

1. Select the related word/letters number from the given alternatives.
School : Study :: Laboratory : ?
(1) Play
(2) Experiment
(3) Solve
(4) Pray
2. Select the related word/letters/number from the given alternatives.
COMMANDER : REDNAMMOC :: MANAGEMENT : ?
(1) TNEMEGANAM
(2) TNEMEGAMAN
(3) TENMEGANAM
(4) TNEMEPANAM
3. Select the related word/letters/number from the given alternatives.
WEFHY : DVUSB :: SFCLD : ?
(1) HUXOW (2) SUSWL
(3) SUSLW (4) SUSCL
4. Select the related word/letters/number from the given alternatives.
8 : 32 :: 6 : ?
(1) 31 (2) 22
(3) 18 (4) 21
5. Select the odd word/letters/number/number pair from the given alternatives.
(1) Tonne (2) Quintal
(3) Kilogram (4) Gallon
6. Select the odd word/letters/number/numbers pair from the given alternatives.
(1) XTD (2) TSE
(3) MDI (4) SOD
7. Select the odd word/letters/number/numbers pair from the given alternatives.
(1) 1232 (2) 1188
(3) 1320 (4) 1050
8. Select the odd word/letters/numbers pair from the given alternatives.
(1) 4832 (2) 7855
(3) 6742 (4) 5735
9. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
Gamma rays, X-rays, Ultraviolet rays, ? , Infrared rays
(1) Microwaves
(2) Radio waves
(3) Visible light
(4) Sonic waves
10. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
XT, YU, BX, CG, ?
(1) NO (2) NJ
(3) NM (4) MN
11. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
XT, YU, BX, GC, ?
(1) NO (2) NJ
(3) NM (4) MN
12. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
76, 38, 19, 9.5, ?
(1) 4.25 (2) 4.15
(3) 4.69 (4) 4.75
13. In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusion, if any, follows from the given statements.
Statements :
(i) In the GST Model in India, it would be dual tax (GST) with the centre and states simultaneously levying tax on a common base tax.
(ii) The central and state GST would be levied on every transaction of supply of goods and services
Conclusions :
(i) This new tax regime would benefit common man of country.
(ii) There would be more clarity on state and central component.
(1) Only conclusion II follows
(2) Conclusion I and II both follow
(3) Neither I nor II follows
(4) Only conclusion I follows
14. Rajan and Manu went to a market. Rajan bought 3 erasers and 5 pens for Rs. 105 and Manu bought 4 erasers and 6 pens for Rs. 130. What is the price of one eraser ?
(1) Rs. 25 (2) Rs. 20
(3) Rs.10 (4) Rs. 19
15. Arrange the given words in the sequence in which they occur in the dictionary.
i. Agent ii. Argentine
iii. Assiduous iv. Accentuate
(1) iii, ii, i, iv (2) iv, iii, i, ii
(3) iv, ii, i, iii (4) iv, i, ii, iii
16. In a certain code language, "FIRST" is written as "@#\$!?" and "EYE" is written as "^^*^". How is

“TYRE” written in that code language ?

- (1) ?*^\$ (2) ?*^\$
 (3) ?**^ (4) ?**^^

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

12	13	11
16	17	?
400	458	221

- (1) 10 (2) 91
 (3) 17 (4) 81

18. If “A” means “subtraction”, “B” means “division”, “C” means “addition” and “D” means “multiplication”, then

$$411 B 3 A 29 C 53 D 20 = ?$$

- (1) 1169 (2) 1156
 (3) 1168 (4) 1163

19. In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

PE _ NP _ ON _ EO _

- (1) PEEN (2) OPEN
 (3) OEPN (4) OPNE

20. Heera starts walking towards the east from her home to go to her college. She walks for 10 km in the east, takes a left turn, walks 20 km further and reaches her college. In which direction is her home with respect to her college ?

- (1) North-West (2) West
 (3) North (4) South-West

21. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, ‘W’ can be represented by 21, 23 etc. and ‘J’ can be represented by 79, 97 etc. Similarly, you have to identify the set for the word ‘GERM’.

Matrix-I

	0	1	2	3	4
0	M	A	R	E	G
1	G	E	M	Q	H
2	U	W	R	W	P
3	G	V	A	P	O
4	M	A	R	Y	I

Matrix-II

	5	6	7	8	9
5	V	M	P	G	M
6	R	P	E	D	U
7	P	M	G	E	J
8	N	R	E	A	K
9	M	U	J	S	L

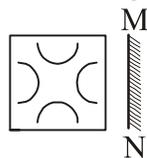
- (1) 10, 11, 02, 59
 (2) 04, 87, 31, 76
 (3) 30, 67, 44, 40
 (4) 77, 96, 12, 95

22. Introducing a girl, a boy says, “She is the daughter of my father’s only brother-in-law”. How is the girl related to the boy ?

