RRB NTPC MODEL PAPER 4

RRB NTPC CBT – I

MODEL PAPER - 1

1. The capital of Mouryan Kingdom was located at

a) Pataliputra

b) Vaishali

c) Lumbini

d) Gaya

2. Who can removed the members of the Union Public Service Commission (UPSC)?

a) Supreme Court

b) Prime Minister

c) President

d) Governor

3. The oldest oil field in Asia is located in

a) Gujarat

b) Assam

c) Arunachal Pradesh

d) Nagaland

4. Which of the following is false?
Sound waves are _____ waves

a) pressure

b) longitudinal

c) electromagnetic

d) mechanical

5. Maanch is a folk dance from _____

a) Haryana

b) Kerala

c) Assam

d) Madhya Pradesh

6. In 1981, ISRO launched India's first Geostationary Satellite called

a) Aryabhatta

b) Apple

c) Bhaskara II

d) INSAT IB

7. On an average, how many taste buds are present in a human tongue?

a) 2000 to 8000

b) 50,000 to 1,00,000

c) 1 million to 10 million

d) More then 10 million

8. What is $C_{12}H_{22}O_{11}$ also known as

a) Sand

b) Sugar

c) Salt

d) Clay

9. Which continent is known as 'forgotten land'?

a) Antarctica

b) Asia

c) Europe

d) Australia

10. What is the Nature of Metal Oxides?

a) Acidic

b) Basic

c) Neutral

d) None of these

11. Gyan Peeth Award for 2018 is given for which book

a) Amrutha

b) Arundathi Roy

c) Amitav Ghosh

d) Y.V. Reddy

12. World first cashless country?

a) Norway

b) Sweden

c) UK

d) Germany

13. When world animal day is observed?

a) 4th Nov

b) 4th Oct

c) 10th Dec

d) 21st Jan

14. Who is the chairman of Yes Bank?

a) Brahm Dutt

b) Ravneet Gill

c) Rajnish Sharma

d) Radha Singh

15. Which is India's longest river that does not flow into the sea?

a) Ganga

b) Jamuna

c) Tapti

d) Kaveri

16. Name the capital of Uganda?

a) Mogadishu

b) Kampala

c) Lusaka

d) Bulenga

17. Indian currency notes are printed in which place?

a) New Delhi

b) Bombay

c) Nashik

d) Agra

18. Which among the following happens in an Oxidation Reaction?

a) Electrons are gained

b) Electrons are lost

c) Protons are gained

d) Protons are lost

19. What does "Satyameva Jayate" mean?

a) "Truth alone triumphs"

b) "True faith is rare"

c) "Truth is Divine"

d) "Truth is a Treasure"

