students in an examination is 50. If the average marks of passed students is 55 and the number of students who failed the examination are 30, then what is the average marks of students who failed the examination?

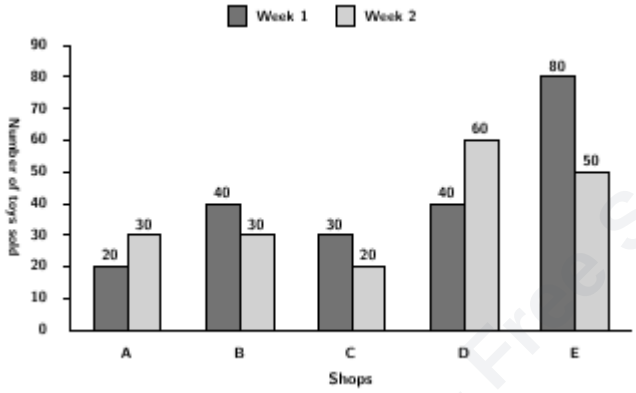
(a) 41.66
(b) 46.66
(c) 40.33
(d) 52.33

Q72. To complete a wall, X takes 50 percent more time than Y. If together they complete the wall in 15 days, then how much time will X alone take to complete it?

(a) 36.5 days
(b) 42.5 days
(c) 37.5 days
(d) 40 days

Q73. The below bar graph shows the number of toys sold by five different shops (i.e., A, B, C, D and E) in the first week and second week.

YourMockTest.com — Free Study Material



Find the ratio of the total number of toys sold by shops A, B and C in the first week to the number of toys sold by shops C, D and E in the second week.

(a) 1 : 13
(b) 9 : 1
(c) 13: 9
(d) 9 : 13

Q74. Which of the following statement is true?

I. 5/11>5/6
II. 5/9>8/9
III. 5/6>4/5

(a) Only III
(b) Both I and II
(c) Only II
(d) Only I

Q75. What is the sum of all two digit numbers which are divisible by 9?

(a) 565
(b) 535
(c) 585
(d) 475

GENERAL AWARENESS

Q76. Choose the word that can substitute the given group of words.

A speech made without preparation

(a) Parable
(b) Eulogy
(c) Extempore
(d) Chronicle

Q77. Fill in the blank with an appropriate option.

Your ear has three main _____: outer, middle and inner.

(a) parts
(b) subjects
(c) plugs
(d) events

Q78. Select the correct indirect form of the given sentence.

Lee said to his wife, "I am very happy today."

(a) Lee told his wife that he was very happy today.
(b) Lee told his wife that he has been very happy that day.

YourMockTest.com — Free Study Material

(c) Lee told his wife he was very happy today.
(d) Lee told his wife that he was very happy that day.

Q79. Rearrange the parts of the sentence in correct order.

P. bendable electronics and sensing technologies research
Q. people using "aerohaptics", creating feelings of touch with jets of air
R. my colleagues and I working in the University of Glasgow's
S. group have now developed a system of holograms of

(a) QPSR
(b) RPSQ
(c) PQRS
(d) SRQP

Q80. Choose the incorrectly spelt word.

(a) Morning
(b) Washing
(c) Calling
(d) Burnig

Q81. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.

Its impossible to conduct truly causal research on media consumption and suicide.

(a) Its impossible to conduct
(b) media consumption and suicide.
(c) No error
(d) truly causal research on

Q82. Choose the word that can substitute the given group of words.

Exaggerated claims, not meant to be taken seriously

(a) Hyperpyrexia
(b) Hyperbole
(c) Hypergamy
(d) Hyperreal

Q83. Select the correct passive form of the given sentence.

The child locked the shutters.

(a) The shutters were locked by the child.
(b) The shutters are locked by the child.
(c) The shutters would be locked by the child.
(d) The shutters had been locked by the child.

Q84. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.

What is the price of this fancy dress pink?

(a) fancy dress pink?
(b) No error
(c) price of this
(d) What is the

Q85. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

As hard as nails

(a) To be stubborn
(b) To feel no pain
(c) Physically or mentally tough
(d) Hard working

YourMockTest.com — Free Study Material

Q86. Choose the sentence with no spelling error.

(a) These componants can work independently.
(b) These components can work indepedently.
(c) These components can work independently.
(d) These components can wrok independently.

Q87. Improve the underlined part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.

The number of women working outside homes has been steady increasing.

(a) has been steadily
(b) had been steadier
(c) No improvement
(d) have been steady

Q88. Fill in the blank with the most suitable word.

The _____ heard that the relationship was stormy and had broken up several times.

(a) inquiry
(b) impute
(c) inordinate
(d) impugn

Q89. Select the word that is opposite in meaning (ANTONYM) to the word given below.

Fret

(a) Anxious
(b) Anguish
(c) Relax
(d) Pine

Q90. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

The whys and wherefores

(a) References
(b) Circumstances
(c) Requirements
(d) Reasons

Q91. Choose the word that means the same as the given word.

Enigmatic

(a) Literate
(b) Grumpy
(c) Illiterate
(d) Mysterious

Q92. Select the word that is closest in meaning (SYNONYM) to the word given below.

Decimate

(a) mend
(b) wreck
(c) harbour
(d) establish

Q93. Fill in the blank with the most suitable word.

The humour of the gods is cruel; or _____ they see more than we do.

(a) unlikely
(b) odds

YourMockTest.com — Free Study Material

(c) perhaps
(d) however

Q94. Improve the underlined part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.

I didn't have times to watch the whole movie.

(a) time to watch
(b) timer to watched
(c) time to watching
(d) No improvement

Q95. Choose the word that means the same as the given word.

Oblate

(a) Mendicant
(b) Heathen
(c) Layperson
(d) Secular

Directions

In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

According to the Integrated Taxonomic Information System (ITIS) there are more than 60 (1)____ of rat, which means they come in all sizes. They are (2) ____ 5 inches (12 centimeters), or longer, according to Encyclopedia Britannica. The largest species is the Bosavi woolly rat, which was (3)__ in 2009 in the rainforest of Papua New Guinea (and doesn't have a scientific name yet). It is (4)_ the size of a cat - 32.2 inches (82 cm) from nose to tail and (5)____ around 3.3 lbs. (1.5 kilograms), according to CNN.

Q96. Select the most appropriate option to fill in blank number 1.

(a) entities
(b) sections
(c) species
(d) objects

Q97. Select the most appropriate option to fill in blank number 2.

(a) modestly
(b) manually
(c) typically
(d) surgically

Q98. Select the most appropriate option to fill in blank number 3.

(a) discovered
(b) invented
(c) denuded
(d) screened

Q99. Select the most appropriate option to fill in blank number 4.

(a) a lot
(b) of
(c) about
(d) some

Q100. Select the most appropriate option to fill in blank number 5.

(a) evaluates
(b) weighs
(c) counts
(d) measures

YourMockTest.com — Free Study Material

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) GJJL

The logic followed here is:

Option 1) GJJL → G + 3 = J, J + 0 = J, J + 3 = M ≠ L.

Option 2) EHHK → E + 3 = H, H + 0 = H, H + 3 = K.

Option 3) ADDG → A + 3 = D, D + 0 = D, D + 3 = G.

Option 4) VYYB → V + 3 = Y, Y + 0 = Y, Y + 3 = B.

Here, 'GJJL' does not followed the pattern.

Hence, the correct answer is "Option 1".

Q2. Answer: (a) (17, 24, 1730)

The logic followed here is:

Logic: [(1st number)² + (2nd number)²] × 2 = 3rd number.

Now,

For (14, 17, 970)

→ (14² + 17²) × 2

→ (196 + 289) × 2

→ 485 × 2 = 970.

For (15, 23, 1508)

→ (152 + 232) × 2

→ (225 + 529) × 2

→ 754 × 2 = 1508.

Similarly, for (17, 24, 1730)

→ (172 + 242) × 2

→ (289 + 576) × 2

→ 865 × 2 = 1730.

Hence, the correct answer is "Option 1".

Q3. Answer: (b) [figure]

The image embedded in given figure is as shown below:

Hence, "Option 2" is the correct answer.

Q4. Answer: (a) 962

Given:

'BOLT' is coded as '2965'

'DOLE' is coded as '5723'

'TADY' is coded as '0368'

'MASB' is coded as '4819'

Here,

'B' is the code for '9'.

'T' is the code for '6'.

'E' is the code for '7'.

'A' is the code for '8'.

'D' is the code for '3'.

'Y' is the code for '0'.

Either 'M' or 'S' will be coded as '4' or '1'.

Either 'O' or 'L' will be coded as '5' or '2'.

So, according to the options 'BTO' will be coded as '962'.

Hence, the correct answer is "Option 1".

Q5. Answer: (d) [figure]

The image embedded in given figure is as shown below:

Hence, "Option 4" is the correct answer.

Q6. Answer: (d) 10

Given equation: 56 R 8 Q 13 S 42 R 21 P 5 = ?

BODMAS Table:

According to the question:

Symbols	P	Q	R	S
Meaning	×	•	÷	•

Replace the symbols with the letters:

We get: 56 ÷ 8 + 13 - 42 ÷ 21 × 5

=> 7 + 13 - 2 × 5

=> 7 + 13 - 10

=> 20 - 10

=> 10.

Hence, the correct answer is "10".

Q7. Answer: (d) [figure]

The logic followed here is:

Step I: Shaded Circles are getting shifted in next places and getting replaced with Triangle.

Step II: Symbol '+' are getting shifted in next places and getting replaced with Symbol '÷'.

Step III: Alphabet 'K' are getting shifted in next places and getting replaced with Alphabet 'R'.

So, the complete series will be:

So, 'Option 4' will replace the question mark.

Hence, the correct answer is "Option 4".

Q8. Answer: (d) Gun-Shoot

The logic followed here is:

Logic: Second word is a tool or instrument used to perform the action denoted by the first word.

Option 1) Write - Pen → A "Pen" is used to "Write".