- (1) Sister-in law
 (2) Granddaughter
 (3) Cousin
 (4) Daughter

23. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure ?

Question figure :

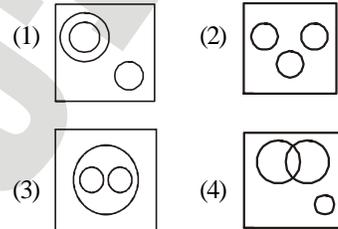


Answer figures :

- (1) (2)

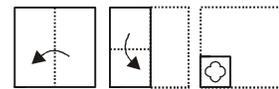


24. Identify the diagram the best represents the relationship among the given classes, Science, Physics, Chemistry

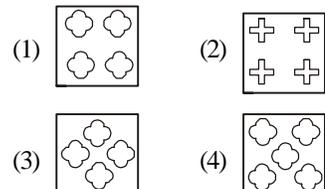


25. A piece of papers is folded and punched as shown in the below question figures. From the given answer figures, indicate how it will appear when opened.

Question figures :



Answer figures :



GENERAL KNOWLEDGE

26. Diwane-i-khas is in which of these monuments ?
 (1) Humayun’s Tomb
 (2) Mahabodhi Temple Complex
 (3) Qutub Minar
 (4) Red Fort Complex
27. Who won the 2016 men’s singles Wimbledon Championship ?
 (1) Novak Djokovic
 (2) Andy Murray
 (3) Roger Federer
 (4) Milos Raonic
28. Deficiency of which vitamin causes night blindness ?

- (1) Vitamin K (2) Vitamin C
(3) Vitamin B1 (4) Vitamin A
29. The flower with the world's largest bloom is _____.
(1) Pando
(2) Posidonia
(3) Rafflesia arnoldii
(4) Helianthus annuus
30. Name the scientist who proposed the cell theory
(1) Schleiden and Schwann
(2) Lamarck
(3) Treviranus
(4) Whittaker and Stanley
31. _____ decreases the rate of setting of cement.
(1) Alumina
(2) Silica
(3) Gypsum
(4) Magnesium oxide
32. Alkenes were earlier known as _____.
(1) Paraffins (2) Titoffins
(3) Olefins (4) Meloffins
33. A language used to control the tasks of the computer itself, such as starting other programs, is _____.
(1) Command Language
(2) Machine Language
(3) Markup Language
(4) Style Sheet Language
34. Munda is a folk dance of _____.
(1) Arunachal Pradesh
(2) Jharkhand
(3) Chhattisgarh
(4) Haryana
35. In 2015, the nominal rate of interest in a country was 8% and the inflation rate then was 2.5%. So real rate of interest in 2015 was
(1) 3.2 percent (2) 10.5 percent
(3) 8 percent (4) 5.5 percent
36. Macro economics deals with
(1) the circular flow of income
(2) the decision making of a single economic variable like demand
(3) resource allocation at firm level
(4) equilibrium prices and quantities
37. The Ozone layer is present in which atmospheric layer ?
(1) Lithosphere
(2) Ionosphere
(3) Stratosphere
(4) Biosphere
38. Organisms that use light to prepare food are known as _____.
(1) Autotrophs
(2) Heterotrophs
(3) Omnivores
(4) Decomposers
39. Which of the following will not be traded in a commodity market ?
(1) Crude oil (2) Silver
(3) Currency (4) Gold
40. Panaji is the capital of which Indian State ?
(1) Chattisgarh
(2) Goa
(3) Himachal Pradesh
(4) Jharkhand
41. Lucknow is the Capital City of _____.
(1) Uttarakhand
(2) Uttar Pradesh
(3) Tripura
(4) Arunachal Pradesh
42. During the Independence Movement, Subhash Chandra Bose revamped the Indian National _____.
(1) Navy (2) Army
(3) Defence (4) Air Force
43. Aurangzeb was the son of _____.
(1) Babur (2) Humayun
(3) Akbar (4) Shah Jahan
44. World Wide Web was invented by _____.
(1) John Barber
(2) Tim Berners-Lee
(3) Alan Blumlein
(4) David Brewster
45. Which among the following is false about viscosity ?
(1) Viscosity of gases is less than that of liquids
(2) Viscosity of gases increases with rise in temperature
(3) Viscosity of liquid decreases with rise in temperature
(4) Viscosity of liquid decreases with increase in pressure
46. Weight (W) of a body can be given by the formula
(1) $W = mv$ (2) $W = mf$
(3) $W = ms$ (4) $W = mg$
47. Narendra Modi is the _____ Prime Minister of India.
(1) 5th (2) 10th
(3) 14th (4) 18th
48. Who was the first Speaker of Lok Sabha ?
(1) G.V. Mavalankar
(2) Sarvepalli Radhakrishnan
(3) M. Ananthasayanam Ayyangar
(4) Dr. P.V. Cherian
49. Who is the winner of the first Indian Super League football ?
(1) Atletico de Kolkata
(2) Kerala Blasters
(3) FC Goa
(4) Delhi Dynamos FC
50. Who wrote the book "Walking with Lions" ?
(1) K Natwar Singh
(2) Kapil Dev
(3) Kiran Bedi
(4) Sarojini Naidu