Option 2) Magnify - Microscope → A "Microscope" is used to "Magnify".

Option 3) Dig - Spade → A "Spade" is used to "Dig".

Option 4) Gun - Shoot → "Shoot" is not an object used for "Gun", rather it is an action performed with the gun.

So, In 'Gun - Shoot' the second word is an action performed using the object denoted by the first word, which is different from the pattern followed by the other options.

Hence, the correct answer is "Option 4".

YourMockTest.com — Free Study Material

Q9. Answer: (b) GJ

The logic followed here is:

For, El : DF

Similarly, for HM : ?

Hence, the correct answer is "Option 2".

Q10. Answer: (a) [figure]

The correct mirror image is shown below:

Hence, the correct answer is "Option 1".

Q11. Answer: (a) 24-575

The logic followed here is:

Logic: (1st number)^2 + 1 = 2nd number.

Now, checking the options:

Option 1) 24-575 → $24^2 + 1 = 576 \neq 575$.

Option 2) 14-197 → $14^2 + 1 = 197$.

Option 3) 12-145 → $12^2 + 1 = 145$.

Option 4) 18-325 → $18^2 + 1 = 325$.

So, '24-575' does not follow the same logic as the other options.

Hence, the correct answer is "Option 1".

Q12. Answer: (b) 4, 5, 1, 2, 3

The correct order as per the dictionary is:

4. Manage

5. Manager

1. Manger

2. Mango

3. Mangrove

Hence, the correct answer is "4, 5, 1, 2, 3".

Q13. Answer: (d) Both conclusions I and III follows

Given Statements:

I. All Fruits are Vegetables.

II. All Vegetables are Almond.

The least possible Venn diagram for the given statement is:

Conclusions:

I. Some Vegetables are Fruits - True (All Fruits are Vegetables, it means some Vegetables are Fruits).

II. All Almond are Vegetables - False (Because, All Vegetables are Almond, so all Almond are Vegetables can be possible only).

III. Some Fruits are Almond - True (Because, All Fruits are Vegetables and All Vegetables are Almond, so Some Fruits are Almond)

So, Both conclusions I and III follows.

Hence, the correct answer is "Option 4".

Q14. Answer: (c) 1200

The logic followed here is:

So, '1200' will complete the series.

Hence, the correct answer is "Option 3".

Q15. Answer: (b) Saw : Carpenter

The logic followed here is:

Logic: The first word is a tool or instrument used by the profession mentioned as the second word.

Here,

Plumbline : Mason → A mason uses a plumbline.

Similarly,

YourMockTest.com — Free Study Material

Saw : Carpenter → Using this logic, the pair that fits this relationship is "Saw : Carpenter", as a carpenter uses a saw.
Hence, the correct answer is "Option 2".

Q16. Answer: (b) 24

The triangles are:
So, there are '24' triangles in the given figure.
Hence, the correct answer is "24".

Q17. Answer: (d) [figure]

The image embedded in given figure is as shown below:
Hence, "Option 4" is the correct answer.

Q18. Answer: (c) JGZSKZ

The logic followed here is:
'BOUCLE' is coded as 'AJYSKZ',
Similarly, for 'BOUDIN'
So, 'BOUDIN' is coded as 'JGZSKZ'.
Hence, the correct answer is "Option 3".

Q19. Answer: (d) [figure]

The logic followed here is:
Mangoes comes under Fruits category,
Banana comes under Fruits category,
Hence, the correct answer is "Option 4".

Q20. Answer: (a) 13-163

The logic followed here is:
Logic: (1st number)^2 - 4 = 2nd number.
Now, checking the options:
Option 1) 13-163 → 13^2 - 4 = 165 ≠ 163.
Option 2) 9-77 → 9^2 - 4 = 77.
Option 3) 18-320 → 18^2 - 4 = 320.
Option 4) 24-572 → 24^2 - 4 = 572.
So, '13-163' does not follow the same logic as the other options.
Hence, the correct answer is "Option 1".

Q21. Answer: (b) PZNV

The logic followed here is:
So, 'PZNV' will replace the question mark in the given series.
Hence, the correct answer is "Option 2".

Q22. Answer: (a) 10

The logic followed here is:
Logic: 1st number × (1st number - 1) = 2nd number.
Now,
For, 15 : 210
=> 15 × (15 - 1)
=> 15 × 14 = 210.
For, 20 : 380
=> 20 × (20 - 1)
=> 20 × 19 = 380.
Similarly for, ? : 90
=> 10 × (10 - 1)
=> 10 × 9 = 90.

YourMockTest.com — Free Study Material

Hence, the correct answer is "10".

Q23. Answer: (c) Brother : Sister

The logic followed here is:

Logic: First term represents the male gender and Second term represents the female gender.

Here,

Horse : Mare → Horse is the male and Mare is the female in gender wise.

Similarly,

Brother : Sister → Brother is the male and Sister is the female in gender wise.

Hence, the correct answer is "Option 3".

Mistake Points

1. Cow : Bull

• This relationship is reversed. A cow is a female bovine, and a bull is a male bovine, which does not match the gender direction in "Horse : Mare."

Q24. Answer: (d) • and-, 7 and 5

Given equation: 7 - 5 × 2 + 8 ÷ 4 = 17.

BODMAS Table:

Let's check each option one by one.

Option 1) - and ÷, 8 and 5

Given: 7 - 5 × 2 + 8 ÷ 4 = 17

After interchanging the numbers we get;

=> 7 ÷ 8 × 2 + 5 - 4 = 17

=> 0.875 × 2 + 5 - 4 = 17

=> 1.75 + 5 - 4 = 17

=> 6.75 - 4 = 17

=> 2.75 ≠ 17

=> LHS ≠ RHS

Option 2) × and ÷, 5 and 4

Given: 7 - 5 × 2 + 8 ÷ 4 = 17

After interchanging the numbers we get;

=> 7 - 4 × 2 + 5 ÷ 4 = 17

=> 7 - 4 × 2 + 1.25 = 17

=> 7 - 8 + 1.25 = 17

=> 8.25 - 8 = 17

=> 0.25 ≠ 17

=> LHS ≠ RHS

Option 3) + and -, 4 and 5

Given: 7 - 5 × 2 + 8 ÷ 4 = 17

After interchanging the numbers we get;

=> 7 + 4 × 2 - 8 ÷ 5 = 17

=> 7 + 4 × 2 - 1.6 = 17

=> 7 + 8 - 1.6 = 17

=> 15 - 1.6 = 17

=> 13.4 ≠ 17

=> LHS ≠ RHS

Option 4) + and -, 7 and 5

Given: 7 - 5 × 2 + 8 ÷ 4 = 17

After interchanging the numbers we get;

=> 5 + 7 × 2 - 8 ÷ 4 = 17

=> 5 + 7 × 2 - 2 = 17

=> 5 + 14 - 2 = 17

YourMockTest.com — Free Study Material

=> 19 - 2 = 17

=> 17 = 17

=> LHS = RHS

Hence, the correct answer is "Option 4".

Q25. Answer: (c) Sister

Family Chart:

Given: Pointing towards a photo of a lady, Pawan said, "She is the sister of my mother's daughter".

So, the Lady is the Sister of Pawan.

Hence, the correct answer is "Option 3".

Q26. Answer: (b) Saddle

The correct answer is option 2 Saddle.

Key Points

• The highest peak of the Andaman and Nicobar Islands is Saddle.

• The saddle has an elevation of approximately 732 meters (2,402 feet) above sea level.

• Located on North Andaman Island, Saddle is the highest point in the entire archipelago.

• It is a part of the Great Nicobar Biosphere Reserve, which is known for its rich biodiversity.

• The saddle offers stunning views of the surrounding landscapes and is a popular destination for trekkers and nature enthusiasts.

Additional Information

Option	Peak	Elevation (meters)	Elevation (feet)
1	Deomali	1,672	5,486
2	Saddle	732	2,402
3	Phawngpui	2,157	7,077
4	Kalsubai	1,646	5,400

• Deomali: Deomali is the highest peak in the Indian state of Odisha, not in the Andaman and Nicobar Islands.

• Phawngpui: Phawngpui, also known as Blue Mountain, is the highest peak in the state of Mizoram, not in the Andaman and Nicobar Islands.

Q27. Answer: (a) Fundamental Rights

the correct answer Fundamental Rights.

Key Points

• The concept of Fundamental Rights in the Indian Constitution is not borrowed from Britain; it's inspired by the US Constitution.

• Fundamental Rights protect the basic human rights of all citizens of India and are essential for the development of the individual and the country.

• They include rights like equality before the law, freedom of speech and expression, and protection from discrimination.

• These rights can be enforced by courts, and any law infringing them can be declared null and void.

Additional Information

Option	Description
Legislative procedure	This process of making laws is borrowed from the British Constitution.
Bicameralism	The concept of a parliament divided into two houses, the Rajya Sabha (Upper House) and the Lok Sabha (Lower House), is borrowed from the British Constitution.
Rule of law	This principle that every person is subject to the law, including people who are lawmakers, government officials, and judges, is borrowed from the British Constitution.

Q28. Answer: (a) Herbs

The correct answer is Herbs.

Key Points

• Herbs are small, seed-bearing plants with soft stems.
• Certain plants have green and tender stems.
• They are usually short and may not have many branches.
• They are shorter than shrubs or trees and generally do not have many branches.
• Their green and tender stem differentiate them from other plant categories like trees or shrubs.
• Herbs usually have medicinal, culinary, or aromatic qualities.

Important Points

Option	Description
Shrubs	Medium-sized, woody plants that are taller than herbs but shorter than trees.
Trees	Large, woody plants with a single, sturdy stem or trunk and branches.
Creepers	Plants with weak stems cannot stand upright and spread over the ground or climb using other plants and structures for support.

Q29. Answer: (c) Rabindranath Tagore

The correct answer is Rabindranath Tagore.