QUANTITATIVE APTITUDE

51. Of the 3 numbers whose average is 112, the first is $\frac{3}{13}$ times the sum of other 2. The first number is
(1) 63 (2) 95
(3) 42 (4) 126
52. If a merchant offers a discount of 20% on the list price, then he makes

a loss of 10%. What % profit or % loss will she make if he sells at a discount of 5% of the list price?

- (1) 6.875 percent profit
 (2) 20 percent profit
 (3) 14 percent profit
 (4) 30 percent loss

53. Coefficient of x in $(x + 11)(3 - 5x)$ is _____.

- (1) 33 (2) -5
 (3) 3 (4) -52

54. A does 80% of a work in 20 days. He then calls in B and they together finish the remaining work in 3 days. How long B alone would take to do the whole work?

- (1) 75 days (2) 37.5 days
 (3) 17.5 days (4) 35 days

55. What is the HCF (highest common factor) of 77 and 275 ?

- (1) 12 (2) 11
 (3) 7 (4) 25

56. To travel 648 km, an Express train takes 12 hours more than Rajdhani. If however, the speed of the Express train is doubled, it takes 6 hours less than Rajdhani. The speed of Rajdhani is _____.

- (1) 36 km/hr (2) 18 km/hr
 (3) 45 km/hr (4) 27 km/hr

57. A trader had 16 quintals of wheat. He sold a part of it at 17% profit and the rest at 27% profit, so that he made a total profit of 21%. How much wheat did he sell at 27% profit?

- (1) 960 kg (2) 640 kg
 (3) 320 kg (4) 1280 kg

58. The brother is elder to his sister by 6 years. Seven years ago the product of their ages was 72. What is the age of the brother ?

- (1) 13 years (2) 12 years
 (3) 6 years (4) 19 years

59. If Girish's salary is $\frac{4}{9}$ times of Harishankar's and Shirish's salary is $\frac{5}{6}$ times of Harishankar's what is the ratio of Girish's salary to

Shirish's.

- (1) 27 : 10 (2) 10 : 27
 (3) 8 : 15 (4) 15 : 8

60. If $5 - x > 1 + 3x$ and $5 + 5x > 2 + 2x$; then x can take which of the following values ?

- (1) 2 (2) 2
 (3) 3 (4) 0

61. Find the value of p , if $2x - 4$, $4x + p$ and $6x - 12$ are in arithmetic progression.

- (1) 9 (2) 10
 (3) 11 (4) -8

62. Points P and Q lie on side AB and AC of triangle ABC respectively such that segment PQ is parallel to side BC. If the ratio of areas of triangle APQ : triangle ABC is 16 : 25. Then the ratio of AP : PB is ?

- (1) 4 : 5 (2) 1 : 4
 (3) 5 : 1 (4) 4 : 1

63. Which of the following points lies on the line $3x - 4y = -13$?

- (1) (-5, -7) (2) (5, 7)
 (3) (-5, 7) (4) (5, -7)

64. A man spends 59% of his income and saves the rest. What percentage of his expenditure does he save ?

- (1) 72.57 percent
 (2) 83.19 percent
 (3) 89.19 percent
 (4) 69.49 percent

65. Line segment AB is parallel to line segment CD. AD intersects BC in E. If lengths of AE, BC and ED are 12 cm, 12 cm and 18 cm respectively, what is the length of EC ?

- (1) 4.8 cm (2) 9.3 cm
 (3) 8.1 cm (4) 7.2 cm

66. In a triangle the length of the side opposite the angle which measures 60° is 15 cm, what is the length of the side opposite to the angle which measures 90° ?