Key Points

• Rabindranath Tagore, a celebrated author and poet, renounced his knighthood in protest of the Jallianwala Bagh massacre in 1919.
• Tagore wrote a letter to the Viceroy of India, expressing his repugnance and sorrow over the brutal incident.
• His act was a form of protest against British policies in India.
• Tagore was the first non-European and the first lyricist to win the Nobel Prize in Literature.

Important Points

Option	Description
Dadabhai Naoroji	Known as the Grand Old Man of India, he was a Parsi intellectual, educator, cotton trader, and early Indian political and social leader.
Badruddin Tyabji	He was the first Indian to practice law in the Bombay High Court.
Surendranath Banerji	He was one of the earliest Indian political leaders during the British Raj and a senior leader of the Indian National Congress.

Q30. Answer: (b) Kilobytes

The correct answer is **Kilobytes.

Key Points

• A Megabyte (MB) is a unit of digital information storage or transmission with the prefix mega, denoting multiplication by one million in decimal and by 1024 in binary.
• The unit symbol for the Megabyte is MB.
• One megabyte is equal to 1024 kilobytes (KB).
• This is based on the binary system of data storage used in computing.

Additional Information

Option	Description
Gigabytes	One gigabyte (GB) is 1024 megabytes (MB).
Terabytes	One terabyte (TB) is 1024 gigabytes (GB).
Bytes	A byte is the basic unit of information storage and transmission in digital systems. One kilobyte (KB) is 1024 bytes.

Q31. Answer: (c) Neither I nor II

The correct answer is Neither I nor II.

Key Points

YourMockTest.com — Free Study Material

• A Strait
• It is a landform connecting two large areas of water (seas).
• In other words, it is a water channel that lies between two land masses.
• It is also known to be loci for sediment accumulation.
• Usually, sand deposits on both sides of a strait form deltas.
• The Palk Strait is located between Tamil Nadu and the Jaffna District, Sri Lanka.
• It is named after Robert Palk, a governor of Madras.
• An Isthmus
• It is a narrow piece of land connecting two larger areas across the water.
• It separates two water bodies.
• A strait is a sea counterpart of an isthmus.
• Canals are often built across isthmuses as a shortcut for marine transport.
• A good example of an isthmus is the Panama Canal.
• The canal links North and South America and separates the Pacific and Atlantic Oceans.
• Additional Information
• An Island
• Island is a land piece completely surrounded by water on all sides.
• An island in a river or a lake is called an eyot or ait.
• A small island off the river coast is called a holm.
• Sedimentary islands in the Ganges delta are called chars.
• A group of islands is called an archipelago.
• A trench
• It is a long narrow, and steep-sided depression on the ocean floor.
• It is the deepest part of the ocean floor.
• It is formed due to tectonic forces.
• They are more common in the pacific ocean.
• The Mariana Trench is a good example.
• It is the deepest trench in the world (about 11 km deep).

Q32. Answer: (c) The Candlestand

The correct answer is The Candlestand.

Key Points

• "The Candlestand" is a play written by Debeshi Gooptu.
• Shakespeare's works consist of about 39 plays, 154 sonnets, two long narrative poems, and a few other verses.
• His plays have been translated into every major living language and are performed more often than those of any other playwright.

Additional Information

Option	Description
Antony and Cleopatra	A tragedy by William Shakespeare.
The Comedy of Errors	A comedy by William Shakespeare.
Othello	A tragedy by William Shakespeare.

Q33. Answer: (b) Ctrl + D

The correct answer is Ctrl + D.

Key Points

• The Ctrl + D shortcut in MS Excel is used to fill it down.
• It copies the content and format of the topmost cell of a selected range into the cells below.
• This shortcut is very useful when you want to quickly duplicate data into cells below in a column.
• This feature can save time in manually entering the same data again and again.
• It's an essential tool in spreadsheet management and data entry tasks in MS Excel.

Additional Information

Option	Description
Alt + D	No standard function in MS Excel.
Alt + C	No standard function in MS Excel.
Ctrl + C	This shortcut is used to copy the selected cell or range.

Q34. Answer: (c) Lavani dance

The correct answer is Lavani dance.

Key Points

• Lavani Dance is a genre of music popular in Maharashtra.
• It's performed by women and is known for its powerful rhythm.
• Lavani has contributed significantly to the development of Marathi folk theatre.
• The songs in 'Lavani' are mostly erotic in sentiment and the dialogues tend to be pungent in socio-political satire.
• Lavani is danced to the beat of the 'Dholaki', a drum-like instrument.

Additional Information

Option	Description
Ghoomer Dance	Traditional folk dance of Rajasthan.
Bihu Dance	A folk dance from the Indian state of Assam.
Bhangra Dance	A traditional dance form from Punjab, generally performed during the harvest season.

Q35. Answer: (a) Article 371

The correct answer is Option 1.

Key Points

• Article 371 of the Indian Constitution provides certain special provisions for Maharashtra and Gujarat.
• It includes the establishment of separate development boards for Vidarbha, Marathwada, Saurashtra, and Kutch.
• The President of India is responsible for ensuring the equitable allocation of funds for developmental work in these regions.
• These provisions also assure adequate representation of these regions in service under the State.

Additional Information

Option	Description
Article 386	Pertains to the taxes levied and collected by the Union but assigned to the States.
Article 377	Does not exist in the Indian Constitution.
Article 380	The President's power to declare an area as Scheduled Area.

Important Points

Article	Subject matter
371	Special provision with respect to the states of Maharashtra and Gujarat
371A	Special provision with respect to the state of Nagaland
371B	Special provision with respect to the state of Assam
371C	Special provision with respect to the state of Manipur
371D	Special provisions with respect to the state of Andhra Pradesh or the state of Telangana
371E	Establishment of Central University in Andhra Pradesh
371F	Special provisions with respect to the state of Sikkim
371G	Special provision with respect to the state of Mizoram

YourMockTest.com – Free Study Material

371H	Special provision with respect to the state of Arunachal Pradesh
371I	Special provision with respect to the state of Goa
371J	Special provisions with respect to the state of Karnataka

Q36. Answer: (a) A loan Scheme

The correct answer is Option 1.

Key Points

• The Pradhan Mantri Mudra Yojana (PMMY) is a scheme launched by the Government of India to provide loans up to Rs. 10 Lakh to the non-corporate, non-farm small/micro-enterprises.

• These loans are categorized as MUDRA loans under PMMY.

• The aim of the scheme is to promote entrepreneurship among new and existing enterprises.

• The loans are provided by Commercial Banks, RRBs, Small Finance Banks, MFIs and NBFCs.

Additional Information

• Pradhan Mantri Mudra Yojana (PMMY) is a flagship scheme launched by the Government of India in 2015.

• It aims to provide financial support to small and micro-enterprises in the country.

• The word "Mudra" stands for Micro Units Development and Refinance Agency.

Q37. Answer: (a) Amit Shah

The correct answer is Option 1.

Key Points

• The 'Karmayoddha Granth' was released by Amit Shah, the Union Home Minister of India.

• The Granth narrates the life of Narendra Modi, the Prime Minister of India, and his political journey.

• It describes PM Modi as a 'Karmayoddha' (a man with a determined resolution).

• It outlines how his leadership has transformed India.

Additional Information

Option	Description
Rahul Gandhi	Member of the Indian National Congress and former president of the party.
Nitin Gadkari	Minister of Road Transport and Highways; Micro, Small and Medium Enterprises in the Government of India.
Smriti Irani	Minister of Women and Child Development and Textiles in the Government of India.

Q38. Answer: (b) Godavari

The correct answer is Option 2.

Key Points

• The Godavari River is the largest peninsular river in India.

• The Godavari River rises from Trimbakeshwar in the Nashik district of Maharashtra and flows through several states, including Maharashtra, Telangana, Andhra Pradesh, and Odisha.

• With a length of approximately 1,465 kilometres (910 miles), the Godavari is often referred to as the Dakshina Ganga or the Ganges of the South.

• The river is known for its significance in Hindu mythology and its extensive irrigation networks, making it a lifeline for agricultural activities in the region.

Additional Information

Option	River	Length (km)	Length (miles)
1	Krishna	1,400	870
2	Godavari	1,465	910
3	Kaveri	800	497
4	Mahanadi	858	533

YourMockTest.com - Free Study Material

• Krishna: The Krishna River is the second-largest peninsular river in India, originating from the Western Ghats of Maharashtra and flowing through Maharashtra, Karnataka,Telangana and Andhra Pradesh.

• Kaveri: The Kaveri river, also known as the Cauvery, originates from the Brahmagiri hills in Karnataka and flows through Karnataka and Tamil Nadu.

• Mahanadi: The Mahanadi River originates from the Chhattisgarh region and flows through Odisha before emptying into the Bay of Bengal.

Q39. Answer: (a) Neither I nor II

The correct answer is Option 1.

Key Points

• Fluorine has a valency of 1 because it needs to gain only one electron to achieve a stable electron configuration of 8 valence electrons.

• Boron has a valency of 3 because it tends to lose its three valence electrons to achieve a stable electron configuration.

Additional Information

• Valency, also known as oxidation number, is a measure of an element's combining capacity or the number of electrons it can gain, lose, or share when forming chemical compounds.

• It determines how an element will bond with other elements to form compounds.

• The valency of an element is determined by the number of valence electrons it possesses.

• Valence electrons are the electrons present in the outermost energy level or shell of an atom.

• These electrons are involved in chemical reactions and have the potential to participate in bonding.

Q40. Answer: (d) Both I and II

The correct answer is Option 4.

Key Points

• Assumption I, which assumes a constant final goods price and a constant rate of interest over the short run, helps in analyzing the relationship between aggregate demand and other macroeconomic variables such as consumption, investment, and government spending.

• Assumption II, which assumes that aggregate supply is perfectly elastic, implies that firms can produce any quantity of goods and services at a given price level. This assumption simplifies the analysis of aggregate demand and supply interactions in the economy.

Additional Information

• The demand for final goods in an economy refers to the total quantity of finished goods and services that consumers, businesses, and government entities are willing and able to purchase at a given price level and during a specific period.

• Several factors influence the demand for final goods:

• Consumer Spending

• Business Investment

• Government Expenditure

• International Trade

• Monetary and Fiscal Policies

• Income Levels

Q41. Answer: (c) Neither I nor II

The correct answer is Option 3.

Key Points

• Saurav Ghosal and Anshu Malik did not win gold medals in the 2022 Commonwealth Games.

• India won 23 Bronze medals in Commonwealth Games 2022.

• India won a total of 61 medals in the Commonwealth Games 2022.

• 22 gold,

• 16 silver, and

• 23 bronze

Additional Information

• In the 2018 Commonwealth Games, India won a total of 66 medals out of which 16 were in shooting.

• This time shooting was not included.

YourMockTest.com — Free Study Material

• India finished fourth in the medal tally.
• Australia took first place.
• England finished second and Canada third.
• New Zealand finished fifth.

Q42. Answer: (b) Neither I nor II

The correct answer is Option 2.

Key Points

• India won medals in both Javelin Throw and Men's Hockey at the 2020 Tokyo Olympic Games.
• Neeraj Chopra performed exceptionally well and won the gold medal, not the silver.
• He achieved a remarkable throw of 87.58 meters, securing India's first-ever Olympic gold medal in athletics.
• The Indian men's hockey team had a remarkable performance in the 2020 Tokyo Olympics.
• After a thrilling and intense tournament, they reached the semifinals and eventually went on to win the bronze medal, not the gold.
• They defeated Germany with a score of 5-4 in a pulsating match to secure the bronze medal.
• This achievement was significant as it marked India's first Olympic medal in men's hockey in over four decades.

Q43. Answer: (c) Amish Tripathi

The correct answer is Option 3.

Key Points

• 'The Immortals of Meluha' is a popular novel written by Amish Tripathi.
• It is the first book in the Shiva Trilogy, a series of novels that reimagines the story of Lord Shiva, a major deity in Hindu mythology.
• Amish Tripathi is an Indian author known for his mythological fiction novels.
• 'The Immortals of Meluha' gained significant popularity and was followed by two more books in the series, 'The Secret of the Nagas' and 'The Oath of the Vayuputras.'

Additional Information

• Sushil Kumar: Sushil Kumar is an Indian wrestler and Olympic medalist
• Devdutt Pattanaik: Devdutt Pattanaik is an Indian author known for his works on mythology.
• Chetan Bhagat: Chetan Bhagat is an Indian author known for his bestselling novels.

Q44. Answer: (b) Ancestors

The correct answer is Ancestors.

Key Points

• The Ain-i Akbari does not contain information about Akbar's "Ancestors".
• The Ain-i Akbari is the third volume of the Akbarnama, written by Abul Fazl, one of the Nine Gems (Navratnas) in Akbar's court.
• This document offers a detailed account of Akbar's reign, including his administration, the state's revenues, and the army.
• However, it does not offer detailed information about his ancestors.

Important Points

• The Akbarnama, in its first volume, does discuss Akbar's ancestors, but the Ain-i Akbari, being the third volume, focuses more on Akbar's own reign and governance, not his lineage.
• The Ain-i Akbari is a five-part book which deals with the court, military establishment, the religions of the empire, the imperial administration, and the social conditions of the empire, among other aspects. It does not delve into the history of Akbar's ancestors.
• The focus of the Ain-i Akbari is more empirical and administrative, providing intricate details about Akbar's administration, army, and revenue collection.
• It provides detailed and accurate statistical data about various aspects of Mughal governance.
• The Ain-i Akbari, unlike some other historical documents, isn't a genealogical record or a family history.
• Its primary purpose was to document the empire under Akbar's reign.

Additional Information

Option	Explanation
Revenues	The Ain-i Akbari provides a detailed account of the state's revenues. It describes the Mughal fiscal system, detailing the revenue of each province (subah), district, and village.

YourMockTest.com — Free Study Material

Army	The Ain-i Akbari presents a detailed picture of the Mughal army, its structure, and its organization. It provides an account of the rank and file in the Mughal military.
Administration	The Ain-i Akbari provides comprehensive details about Akbar's administration, including the civil, judicial, and military administrations. It details the bureaucratic structure and various administrative practices of the Mughal Empire under Akbar.

Q45. Answer: (a) Neither I nor II

The correct answer is Neither I nor II

Key Points

• The property of metals by which they can be beaten into thin sheets is called malleability.

• The property of metal by which it can be drawn into wires is called ductility.

• Malleability:

• This is a property of metals that allows them to be hammered, beaten, or rolled into thin sheets.

• Gold and silver are among the most malleable materials.

• This property is used in many applications, including making metal foils and sheets for a variety of industries and applications.

• Ductility:

• This is a property of metals that allows them to be drawn into wires.

• A ductile material can be plastically stretched without breaking.

• Copper is a good example of ductile metal, and its high ductility is why it's commonly used for electrical wiring.

Q46. Answer: (b) Shaheed Bhagat Singh International Airport

Correct Answer: Shaheed Bhagat Singh International Airport

Key Points

Explanation:

• Chandigarh International Airport has been renamed as Shaheed Bhagat Singh International Airport.

• The renaming of the airport was done in honour of Shaheed Bhagat Singh, a prominent Indian freedom fighter and revolutionary who played a significant role in the Indian independence movement.

• The airport is located in Chandigarh, the capital city of the states of Punjab and Haryana in India.

Other Options:

Option	Renamed as
1	Manmohan Singh International Airport
2	Shaheed Bhagat Singh International Airport
3	Guru Gobind Singh International Airport
4	Rajguru International Airport

• Manmohan Singh International Airport: No official renaming has been done to the airport in the name of Manmohan Singh.

• Guru Gobind Singh International Airport: This airport is located in Amritsar, Punjab, and has not been renamed as Chandigarh International Airport.

• Rajguru International Airport: No official renaming has been done to the airport in the name of Rajguru.

Q47. Answer: (a) Assam

The correct answer is Assam.

Key Points

• Sattriya is the classical dance form of Assam.

• It was developed by the Vaishnavite saint and reformer Sankardeva in the 15th century.

• Sattriya is a combination of folk dances, martial arts, and classical Indian dance forms.

• It is characterized by its graceful movements, intricate footwork, and use of traditional Assamese costumes and music.

Important Points

• Sattriya was developed by the Vaishnavite saint and reformer Sankardeva in the 15th century.

• Sankardeva was a native of Assam, and he founded a number of monasteries in the region.

YourMockTest.com — Free Study Material

• Sattriya was originally performed in these monasteries as a way to spread Sankardeva's teachings.
• Sattriya is a combination of folk dances, martial arts, and classical Indian dance forms.
• This makes it a unique and distinctive dance form.
• Sattriya is characterized by its graceful movements, intricate footwork, and use of traditional Assamese costumes and music.
• These elements combine to create a beautiful and captivating dance form.
• Sattriya is a living tradition that is still performed today.
• There are many schools and academies that teach Sattriya, and there are regular performances of Sattriya dance.
• Sattriya has been recognized as one of the eight classical dance forms of India.

Additional Information

Dance Form	State	Music and instruments used	Famous artists
Bharat Natyam	Tamil Nadu	Carnatic classical music, instruments such as flute, violin and the Mridangam.	Bala Saraswati, Rukmini Devi Arunadale etc.
Kathak	Uttar Pradesh	North Indian music, instruments like tabla, sarangi or harmonium with manjira	Birju Maharaj, Sunayana Hazarilal, Shovana Narayan etc.
Kuchipudi	Andhra Pradesh	Vocal and instrumental Carnatic music, instruments like mridangam, cymbals, veena, flute and the tambura.	Yamini Krishnamurthy, Manushi Chhillar etc.
Mohiniyattam	Kerala	Carnatic music, instruments such as Mridangam, Idakka, flute, Veena, and Kuzhitalam.	Kalamandalam Kalyanikutty Amma.Mukundraja, Krishna Panicker etc.

Q48. Answer: (b) Field Hockey

The correct answer is Field Hockey.

Key Points

• India has won 8 Olympic gold medals in "Field Hockey" till 2020.
• Field Hockey is the sport in which India has had the most success in the Olympics.
• India won its first Olympic gold medal in field hockey in the 1928 Amsterdam Olympics.
• Following the 1928 win, the Indian hockey team won gold in the next five Olympics, continuing their winning streak until the 1956 Melbourne Olympics.
• The seventh gold medal came at the 1964 Tokyo Olympics and the eighth at the 1980 Moscow Olympics.
• Despite a long period of dominance in field hockey, India's performance in this sport has waned in recent decades.

Additional Information

• The Olympic Games are an international multi-sport event subdivided into summer and winter sporting events.
• The games are considered the world's foremost sports competition, with more than 200 nations participating.
• The Olympics are held every four years, with the Summer and Winter Games alternating every two years.
• The modern Olympic Games were inspired by the ancient Olympic Games, which were held in Olympia, Greece, from the 8th century BC to the 4th century AD.
• The International Olympic Committee (IOC), established in 1894, has been the governing body of the Olympic Movement and oversees the planning of the Olympic Games.
• The Olympic motto is "Citius, Altius, Fortius," Latin for "Faster, Higher, Stronger," signifying the athletes' aspiration to push the boundaries of human performance.

Q49. Answer: (d) 8

The correct answer is 8.

Key Points

• As of 2022, there are 8 Union Territories in India.
• Historical changes:
• The number of Union Territories in India has changed over time due to political and administrative decisions.
• The Merger of Union Territories:
• The Union territories of Dadra and Nagar Haveli and Daman & Diu were combined as one single union territory on 26th January

YourMockTest.com — Free Study Material

2020.

• Creation of new Union Territories:

• Ladakh was separated from Jammu and Kashmir and created as a separate Union Territory.