- (1) 15 cm

(2) $\left(\frac{15\sqrt{3}}{2}\right)$ cm

- (3) $10\sqrt{3}$ cm
 (4) 10 cm

67. A sum fetched a total simple interest of Rs. 5320 at the rate of 7% per year in 5 years. What is the sum ?

- (1) Rs. 18240 (2) Rs. 12160
 (3) Rs. 15200 (4) Rs. 9120

68. Curved surface area of a cylinder is 660 sq.cm. If circumference of its base is 44 cm, find the volume of the cylinder ?

- (1) 4620 cubic cm
 (2) 2310 cubic cm
 (3) 6930 cubic cm
 (4) 1155 cubic cm

69. What is the value of $\cos \frac{11\pi}{6}$?

(1) $-\frac{1}{\sqrt{2}}$ (2) $-\frac{\sqrt{3}}{2}$

(3) $\frac{2}{\sqrt{3}}$ (4) $\frac{\sqrt{3}}{2}$

70. $3\cos A$ is equal to

- (1) $4\cos^3 A + \cos 3A$
 (2) $4\cos^3 A - \cos 3A$
 (3) $3\cos^3 A - \cos 3A$
 (4) $3\cos^3 A + \cos 3A$

71. $\cos A / (1 - \sin A)$ is equal to

- (1) $(\sec A - \tan A)$
 (2) $(\sec A + \tan A)$
 (3) $(\sqrt{[(\sec A + \tan A)]})$
 (4) $(\sqrt{[(\sec A - \tan A)]})$

72. Refer the below data table and answer the following question.

	Weight (kg)	Height in meter
Sunita	60	1.5
Anjali	55	1.2
Vimla	75	1.6
Preeti	70	1.4

who has the least weight to height ratio ?

- (1) Sunita (2) Anjali
(3) Vimla (4) Preeti

73. Refer the below data table and answer the following question.

Year	Company's % Profit
2011	5
2012	15
2013	25
2014	10
2015	10

What was the Revenue of the company if its Expenditure was Rs. 200 crore in the year when its % profit was the least ?

- (1) 210 (2) 220
(3) 230 (4) 200

74. The following table shows the numbers of children in each house of a society.

Number of Children	Number of House
0	3
1	13
2	18
3	3

What is the average number of children per house ?

- (1) 2.07 (2) 1.82
(3) 1.57 (4) 1.32

75. Refer the below data table and answer the following question.

Partners	Present % share
Anand	25
Basu	5
Chinmay	25
Dhiraj	20
Ejaz	25

If the company has issued six lakh shares between its five partners and if Anand offers to sell 15,000 of his shares to Ejaz, then Ejaz will have how many shares ?

- (1) 165000 shares
(2) 150000 shares
(3) 180000 shares
(4) 135000 shares

ENGLISH LANGUAGE

76. In the following question, the sentence given with blank is to be filled in with an appropriate word. Select the correct alternative out of the four.

The student body met the Principal to have their _____ heard.

- (1) griefs (2) disdain
(3) woes (4) sorrows

77. Select the word with the correct spelling.

- (1) excusing (2) begged
(3) redolent (4) imortal

78. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

All in the same boat.

- (1) staying together is the secret to successfully navigating the ups and downs of life
(2) In a group, one's situation is tied up with the situation of the rest.
(3) There is false sense of safety in a large group
(4) To be in the same unpleasant situation as other people

79. Select the antonym of **antique**.

- (1) obsolete

- (2) superannuated
(3) current
(4) ancient

80. Select the word with the correct spelling.

- (1) feriest (2) meditate
(3) diuretic (4) farments

81. Select the antonym of **void**.

- (1) destitute (2) scant
(3) bereft (4) adequate

82. In the following question, the sentence given with blank is to be filled in with an appropriate word. Select the correct alternative out of the four.

Nations work to expand justice in the society and provide infrastructure to _____ commerce.

- (1) pass (2) contribute
(3) popularize (4) promote

83. In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best expresses the same sentence in Indirect/Direct speech.

"Please give me something to eat. I am hungry" the beggar said to them.

- (1) The beggar requested them to give him something to eat and said that he was hungry.
(2) The beggar request them to give him something to eat and said he was hungry.
(3) The beggar while requesting them to give him something to eat and says he was hungry.
(4) The beggar while requesting them to give him something to eat and says he is hungry.

84. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

To make (someone) anxious or unsettled.

- (1) to pester (2) to perturb

- (3) to bug (4) to ruffle

85. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option.