Additional Information

• The Union Territories of India along with some additional information are listed below:

Union Territory	Capital	Established	Population	Area (km²)	Official Language	Additional Official Languages
Andaman and Nicobar Islands	Port Blair	1 November 1956	380,581	8,249	Hindi	English
Chandigarh	Chandigarh	1 November 1966	1,055,450	114	English	Punjabi
Dadra and Nagar Haveli and Daman and Diu	Daman	26 January 2020	587,106	603	Gujarati, Marathi, English	—
Delhi	New Delhi	1 November 1956	16,787,941	1,484	Hindi, English	Punjabi
Jammu and Kashmir	Srinagar (Summer), Jammu (Winter)	31 October 2019	12,258,433	42,241	Urdu, English	Kashmiri, Dogri, Hindi
Ladakh	Leh (Summer), Kargil (Winter)	31 October 2019	290,492	59,146	Hindi and English	—
Lakshadweep	Kavaratti	1 November 1956	64,473	32	Hindi, English	—
Puducherry	Pondicherry	16 August 1962	1,247,953	479	Tamil, English	Telugu, Malayalam, French

Q50. Answer: (c) Production possibility frontier

The correct answer is Production possibility frontier.

Key Points

• The curve that gives the maximum amount of corn that can be produced in the economy for any given amount of cotton, and vice versa, is called the Production Possibility Frontier (PPF).

• Production Efficiency:

• The PPF represents the different combinations of corn and cotton production that can be achieved with the available resources and technology in the economy.

• It shows the maximum output of one good that can be produced given the production level of the other good, assuming full utilization of resources and efficient production.

• Scarcity and Trade-offs:

• The PPF illustrates the concept of scarcity and the trade-offs involved in production.

• It shows that resources are limited, and producing more of one good requires sacrificing the production of the other good.

• Opportunity Cost:

• The slope of the PPF represents the opportunity cost of producing one good in terms of the other.

• As more resources are allocated to the production of one good, the opportunity cost increases because fewer resources are available to produce the other good.

• Efficiency and Inefficiency:

• Points on the PPF curve represent the efficient allocation of resources, where the economy is utilizing all available resources to maximize production.

• Points inside the curve represent inefficient allocation, indicating that the economy is not utilizing its resources fully.

Important Points

Option	Definition

Free Study Material YourMockTest.com

Total revenue curve	A curve that shows the total revenue generated by a firm at different levels of output. It represents the relationship between total revenue and the quantity of goods sold.
Indifference curve	A curve that represents different combinations of goods that provide the same level of satisfaction or utility to an individual. It represents consumer preferences and choices.
Demand curve	A curve that shows the relationship between the quantity of a good consumers are willing to buy and its price, holding other factors constant. It represents the demand for a good in the market.
Production possibility frontier (PPF)	A curve that illustrates the maximum output combinations of two goods that can be produced with given resources and technology in the economy. It represents the trade-offs and opportunity costs of production.

Q51. Answer: (b) 10/3

Given:

A = cot 30° tan 60° + cot 60° tan 30°

Calculation:

=> A = cot 30° tan 60° + cot 60° tan 30°

=> A = √3 × √3 + 1/√3 × 1/√3

=> A = 3 + 1/3 = 10/3

Therefore, the value of A is 10/3.

Q52. Answer: (b) Rs. 500

Given:

A person borrows Rs. 20000 for 3 years at 6% per annum Simple Interest.

He immediately lends it to another person at 8.5% per annum for 3 years.

Formula Used:

Simple Interest = PRT/100

Where, P = Principal, R = Rate and T = Time

Calculation:

P = Rs. 20000 and time = 3 years

First rate = 6% and Second rate = 8.5%

As we know,

SI = Prt/100

=> [20000 × (8.5 - 6) × 1]/100

=> [20000 × 2.5 × 1]/100

=> 500

Therefore His gain in the transaction per year is 500

Shortcut Trick

Difference of rate for 1 years = 8.5% - 6% = 2.5%

The gain in the transaction for 1 year = 20000 × 2.5/100 = 500

Q53. Answer: (d) 5920

Calculation:

The average sales of bikes of all 5 companies = (400 + 350 + 550 + 600 + 700)/5 = 2600/5 = 520

The average sales of cars of all 5 companies = (900 + 450 + 650 + 800 + 700)/5 = 3500/5 = 700

P1 = The difference between the average sales of bikes and average sales of cars of all 5 companies = 700 - 520 = 180

The total value of the sales of bikes all 5 companies = 400 + 350 + 550 + 600 + 700 = 2600

The total value of the sales of cars all 5 companies = 900 + 450 + 650 + 800 + 700 = 3500

P2 = The total value of the sales of bikes and cars of all 5 companies = 2600 + 3500 = 6100

P2 - P1 = 6100 - 180 = 5920

Therefore Option 4 is the correct answer.

YourMockTest.com — Free Study Material

Q54. Answer: (b) 40

Given:

Cost price of 44 items = Selling price of x items

Profit = 10%

Calculation:

=> 10 = (44 - x) / x × 100

=> x = 40

Therefore, the value of x is 40.

Q55. Answer: (d) 17 cm

Given:

Tangent drawn from a point X, touches the circle at U.

O is the centre of this circle.

XU = 15 cm and OU = 8 cm

Concept used:

1. The radius and tangent of a circle at a point of contact is always perpendicular to each other. So the angle is 90°.

2. Pythagoras Theorem: Base2 + Perpendicular2 = Hypotenuse2

Calculation:

According to the concept,

Since angle OUX is 90°, ΔXUO is a right-angled triangle at U.

OX is the hypotenuse.

Now, OX

=> √(OU² + UX²)

=> √(8² + 15²)

=> √289 = 17 cm

Therefore The value of OX is 17 cm.

Q56. Answer: (d) 5778

Given:

(x-1/x=4)

Formula used:

$(x - 1/x)^2 = x^2 + 1/x^2 - 2$

$(x^n + 1/x^n)$ identity method

Calculations:

(x-1/x=4)

=> $(x - 1/x)^2 = 4^2$

=> $x^2 + 1/x^2 - 2 = 16$

=> $x^2 + 1/x^2 = 18$

=> $(x^2 + 1/x^2)^2 = x^4 + 1/x^4 + 2$

=> $x^4 + 1/x^4 + 2 = 18^2$

=> $x^4 + 1/x^4 = 324 - 2 = 322$

=> $(x^2 + 1/x^2) \times (x^4 + 1/x^4) = x^6 + 1/x^6 + x^2 + 1/x^2$

=> $18 \times 322 = x^6 + 1/x^6 + 18$

=> $x^6 + 1/x^6 = 5796 - 18 = 5778$

Therefore The value of $x^6 + 1/x^6 = 5778$.

Q57. Answer: (a) 77 cm²

Shortcut Trick

When a solid sphere is cut into two equal halves, the increase in Total Surface Area (TSA) is equal to the area of the two new circular faces created.

Increase in TSA = 2 × πr²

Given Diameter = 7 cm => Radius (r) = 3.5 cm or 7/2 cm.

Increase = 2 × (22/7) × (7/2) × (7/2) = 77 cm².

Therefore The correct answer is 77 cm².

Alternate Method

Given:

Diameter of the solid sphere (d) = 7 cm

Radius of the solid sphere (r) = d/2 = 7/2 = 3.5 cm

Formula Used:

TSA of Sphere = $4\pi r^2$

TSA of one Hemisphere = $3\pi r^2$

Calculations:

=> Initial Total Surface Area = $4 \times \pi \times (7/2)^2$

=> Total Surface Area of two equal hemispheres = $2 \times (3 \times \pi \times (7/2)^2) = 6 \times \pi \times (7/2)^2$

=> Increase in Surface Area = $(6 \times \pi \times (7/2)^2) - (4 \times \pi \times (7/2)^2)$

=> Increase in Surface Area = $2 \times \pi \times (7/2)^2$

=> Increase = $2 \times (22/7) \times (49/4)$

=> Increase = $(44/7) \times (49/4) = 11 \times 7$

=> Increase = 77 cm²

Therefore The correct answer is 77 cm².

Additional Information

Surface Area of Sphere

The total surface area of a sphere is $4\pi r^2$, where r is the radius.

Surface Area of Hemisphere

A hemisphere has a curved surface area (CSA) of $2\pi r^2$ and a total surface area (TSA) of $3\pi r^2$ including the flat circular base.

Volume Formulas

Volume of a sphere = $(4/3)\pi r^3$ and Volume of a hemisphere = $(2/3)\pi r^3$.

General Cutting Rule

When any solid is cut, the increase in TSA is equal to the sum of the areas of the newly exposed surfaces.

Q58. Answer: (b) 85

Calculation:

According to the question:

The workers get wages of more than Rs. 200 = 20 + 50 + 15 = 85

Therefore Option 2 is the correct answer.

Q59. Answer: (c) 90 degree

Given:

Angle subtended by a chord at the centre = 180°

Concept Used:

The angle subtended by a chord at the centre is twice the angle subtended on the circumference.

Calculation:

=> Angle subtended on the circumference = 180° / 2 = 90°

Therefore, the angle subtended by the same chord on the circumference is 90°.

Q60. Answer: (c) k^8-1/(k^8)

Shortcut Trick

Identify the iterative use of the identity $(a + b)(a - b) = a^2 - b^2$.

Each product doubles the power of the variables and keeps the − sign.

The sequence of powers is: 1 → 2 → 4 → 8.

The final simplified form will be the square of the highest power terms in the last pair with a minus sign.

Therefore The correct answer is k^8 − 1/k^8.

Alternate Method

Given Expression: $(k + 1/k)(k - 1/k)(k^2 + 1/k^2)(k^4 + 1/k^4)$

Formula Used: $(a + b)(a - b) = a^2 - b^2$

=> $[(k + 1/k)(k - 1/k)] \times (k^2 + 1/k^2) \times (k^4 + 1/k^4)$

=> $(k^2 - 1/k^2) \times (k^2 + 1/k^2) \times (k^4 + 1/k^4)$

=> $[(k^2 - 1/k^2)(k^2 + 1/k^2)] \times (k^4 + 1/k^4)$

=> $(k^4 - 1/k^4) \times (k^4 + 1/k^4)$

=> $(k^4)^2 - (1/k^4)^2$

=> $k^8 - 1/k^8$

Therefore The correct answer is $k^8 - 1/k^8$.