If a sentence is free from error, select 'No Error'.

Had anybody (1)/ ever told you (2)/ that you're beautiful ? (3) No error (4)

86. Select the synonym of _____ to scam.

- (1) to cluster (2) to array
(3) to convene (4) to scoot

87. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

All Greek to me

- (1) The new person in a group gets the most attention
(2) Learning a new language is very difficult
(3) Saying that one does not understand something that is said or written
(4) Everything is new when one is in a new country

88. Improve the bracketed part of the sentence.

There is no more (accommodation) for you in this bus.

- (1) room
(2) seat
(3) space
(4) No improvement

89. Select the synonym of to gnaw.

- (1) to droll (2) to slaver
(3) to nibble (4) to spit

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

Despite this high-level political

P. have achieved little

Q. these summits

R. attention, and fanfare,

- (1) QRP (2) RQP
(3) PRQ (4) PQR

91. Improve the bracketed part of the sentence.

By the end of this decade, doctors surely (must have discovered) a cure for cancer.

- (1) would have discovered
(2) could discover
(3) have discovered
(4) No Improvement

92. In the following question out of the four alternatives, select the alternative which is the best substitute of the phrase.

To depart from an established course

- (1) to deviate (2) to whirl
(3) to err (4) to wander

93. Rearrange the parts of the sentence in correct order

They also need help

P. rains have failed, and

Q. agricultural production will fall drastically

R. just now, because

- (1) RPQ (2) RQP
(3) PRQ (4) QPR

94. In the following question, some part of the sentence may have er-

rors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No error' (4)

Go up the beach and watch for tourists (1)/ so you could warn anyone (2)/ before they get to the water. (3)/ No error (4)

95. In the following question, a sentence has been given in Active / Passive voice. Out of four alternatives suggested, select the one, which best expresses the same sentence in Passive/Active voice.
My father decorated the entire house.

- (1) The entire house was decorated by my father.
(2) The entire house was being decorated by my father.
(3) The entire house has been decorated by my father.
(4) The entire house had been decorated by my father.

Directions (96-100) : In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

This argument is completely (96) and shows very little understanding (97) education. The costs quoted for private schools, one, have no reliable source of data and, (98), they discount two kinds of hidden costs – to the family and (99) the nation. Often the cost of education in private schools in (100) with the fee per child.

96. (1) incredible (2) spurious
(3) amazing (4) inadequate

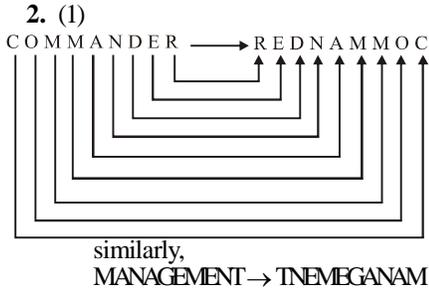
97. (1) of (2) for
(3) with (4) toward

98. (1) twice (2) both
(3) two (4) secondly

99. (1) to (2) of
(3) for (4) about

100. (1) equation (2) equates
(3) equating (4) equated

1. (2) As school is a place to study, similarly Laboratory is a place to perform experiments.



3. (1) W E F H Y
↓ ↓ ↓ ↓ ↓
D V U S B

These are the pairs of opposite letters Similarly

S F C L D
↓ ↓ ↓ ↓ ↓
H U X O W

4. (3) As $8 \times \frac{8}{2} = 32$

similarly $6 \times \frac{6}{2} = 18$

5. (4) Except Gallon all other are used to measure solids, while gallon is used to measure liquids.

6. (2) X T
↓ ↓
 $24 - 20 = 4 \Rightarrow D$

M D
↓ ↓
 $13 - 4 = 9 \Rightarrow I$

but

S O
↓ ↓
 $19 - 15 = 4 \Rightarrow D$

but

T S
↓ ↓
 $20 - 19 = 1 \Rightarrow A$ (not E)

7. (4) $1232 \Rightarrow 1+3 = 2+2$
 $1188 \Rightarrow 1+8 = 1+8$
 $1320 \Rightarrow 1+2 = 3+0$

but

$1050 \Rightarrow 1+5 \neq 0+0$

8. (2) As

$4832 \Rightarrow 4 \times 8 = 32$
 $6742 \Rightarrow 6 \times 7 = 42$
 $5735 \Rightarrow 5 \times 7 = 35$
but
 $7855 \Rightarrow 7 \times 8 = 56 \neq 55$