Additional Information

Difference of Squares

The identity $(a + b)(a - b) = a^2 - b^2$ is fundamental for simplifying algebraic products involving conjugate pairs.

General Power Rule

For an expression of the form $(x - y)(x + y)(x^2 + y^2)(x^4 + y^4)...(x^{(2n-1)} + y^{(2n-1)})$, the simplified result is $x^{2n} - y^{2n}$.

Cubic Identities

Sum of cubes: $(a + b)(a^2 - ab + b^2) = a^3 + b^3$ and Difference of cubes: $(a - b)(a^2 + ab + b^2) = a^3 - b^3$.

Q61. Answer: (b) 648 km

Given:

Start time = 10:00 a.m.

End time = 2:30 p.m.

Speed = 40 m/s

Concept Used:

Distance = Speed × Time

Calculation:

=> Time = 2:30 p.m. - 10:00 a.m. = 4.5 hours = 16200 seconds

=> Distance = 40 × 16200 = 648,000 meters = 648 km

Hence, the distance covered by the train is 648 km.

Q62. Answer: (a) 52 percent

Shortcut Trick

Price ratio = 100 : 125 = 4 : 5

Expenditure ratio = 100 : 60 = 5 : 3

Consumption ratio = (Expenditure / Price) = (5/4) : (3/5) = 25 : 12

Decrease in consumption = 25 − 12 = 13 units

Percentage decrease = (13 ÷ 25) × 100 = 52%

Therefore The correct answer is 52 percent.

Alternate Method

Given:

Price of rice increased by 25%.

Target expenditure decrease = 40%.

Formula Used:

Expenditure = Price × Consumption

=> Let initial Price (P1) = 100 and initial Consumption (C1) = 100

=> Initial Expenditure (E1) = 100 × 100 = 10,000

=> New Price (P2) = 100 + 25% = 125

=> New Expenditure (E2) = 10,000 − 40% = 6,000

=> New Consumption (C2) = E2 ÷ P2 = 6,000 ÷ 125 = 48

=> Percentage decrease in consumption = [(100 − 48) ÷ 100] × 100 = 52%

Therefore The correct answer is 52 percent.

Additional Information

Price and Consumption Relationship

When expenditure is kept constant, the price is inversely proportional to consumption: P1 × C1 = P2 × C2.

Net Percentage Change Formula

The net percentage change in a product (like Expenditure = Price × Consumption) can be expressed as: Net % = a + b + (a × b ÷

YourMockTest.com — Free Study Material

100), where a and b are percentage changes in the factors.

Base 100 Assumption

Assuming base values as 100 simplifies percentage calculations in quantitative aptitude problems involving ratios and changes.

Q63. Answer: (b) 9 : 7

Shortcut Trick

Total capacity of Vessel 1 parts = 3 + 5 = 8 units.

Total capacity of Vessel 2 parts = 3 + 1 = 4 units.

To make the capacities equal, multiply Vessel 2's ratio by 2.

New equivalent ratio in Vessel 2 => Juice : Water = 6 : 2.

Total Juice = 3 + 6 = 9 units, Total Water = 5 + 2 = 7 units.

Therefore The correct answer is 9 : 7.

Alternate Method

Given:

Ratio of juice to water in Vessel 1 = 3 : 5

Ratio of juice to water in Vessel 2 = 3 : 1

Capacity of both the vessels is equal.

Calculations:

=> Let the capacity of each vessel be the LCM of the sum of their ratio parts.

=> Sum of parts in Vessel 1 = 3 + 5 = 8

=> Sum of parts in Vessel 2 = 3 + 1 = 4

=> LCM of 8 and 4 = 8 units (Capacity of each vessel).

=> In Vessel 1, Quantity of Juice = (3/8) × 8 = 3 units

=> In Vessel 1, Quantity of Water = (5/8) × 8 = 5 units

=> In Vessel 2, Quantity of Juice = (3/4) × 8 = 6 units

=> In Vessel 2, Quantity of Water = (1/4) × 8 = 2 units

=> After mixing both the vessels together in a bigger vessel:

=> Total quantity of Juice = 3 + 6 = 9 units

=> Total quantity of Water = 5 + 2 = 7 units

=> New ratio of juice and water = 9 : 7

Therefore The correct answer is 9 : 7.

Additional Information

Mixing Equal Quantities

When mixing multiple mixtures of equal volume, always take the LCM of the sum of the ratio parts to equate their capacities easily before adding the respective components together.

Alligation Method

Used to find the exact ratio in which two different concentrations should be mixed to achieve a desired target concentration. Quantity Ratio = (Dearer − Mean) : (Mean − Cheaper).

Replacement in Mixtures

When a fraction of a mixture is withdrawn and replaced with a pure solvent, the concentration of the original solute decreases geometrically: Final = Initial × $(1 - \text{Withdrawn} / \text{Total Capacity})^n$.

Q64. Answer: (c) Only I

Calculations:

I. The ratio of total number of eraser sold by P in J and K to the total number of eraser sold by Q in M and N is 93 : 98.

Total number of eraser sold by P in J and K = 250 + 240 = 490

Total number of eraser sold by Q in M and N = 230 + 225 = 455

Ratio = 490 : 455 = 98 : 91

Statement I is wrong.

II. The difference between the total number of eraser sold by P and Q is 0.

The total number of eraser sold by P = 250 + 240 + 220 + 215 + 205 = 1130

The total number of eraser sold by Q = 205 + 210 + 260 + 230 + 225 = 1130

Difference = 1130 - 1130 = 0

Statement II is correct.

Therefore Option 3 is the correct answer.

Q65. Answer: (c) 144

Given:

a + b = 6

ab = 4

Concept used:

$a^3 + b^3 = (a+b)^3 - 3ab(a+b)$

Calculation:

=> $a^3 + b^3 = (6)^3 - 3\times4\times6$

=> $a^3 + b^3 = 216 - 72 = 144$

Therefore, the value of $a^3 + b^3$ is 144.

Q66. Answer: (d) 120 degree

Shortcut Trick

The ratio of the angle at the center to the angle on the major arc (circumference) is always 2 : 1.

Total parts = 2 + 1 = 3 units.

Given 3 units = 180°

1 unit = 60°

Angle at the center = 2 units = 2 × 60° = 120°.

Therefore The correct answer is 120 degree.

Alternate Method

Given: Sum of the angles made by a chord at the center and on the major arc is 180°.

Formula Used: The angle subtended by an arc (or chord) at the center is double the angle subtended by it at any point on the major arc (remaining part of the circle).

Let the angle made on the major arc be x.

According to the theorem, the angle at the center will be 2x.

=> 2x + x = 180°

=> 3x = 180°

=> x = 180° ÷ 3

=> x = 60°

Now, the angle at the center of the circle:

=> 2x = 2 × 60°

=> 2x = 120°

Therefore The correct answer is 120 degree.

Additional Information

Angle in a Semicircle

The angle subtended by a diameter at any point on the circumference is always 90°.

Cyclic Quadrilateral Property

The sum of the opposite angles of a cyclic quadrilateral is always 180°.

Angles in the same segment

Angles subtended by the same arc at any point on the remaining part of the circle are equal.

Q67. Answer: (b) 3 √57 cm

Given:

Two medians JX and KY of ΔJKL intersect each other at Z at right angles.

KL = 22 cm and KY = 12 cm

Concept used:

1. The medians of a triangle divide each other in a 2:1 ratio.

2. Pythagoras Theorem: Base2 + Perpendicular2 = Hypotenuse2

Calculation:

According to the question,

Since JX is median, KX = XL = 22/2 = 11 cm
Since JX and KY intersected each other at 90°, angle KZX = 90°.
Hence, ΔKZX is a right-angled triangle.
According to the concept,
XZ = √(11² - 8²) = √57
Since, JZ : XZ = 2 : 1, JX = 3/1 × √57 = 3 √57 cm
Therefore The length of JX is 3 √57 cm.

Q68. Answer: (d) Rs. 456

Given:
Marked price = Rs. 480
Discount = 5%
Concept used:
Selling price = Marked price - Discount
Calculation:
=> Selling price = 480 - (5% of 480)
=> Selling price = Rs. 456
Therefore, the item is finally sold at Rs. 456.

Q69. Answer: (c) 4 tan θ sin θ

Shortcut Trick
Apply the algebraic identity: $(x + y)^2 - (x - y)^2 = 4xy$
In this problem, let x = tan θ and y = sin θ.
Then, A = x + y and B = x − y.
$A^2 - B^2 = (x + y)^2 - (x - y)^2 = 4xy = 4 \tan \theta \sin \theta$.
Therefore The correct answer is 4 tan θ sin θ.
Alternate Method
Given:
A = tan θ + sin θ
B = tan θ − sin θ
Formula Used:
Algebraic Identity: $a^2 - b^2 = (a + b)(a - b)$
Calculations:
=> A + B = (tan θ + sin θ) + (tan θ − sin θ)
=> A + B = 2 tan θ
=> A − B = (tan θ + sin θ) − (tan θ − sin θ)
=> A − B = tan θ + sin θ − tan θ + sin θ = 2 sin θ
=> $A^2 - B^2 = (2 \tan \theta) \times (2 \sin \theta)$
=> $A^2 - B^2 = 4 \tan \theta \sin \theta$
Therefore The correct answer is 4 tan θ sin θ.
Additional Information
Square of Sum and Difference
The expression $(x + y)^2 - (x - y)^2$ always simplifies to 4xy, which is a common algebraic tool in trigonometry.
Square Root Relation
For the given A and B, $A \times B = \tan^2\theta - \sin^2\theta = \tan^2\theta \sin^2\theta$, thus $A^2 - B^2 = 4\sqrt{(AB)}$.
Trigonometric Identity
$\tan \theta = \sin \theta / \cos \theta$, which implies $\tan^2\theta - \sin^2\theta = \sin^2\theta (1/\cos^2\theta - 1) = \sin^2\theta \tan^2\theta$.

Q70. Answer: (a) 5/3

Given:
angle C = 90°,
AB = 25 cm,
BC = 20 cm

Concept Used:
sec A = Hypotenuse/Adjacent
Calculation:
Using Pythagoras Theorem
AC = √(AB² - BC²)
AC = √(252 - 202) = 15 cm
=> sec A = AC/BC
=> sec A = 25/15 = 5/3
Therefore, the value of sec A is 5/3.

Q71. Answer: (a) 41.66

Given:
Number of students = 80
Average marks of all students = 50
Number of students failed = 30
Average marks of passed students = 55
Concept Used:
Total marks = average marks × number of students
Calculation:
Total marks = 80 × 50 = 4000
Number of passed students = Total students - number of failed students
=> 80 - 30 = 50
Total marks of passed students = 50 × 55 = 2750
Total marks of failed students = Total marks - passed student marks
=> 4000 - 2750 = 1250
Average marks of failed students = 1250/30 = 41.66
Therefore Option 1 is the correct answer.

Q72. Answer: (c) 37.5 days

Given:
X takes 50% more time than Y
X and Y together complete the work in 15 days
Concept:
Work done = Time × Efficiency
Calculation:
According to question,
Efficiency ox X : Y = 2 : 3
=> Total work = (2 + 3) × 15 = 75 units
=> Time taken by X = 75/2 = 37.5 days
Therefore, X alone will take 37.5 days to complete the wall.

Q73. Answer: (d) 9 : 13

Calculation:
Total number of toys sold by shops A, B and C in the first week = 20 + 40 + 30 = 90
Total number of toys sold by shops C, D and E in the second week = 20 + 60 + 50 130
Ratio = 90 : 130 = 9 : 13
Therefore Option 4 is the correct answer.

Q74. Answer: (a) Only III

Given:
I. 5/11 > 5/6
II. 5/9 > 8/9
III. 5/6 > 4/5

YourMockTest.com — Free Study Material

Concept:

Fractions with the same numerator are compared based on their denominators. The fraction with the smaller denominator is greater.

Fractions with the same denominator are compared based on their numerators. The fraction with the larger numerator is greater.

Calculation:

I. 5/11 < 5/6 (5/11 is smaller than 5/6 as their numerators are equal and 11 is greater than 6)

II. 5/9 < 8/9 (5/9 is smaller than 8/9 as their denominators are equal and 5 is less than 8)

III. 5/6 > 4/5 (5/6 is greater than 4/5 as 55 > 64)

Therefore, the only true statement is III. 5/6 > 4/5.

Q75. Answer: (c) 585

Shortcut Trick

Identify the first and last two-digit numbers divisible by 9: 18 and 99.

Total terms (n) = [(99 − 18) ÷ 9] + 1 = 10 terms.

Average of these numbers = (First + Last) ÷ 2 = (18 + 99) ÷ 2 = 117 ÷ 2.

Sum = Average × Number of terms = (117 ÷ 2) × 10 = 117 × 5 = 585.

Therefore The correct answer is 585.

Alternate Method

Given:

Numbers are two-digit and divisible by 9.

The sequence is: 18, 27, 36, ..., 99.

This is an Arithmetic Progression (AP) where:

First term (a) = 18

Last term (l) = 99

Common difference (d) = 9

Calculations:

=> Number of terms (n) = [(l − a) ÷ d] + 1

=> n = [(99 − 18) ÷ 9] + 1

=> n = [81 ÷ 9] + 1 = 9 + 1 = 10

=> Sum of AP (S_n) = (n ÷ 2) × (a + l)

=> S10 = (10 ÷ 2) × (18 + 99)

=> S10 = 5 × 117

=> S10 = 585

Therefore The correct answer is 585.

Additional Information

Arithmetic Progression (AP) General Term

The n^(th) term of an AP is given by a_n = a + (n − 1)d, where a is the first term and d is the common difference.

Sum of First n Terms

The sum can also be calculated as S_n = (n ÷ 2) × [2a + (n − 1)d] when the last term is not known.

Divisibility Rule of 9

A number is divisible by 9 if the sum of its digits is a multiple of 9.

Q76. Answer: (c) Extempore

The solution is in Hindi. Read it online.

Q77. Answer: (a) parts

The correct answer is 'Option 1' i.e. 'Parts'.

Key Points

• The correct option to fill in the blank is "parts".

• In the context of the sentence, we are dividing the ear into its anatomical divisions.

• The term "parts" is the most suitable choice, as it can refer to the components or sections of a whole, in this case, the ear.

Therefore, the correct sentence is: 'Your ear has three main parts: outer, middle and inner.

Additional Information

• Option 2, "subjects", is incorrect because "subjects" refers to topics, areas of study, or people or things that are being discussed or described. It doesn't fit the context of anatomical divisions.

• Option 3, "plugs", is incorrect as it doesn't make sense in this context. "Plugs" generally refers to devices for making an electrical connection, blocking a hole, or in a very different sense, a piece of a substance put in a person's ear to block out noise, and none of these meanings fit in this context.

• Option 4, "events", is incorrect because it generally refers to things that happen, especially important happenings or occurrences, and it doesn't apply to anatomical structures like the parts of the ear.

Q78. Answer: (d) Lee told his wife that he was very happy that day.

The correct answer is 'Lee told his wife that he was very happy that day.'

Key Points

• The correct indirect form of the given sentence is option 4: "Lee told his wife that he was very happy that day."

• In reported speech, we typically backshift tenses and adjust time references accordingly.

• "I am very happy today" in direct speech becomes "he was very happy that day" in indirect speech.

• "Am" (present tense) becomes "was" (past tense), and "today" becomes "that day" to reflect that the report of the speech is happening at a later time.

Therefore, the correct sentence is: 'Lee told his wife that he was very happy that day'.

Additional Information

• Option 1 is incorrect because it retains "today" which should have been changed to "that day" in reported speech.

• Option 2 is incorrect because "has been" changes the tense to present perfect which does not correctly represent the original tense.

• Option 3 is also incorrect because it retains "today" which should have been changed to "that day" in reported speech.

Q79. Answer: (b) RPSQ

The correct answer is 'Option 2'.

Key Points

• The correct order is option 2: RPSQ.

• The first segment R, "My colleagues and I working in the University of Glasgow's," starts the sentence by introducing who is doing the action.

• This is logically followed by P, "bendable electronics and sensing technologies research," which describes the specific area in which these colleagues are working.

• The next logical segment is S, "group have now developed a system of holograms of," which explains what these colleagues have accomplished or developed within this research area.

• Finally, Q, "people using 'aerohaptics', creating feelings of touch with jets of air," provides additional detail about the type of holograms they have developed.

Therefore, the correct sentence reads: "My colleagues and I, working in the University of Glasgow's bendable electronics and sensing technologies research group, have now developed a system of holograms of people using 'aerohaptics', creating feelings of touch with jets of air."

Q80. Answer: (d) Burnig

The solution is in Hindi. Read it online.

Q81. Answer: (a) Its impossible to conduct

The correct answer is 'Option 1'.

Key Points

• The part of the sentence that contains an error is option 1: "Its impossible to conduct".

• The correct form should be "It's impossible to conduct".

• "It's" is a contraction of "it is" or "it has", and it should be used when you want to say "it is".

• "Its", without an apostrophe, is a possessive pronoun used to indicate possession or ownership, much like "his" or "her".

• In this sentence, we're trying to say "It is impossible to conduct...", not indicate possession, so the correct form to use is "It's".

Therefore, the correct sentence is: 'It's impossible to conduct truly causal research on media consumption and suicide.'

Q82. Answer: (b) Hyperbole

The solution is in Hindi. Read it online.

Q83. Answer: (a) The shutters were locked by the child.

The correct answer is 'Option 1'.

Key Points

• The correct passive form of the given sentence "The child locked the shutters." is option 1: "The shutters were locked by the child."

• When transforming a sentence from active to passive voice, the object of the active sentence becomes the subject of the passive sentence, and the subject of the active sentence becomes the agent of the passive sentence, introduced by the preposition "by".

• In the original sentence, "the shutters" is the object and "the child" is the subject.

• In the passive voice, "the shutters" becomes the subject and "the child" becomes the agent.

• The verb form "were locked" in the passive sentence corresponds to the past simple tense of the verb "locked" in the active sentence.

Therefore, the correct sentence is: 'The shutters were locked by the child'.

Additional Information

• Option 2 uses the present tense "are locked", which doesn't match the past tense of the original sentence.

• Option 3 uses the conditional form "would be locked", which changes the meaning of the sentence.

• Option 4 uses the past perfect tense "had been locked", which also doesn't match the past simple tense of the original sentence.

Q84. Answer: (a) fancy dress pink?

The correct answer is 'Option 1'.

Key Points

• The part of the sentence that contains an error is option 1: "fancy dress pink?"

• In English, adjectives typically come before the noun they modify.

• The color of the dress, 'pink', is an adjective and it should come before the noun 'dress'.

Therefore, the correct form of this sentence would be: "What is the price of this fancy pink dress?"

Q85. Answer: (c) Physically or mentally tough

The solution is in Hindi. Read it online.

Q86. Answer: (c) These components can work independently.

The correct answer is 'Option 3'.

Key Points

• The correct sentence with no spelling error is option 3: "These components can work independently."

• The word "components" in option 3 is spelled correctly. It refers to the parts of a system or machine.

• Similarly, "independently" is also spelled correctly in option 3. It means to operate or exist separately from other things or people.

Therefore, the correct sentence is: 'These components can work independently.'