9. (3) The following series is based on magnetic spectrum
Gamma Rays < X-Rays < Ultra-violet rays < Visible Light < Infra-red rays

10. (2)

X $\xrightarrow{+1}$ Y $\xrightarrow{+3}$ B $\xrightarrow{+5}$ G $\xrightarrow{+7}$ N
T $\xrightarrow{+1}$ U $\xrightarrow{+3}$ X $\xrightarrow{+5}$ C $\xrightarrow{+7}$ J

11. (2)

O $\xrightarrow{+4}$ S $\xrightarrow{+5}$ X $\xrightarrow{+6}$ D $\xrightarrow{+7}$ K
P $\xrightarrow{+4}$ T $\xrightarrow{+5}$ Y $\xrightarrow{+6}$ E $\xrightarrow{+7}$ L

12. (4) $\frac{76}{2} = 38, \frac{38}{2} = 19, \frac{19}{2} = 9.5, \frac{9.5}{2} = 4.75$

13. (3) None of the given conclusions follows from the statement.

14. (3) Let the cost of an eraser be ₹x and that of a pen be ₹y
According to the question
 $\Rightarrow 3x + 5y = 105$... (1)
 $\Rightarrow 4x + 6y = 130$... (2)
On solving (1) and (2)
 $\Rightarrow x = 10$ and $y = 15$

15. (4) Sequence of words as they occur in dictionary

(iv) Accentuate → (i)
Agent → (ii) Argentine → (iii)
Assiduous

16. (1) F I R S T
↓ ↓ ↓ ↓ ↓
@ # \$! ?

E Y E
↓ ↓ ↓
^ * ^

So

T Y R E
↓ ↓ ↓ ↓
? * \$ ^

17. (1) First column

$$(12)^2 + (16)^2 = 400$$

Second column

$$(13)^2 + (17)^2 = 458$$

Third column

$$(11)^2 + (?)^2 = 221$$

$$\Rightarrow (?)^2 = 221 - 121$$

$$\Rightarrow ? = 10$$

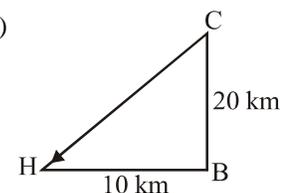
18. (3) $411 B 3 A 29 C 53 D 20 = ?$

On applying the meaning of alphabets

$$\begin{aligned} \Rightarrow 411 \div 3 - 29 + 53 \times 20 \\ = 137 - 29 + 1060 \\ = 1197 - 29 = 1168 \end{aligned}$$

19. (4) PEONPEONPEON

20. (4)



Clearly her home is towards south-west direction from her college.

21. (1) G ⇒ 04, 10, 30, 58, 77

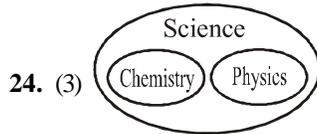
E ⇒ 03, 11, 67, 78, 87

R ⇒ 02, 22, 42, 65, 86

M ⇒ 00, 12, 40, 56, 59, 76, 95
GERM ⇒ 10, 11, 02, 59

22. (3) Clearly daughter of father's only's brother-in-law means that girl is cousin sister of that boy.

23. (2)



25. (1)

26. (4) 27. (2) 28. (4) 29. (3)

30. (1) 31. (3) 32. (2) 33. (1)

34. (2) 35. (4) 36. (1) 37. (3)

38. (1) 39. (3) 40. (2) 41. (2)

42. (2) 43. (4) 44. (2) 45. (4)

46. (4) 47. (3) 48. (1) 49. (1)

50. (1)

51. (1) Let the first number be x
then, sum of second and third
number = $(336 - x)$

According to the
question

$$\Rightarrow x = \frac{3}{13}(336 - x)$$

$$\Rightarrow 13x = 1008 - 3x$$

$$\Rightarrow 16x = 1008$$

$$\Rightarrow x = 63$$

52. (1) Let the marked price be ₹100
then the selling price = ₹80

Let the cost price be ₹ x

$$\Rightarrow x - 10\% \text{ of } x = 80$$

$$\Rightarrow 0.9x = 80$$

$$\Rightarrow x = \frac{80}{0.9} = 88.88$$

New S.P = ₹95

$$\text{Profit}\% = \frac{95 - 88.88}{88.88} \times 100 = 6.875\% \text{ profit}$$

53. (4) $(x+11)(3-5x)$

$$= 3x - 5x^2 + 33 - 55x$$

$$= -5x^2 - 52x + 33$$

Coefficient of $x = -52$

54. (2) A can complete whole work

$$= \frac{20}{0.8} = 25 \text{ days}$$

20% of work is completed by
them together in 3 days

They will together complete the
work in 15 days.

Let the total work be 75 units

work done by A in 1 day = 3 units

work done by (A + B) in 1 day

= 5 units

work done by B in 1 day

= $5 - 3 = 2$ units

Days' required by B

$$= \frac{75}{2} = 37.5 \text{ days.}$$

55. (2) $77 = 7 \times 11$

$$275 = 5 \times 5 \times 11$$

$$\therefore \text{H.C.F} = 11$$

56. (4) Let the speed of Rajdhani be x
km/hr and that of Express train
be y km/hr

$$\Rightarrow \frac{648}{y} - \frac{648}{x} = 12 \dots (1)$$

$$\text{also } \frac{648}{x} - \frac{648}{2y} = 6 \dots (2)$$

on solving (1) and (2)

$$\Rightarrow x = \frac{324}{12} = 27 \text{ km/hr}$$

57. (2) Let the wheat sold at 27% profit
be x quintals.

then, the wheat sold at 17%
profit is $(16 - x)$ quintals

According to the question

$$\Rightarrow x \times 1.27 + (16 - x)1.17 = 1.21 \times 16$$

$$\Rightarrow 1.27x + 18.72 - 1.17x = 19.36$$

$$\Rightarrow 0.1x = 19.36 - 18.72$$

$$\Rightarrow 0.1x = 0.64$$

$$\Rightarrow x = 6.4$$

58. (4) Let the age of sister be x years
so, that of brother is $(x + 6)$ years
According to the question

$$\Rightarrow (x - 7)(x - 1) = 72$$

$$\Rightarrow x^2 - x - 7x + 7 = 72$$

$$\Rightarrow x^2 - 8x + 7 = 72$$

$$\Rightarrow x^2 - 8x - 65 = 0$$

$$\Rightarrow x^2 - 13x + 5x - 65 = 0$$

$$\Rightarrow x(x - 13) + 5(x - 13) = 0$$

$$\Rightarrow (x + 5)(x - 13) = 0$$

$$\Rightarrow x = 13$$

Brother's age = $x + 6 = 19$ years

59. (3) Let the Harishankar's salary be x

then Girish's salary = $\frac{4}{9}x$

and Shankar's salary = $\frac{5}{6}x$

$$\text{Required ratio} = \frac{\frac{4}{9}x}{\frac{5}{6}x}$$

$$= \frac{4}{9} \times \frac{6}{5} = 8 : 15$$

60. (4) $5 - x > 1 + 3x$

$$\Rightarrow 5 - 1 > 3x + x$$

$$\Rightarrow 4 > 4x$$

$$\Rightarrow x < 1$$

also

$$5 + 5x \geq 2 + 2x$$

$$\Rightarrow 5 - 2 \geq 2x - 5x$$

$$\Rightarrow 3 \geq 3x$$

$$\Rightarrow x \geq -1$$

$$\therefore -1 \leq x < 1$$

61. (4) According to the question

$$\therefore 4x + p - (2x - 4)$$

$$= (6x - 12) - (4x + p)$$

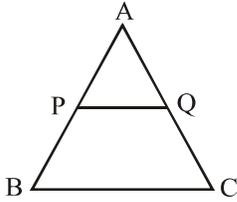
$$\Rightarrow 2(4x + 9) = 6x - 12 + 2x - 4$$

$$\Rightarrow 4x + p = \frac{8x - 16}{2}$$

$$\Rightarrow 4x + p = 4x - 8$$

$$\Rightarrow p = -8$$

62. (4)



In $\triangle ABC$ and $\triangle APQ$
 $\angle APQ = \angle ABC$
 $\angle AQP = \angle ACB$
 By AA similarity
 $\triangle ABC \sim \triangle APQ$

$$\Rightarrow \frac{AB^2}{AP^2} = \frac{25}{16}$$

$$\Rightarrow \frac{AB}{AP} = \sqrt{\frac{25}{16}} = \frac{5}{4}$$

$$\Rightarrow \frac{AB}{AP} - 1 = \frac{5}{4} - 1$$

$$\Rightarrow \frac{AB - AP}{AP} = \frac{5 - 4}{4}$$

$$\Rightarrow \frac{PB}{AP} = \frac{1}{4}$$

$$\Rightarrow AP : PB = 4 : 1$$

63. (2) On putting $x = 5$ and $y = 7$

$$\Rightarrow 3x - 4y = -13$$

$$\Rightarrow 3(5) - 4(7) = -13$$

$$\Rightarrow 15 - 28 = -13$$

$$\Rightarrow -13 = -13$$

64. (4) Let income be 100

Expenditure = 59

Saving = 41

Required percentage

$$= \frac{41}{59} \times 100 = 69.49\%$$

65. (4)