Additional Information

• Let's analyze the other options:

• In option 1, "componants" is spelled incorrectly. The correct spelling is "components".

• In option 2, "indepedently" is misspelled. The correct spelling is "independently".

• In option 4, "wrok" is incorrect. The correct spelling is "work".

Q87. Answer: (a) has been steadily

The correct answer is 'Option 1' i.e. "has been steadily".

Key Points

• In the sentence, the adverb 'steadily' is used to modify the verb 'increasing'.

• Adverbs often end in '-ly' and they modify verbs, adjectives, or other adverbs by telling how, when, where, and to what extent.

Therefore, the correct sentence is: 'The number of women working outside homes has been steadily increasing.'

Additional Information

• Option 2 "had been steadier" changes the tense to past perfect and the word 'steadier' turns the meaning to a comparison rather than a description of the consistent increase.

• Option 4 "have been steady" changes the verb to a plural form 'have' which is not in agreement with the singular subject 'The number', and the adjective 'steady' which doesn't correctly describe the verb 'increasing'.

Q88. Answer: (a) inquiry

The solution is in Hindi. Read it online.

Q89. Answer: (c) Relax

The solution is in Hindi. Read it online.

Q90. Answer: (d) Reasons

The solution is in Hindi. Read it online.

Q91. Answer: (d) Mysterious

The solution is in Hindi. Read it online.

Q92. Answer: (b) wreck

The solution is in Hindi. Read it online.

Q93. Answer: (c) perhaps

The correct answer is 'Option 3' i.e. 'Perhaps'.

Key Points

• The most suitable word to fill in the blank in the sentence is option 3: "perhaps".

• The word "perhaps" is used to express uncertainty or possibility.

• It makes sense in the given sentence because it introduces the idea that there might be another perspective (that the gods might see more than humans do) that could explain why the gods' humor seems cruel.

Therefore, the correct sentence is: 'The humour of the gods is cruel; or perhaps they see more than we do.'

Additional Information

• The other options don't fit well in the context:

• "Unlikely" is used to indicate that something probably will not happen. In this context, it would not make sense to say "unlikely they see more than we do".

• "Odds" generally refers to the probability of a particular event. It would not make sense to say "odds they see more than we do".

• "However" is used to introduce a statement that contrasts with or seems to contradict something that has been said previously. Here, it would not fit properly because there isn't a clear contrast being made in the sentence.

Q94. Answer: (a) time to watch

The correct answer is 'Option 1' i.e. "time to watch".

Key Points

• In the sentence "I didn't have times to watch the whole movie", the use of "times" is incorrect.

• The correct term to use here is "time", which refers to the indefinite continued progress of existence and events in the past, present, and future regarded as a whole.

• The term "time" in this context refers to a period of time or an opportunity to do something.

Therefore, the correct sentence is: 'I didn't have time to watch the whole movie.'

Additional Information

• The other options are incorrect due to the following reasons:

• Option 2: "timer to watched" - The word "timer" refers to a device for measuring time, and it does not fit in this context. The verb form "watched" is also incorrect as it's in the past tense and does not correctly match with "to", which requires the base form of the verb.

• Option 3: "time to watching" - This is grammatically incorrect because after the word "to", the base form of the verb should be used. So "watching" should be "watch".

Q95. Answer: (a) Mendicant

The solution is in Hindi. Read it online.

Q96. Answer: (c) species

The correct answer is 'Option 3' i.e. 'Species'.

Key Points

• The most appropriate word to fill in blank number 1 is option 3: "species".

• The term "species" is used in biological taxonomy and is the basic unit of classification.

• It refers to a group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.

• In this context, it correctly refers to different types of rats that have been identified and classified. The Integrated Taxonomic

YourMockTest.com — Free Study Material

Information System (ITIS) is an American partnership of federal agencies designed to provide consistent and reliable information on the taxonomy of biological species.

Therefore, the correct sentence is: 'According to the Integrated Taxonomic Information System (ITIS) there are more than 60 species of rat, which means they come in all sizes. They are (2) _____ 5 inches (12 centimeters), or longer, according to Encyclopedia Britannica. The largest species is the Bosavi woolly rat, which was (3)__ in 2009 in the rainforest of Papua New Guinea (and doesn't have a scientific name yet). It is (4)_ the size of a cat - 32.2 inches (82 cm) from nose to tail and (5)____ around 3.3 lbs. (1.5 kilograms), according to CNN.'

Additional Information

• The other options don't fit as well in this context:

• "Entities" - this is a very broad term that can refer to anything that exists, whether it be a physical object, a concept, or a fact. It is too vague to be used in the specific biological context of different types of rats.

• "Sections" - this term is more typically used to refer to parts of a physical object or divisions within an organization or piece of writing. It's not used to refer to types of living organisms.

• "Objects" - this term usually refers to inanimate physical things, not living organisms.

Q97. Answer: (c) typically

The correct answer is 'Option 3' i.e. 'Typically'.

Key Points

• The most appropriate word to fill in blank number 2 is option 3: "typically".

• In this context, "typically" is used to indicate what is usual or standard.

• It suggests that, on average or in most cases, rats are 5 inches or longer.

Therefore, the correct sentence is: 'According to the Integrated Taxonomic Information System (ITIS) there are more than 60 species of rat, which means they come in all sizes. They are typically 5 inches (12 centimeters), or longer, according to Encyclopedia Britannica. The largest species is the Bosavi woolly rat, which was (3)____ in 2009 in the rainforest of Papua New Guinea (and doesn't have a scientific name yet). It is (4)_ the size of a cat - 32.2 inches (82 cm) from nose to tail and (5)____ around 3.3 lbs. (1.5 kilograms), according to CNN.'

Additional Information

• The other options do not fit as well in this context:

• "Modestly" - This term is often used to describe something that is not large or elaborate. In this context, it does not appropriately describe the size of rats.

• "Manually" - This term is typically used to refer to something done by hand or without the help of machines. It does not fit in the context of describing the length of rats.

• "Surgically" - This term refers to things related to surgery, or done with extreme precision, neither of which fits well in this context.

Q98. Answer: (a) discovered

The correct answer is 'Option 1' i.e. 'Discovered'.

Key Points

• The most appropriate word to fill in blank number 3 is option 1: "discovered".

• In this context, "discovered" means to find or identify something for the first time.

• It is the correct term to use when referring to the first time a new species, such as the Bosavi woolly rat, is found and recognized by scientists.

Therefore, the correct sentence is: 'According to the Integrated Taxonomic Information System (ITIS) there are more than 60 species of rat, which means they come in all sizes. They are typically 5 inches (12 centimeters), or longer, according to Encyclopedia Britannica. The largest species is the Bosavi woolly rat, which was discovered in 2009 in the rainforest of Papua New Guinea (and doesn't have a scientific name yet). It is (4)___ the size of a cat - 32.2 inches (82 cm) from nose to tail and (5)____ around 3.3 lbs. (1.5 kilograms), according to CNN.'

Additional Information

• The other options don't fit as well in this context:

• "Invented" - This term is used when something new has been designed or created, usually referring to human-made objects or ideas, not living organisms.

• "Denuded" - This term means to strip something of its covering or adornments. It does not fit in the context of finding a new species.

• "Screened" - This term means to examine or investigate something thoroughly. While scientists certainly do examine new species, the term does not fit in the context of first finding a new species.

Q99. Answer: (c) about

The correct answer is 'Option 3' i.e. 'About'.

Key Points

• The most appropriate word to fill in blank number 4 is option 3: "about".

• In this context, "about" is used to indicate an approximation.

• It's often used when you don't have an exact figure but want to give a general idea.

• The sentence is trying to give an approximate comparison of the size of the Bosavi woolly rat to a cat, hence "about" is the most suitable choice.

Therefore, the correct sentence is: 'According to the Integrated Taxonomic Information System (ITIS) there are more than 60 species of rat, which means they come in all sizes. They are typically 5 inches (12 centimeters), or longer, according to Encyclopedia Britannica. The largest species is the Bosavi woolly rat, which was discovered in 2009 in the rainforest of Papua New Guinea (and doesn't have a scientific name yet). It is about the size of a cat - 32.2 inches (82 cm) from nose to tail and (5)_____ around 3.3 lbs. (1.5 kilograms), according to CNN.'

Additional Information

• The other options do not fit as well in this context:

• "A lot" - This term is usually used to indicate a large amount or number of something, but it doesn't fit in this context because we're comparing sizes, not quantities.

• "Of" - This is a preposition that can show relationships between parts of a sentence, but it doesn't work in this context.

• "Some" - This term is typically used to refer to an unspecified amount or number, but it doesn't fit in this context because we're comparing sizes, not referring to an amount.

Q100. Answer: (b) weighs

The correct answer is 'Option 2' i.e. 'Weighs'.

Key Points

• The most appropriate word to fill in blank number 5 is option 2: "weighs".

• In this context, "weighs" is used to specify the weight of the Bosavi woolly rat.

Therefore, the correct sentence is: 'According to the Integrated Taxonomic Information System (ITIS) there are more than 60 species of rat, which means they come in all sizes. They are typically 5 inches (12 centimeters), or longer, according to Encyclopedia Britannica. The largest species is the Bosavi woolly rat, which was discovered in 2009 in the rainforest of Papua New Guinea (and doesn't have a scientific name yet). It is about the size of a cat - 32.2 inches (82 cm) from nose to tail and weighs around 3.3 lbs. (1.5 kilograms), according to CNN.'

Additional Information

• The other options are not as suitable:

• "Evaluates" - This term is generally used when forming an opinion or making a judgement about something. It doesn't fit in this context because we are discussing physical measurements, not judgments or evaluations.

• "Counts" - This term refers to the act of determining the total number of something, which isn't applicable in the context of discussing weight.

• "Measures" - While this term is often used to discuss dimensions or quantities, it's not typically used to refer to weight. In English, we typically say an object "weighs" a certain amount, not that it "measures" a certain amount in weight.

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