$AB \parallel CD$

$$\therefore AE \times CE = BE \times DE$$

$$\Rightarrow 12 \times x = (BC - x) \times 18$$

hence $CE = x$

$$\Rightarrow 12x = (12 - x) \times 18$$

$$\Rightarrow 4x = 6(12 - x)$$

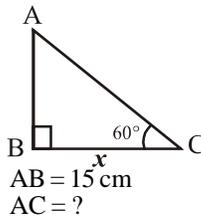
$$\Rightarrow 4x = 72 - 6x$$

$$\Rightarrow 4x + 6x = 72$$

$$\Rightarrow 10x = 72$$

$$\Rightarrow x = 7.2 \text{ cm}$$

66. (3)



$$\sin 60^\circ = \frac{AB}{AC}$$

$$\Rightarrow \frac{\sqrt{3}}{2} = \frac{15}{AC}$$

$$\Rightarrow AC \sqrt{3} = 30$$

$$\Rightarrow AC = 10\sqrt{3} \text{ cm}$$

$$67. (3) \text{ Principal} = \frac{\text{S.I} \times 100}{\text{Time} \times \text{Rate}}$$

$$= \frac{5320 \times 1000}{5 \times 7} = 15200$$

68. (2) Curved surface area of a cylinder = 660 cm^2

$$\Rightarrow 2\pi rh = 660$$

$$\Rightarrow 44 \times h = 660$$

$$\Rightarrow h = \frac{660}{44} = 15 \text{ cm}$$

Also

$$2\pi r = 44$$

$$\Rightarrow 2 \times \frac{22}{7} \times r = 44$$

$$\Rightarrow r = \frac{44 \times 7}{44}$$

$$\Rightarrow r = 7 \text{ cm.}$$

Volume of cylinder = $\pi r^2 h$

$$= \frac{22}{7} \times 7 \times 15 = 2310 \text{ cm}^3$$

$$69. (4) \cos \frac{11\pi}{6} = \cos \left(2\pi - \frac{\pi}{6} \right)$$

$$= \cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$$

70. (2) $\cos 3A = 4 \cos^3 A - 3 \cos A$

$$\Rightarrow 3 \cos A = 4 \cos^3 A - 3 \cos A$$

71. (2) Expression

$$\frac{\cos A}{1 - \sin A} = \frac{\cos A(1 + \sin A)}{(1 - \sin A)(1 + \sin A)}$$

$$= \frac{\cos A(1 + \sin A)}{1 - \sin^2 A} = \frac{1 + \sin A}{\cos A}$$

$$= \frac{1}{\cos A} + \frac{\sin A}{\cos A}$$

$$= \sec A + \tan A$$

72. (1) Weight : Height

$$\text{Sunita} = 60 : 1.5 = 40$$

$$\text{Anjali} = 55 : 1.2 = 45.83$$

$$\text{Vimla} = 5 : 1.6 = 46.875$$

$$\text{Preeti} = 70 : 1.4 = 50$$

\therefore Sunita has the least ratio.

73. (1) Least profit was in the year 2011
 Profit %

$$= \left(\frac{\text{Income} - \text{Expenditure}}{\text{Expenditure}} \right) \times 100$$

$$\Rightarrow 5 = \left(\frac{I - 200}{200} \right) \times 100$$

$$\Rightarrow I - 200 = 10$$

$$\Rightarrow I = 210$$

74. (3) Required Average

$$= \frac{3 \times 0 + 1 \times 13 + 2 \times 18 + 3 \times 3}{3 + 13 + 18 + 3}$$

$$= \frac{0 + 13 + 36 + 9}{37}$$

$$= \frac{58}{37} \approx 1.567$$

75. (1) Number of shares with Ezaz

$$= \frac{25}{100} \times 6,00,000 + 15000$$

$$= 1,50,000 + 15000 = 1,65,000$$

76. (3) 77. (1) 78. (4) 79. (3)

80. (2) 81. (4) 82. (4) 83. (1)

84. (2) 85. (1) 86. (4) 87. (3)

88. (2) 89. (3) 90. (2) 91. (1)

92. (2) 93. (1) 94. (2) 95. (1)

96. (2) 97. (1) 98. (3) 99. (1)

100. (4)