20. If H_2O : Hydorgen, then KOH : _____

a) Cobalt

b) Phosphorous

c) Potassium

d) Krypton

21. Who among the following was the 23rd Jain Tirtankara?

a) Nemi Natha

b) Mahavira

c) Parshvanath

d) Malinath

22. In which schedule of the Indian Constitution, the official languages are mentioned?

a) Sixth Schedule

b) Fifth Schedule

c) Eighth Schedule

d) Ninth Schedule

23. The coldest planet in the solar system is

a) Neptune

b) Jupiter

c) Mars

d) Saturn

24. First Indian woman president of the "Indian National Congress"

a) Annie Besant

b) Sarojini Naidu

c) Sucheta Kripalani

d) Rajkumari Amrit Kaur

25. Which of the following is exempted from the GST?

a) Handloom

b) Contraceptives

c) Coffee Beans

d) All of these

26. Indian Institute of Ecology and Environment is located at

a) New Delhi

b) Mumbai

c) Kolkata

d) Thiruvananthapuram

27. Badminton is the national sport of which of following country?

a) Malaysia

b) Scotland

c) China

d) Former Soviet Union

28. To maintain ecological balance, the area under forest should be

a) 10%

b) 23%

c) 33%

d) 53%

29. Global IT Challenge for Youth with Disabilities (GITC) 2018 was held in which of the following City?

a) Paris, France

b) Washington DC, USA

c) Beijing, China

d) New Delhi, India

30. The 2020 Olympic games are scheduled to be held at which country?

a) Tokyo

b) Istanbul

c) Madrid

d) London

31. Which of the following communication modes support two-ways traffic but in only one direction at a time?

a) Simplex

b) Half-duplex

c) Full-duplex

d) ¾ duplex

32. Ghoomar is folk dance of which state?

a) Mizoram

b) Puducherry

c) Gujarat

d) Rajasthan

33. Which of the following is not an Operating System?

a) Windows Vista

b) Linux

c) Microsoft Office

d) Apple's Mac OS

34. What is the full form of GPP?

a) Green Public Policy

b) Green Public Procurement

c) Green Private Procurement

d) Green Private Policy

35. Who has been awarded with Sportstar Aces lifetime Achievement Award 2019?

a) M.S. Dhoni

b) Kapil Dev

c) Virat Kohle

d) Prakash Padukone

36. Which material formed protective coating in electroplating process?

a) Zinc

b) Zinc and Cadmium

c) Copper

d) Copper and Nickel

37. What does DNS stands for?

a) Domain Name System

b) Disk Number System

c) Distant Network Service

d) None of these

38. Who was the First woman to reach Summit of Mount Everest?

a) Bachendri Pal

b) Junko Tabei

c) Arunima Sinha

d) Premlatha Agarwal

39. Between which stationa does India's longest train run?

a) Kanya Kumari – Baramulla

b) Dibrugarh – Naliya

c) Dibrugarh – Kanya Kumari

d) Thiruvananthapuram – New Delhi

40. "The Father of Indian Space Program" is

a) Dr. A.P.J. Abdul Kalam

b) Dr. Vikram A. Sarabhai

c) Dr. K. Kasturirangan

d) Prof. Satish Dhawan

41. In the following question, select the odd letter from the given alternatives

a) 926

b) 122

c) 225

d) 440

42. Adversary : Enemy :: Adversity : ?

a) Friend

b) Dynamic

c) Love

d) Difficulty

43. F : 216 :: L : ?

a) 1728

b) 1700

c) 1600

d) 1723

44. Find out the correct alternative in which number of letters skipped in below adjacent letters in the series is two

a) LORTW

b) GJMPS

c) KNPSV

d) EHKLO

45. If "LAMP" is coded as 30-52-28-22, then "TOY" will be coded as

a) 14-24-4

b) 20-15-25

c) 14-4-24

d) 20-25-15

46. If 'Road' is 'CAR', 'CAR' is called 'TRAIN'. 'TRAIN' is called 'SCHOOL', SCHOOL' is called 'HOUSE', 'HOUSE' is called 'OFFICE', then where do children go to study

a) HOUSE

b) TRAIN

c) SCHOOL

d) OFFICE

47. 'S' is the only son of V. V is married to R. M is the daughter of R. R is the grandmother of A. How is 'S' definitely related to A?

a) Uncle

b) Cannot be determined

c) Father

d) Brother

48. If 'a' represents "÷ ", 'b' represents '+', 'c' represents '-' and 'd' represents '×', then 24 a 6 d 4 b 9 c 8 = ?

a) 20

b) 19

c) 6

d) 17

49. A person walks towards his house, at 8:00 am and observes his shadow to his right. In which direction he is walking?

a) North

b) South

c) East

d) West

* **<u>Directions</u> (Q. No 50 – 52) Read the following information carefully to answer these questions.**

Madhu and Shobha are good in Dramatics and Computer Science. Anjali and Madhu are good in Computer Science and Physics, Anjali, Poonam and Nisha are good in Physics and History. Nisha and Anjali are good in Physics and Mathematics Poonam and Shobha are good in History and Dramatics.

50. Who is good in Physics, History and Mathematics but not in Computer Science?

a) Madhu

b) Poonam

c) Nisha

d) Anjali

51. Who is good in Physics, History and Dramatics?

a) Poonam

b) Shobha

c) Madhu

d) Anjali

52. Who is good in History, Physics, Computer Science and Mathematics?

a) Poonam

b) Nisha

c) Anjali

d) Madhu

53. Study the figure given below carefully and answer the questions that follow.

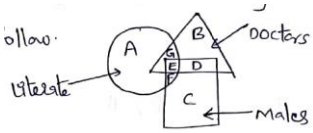
Which part shows Literate males, who are Doctors?

a) G

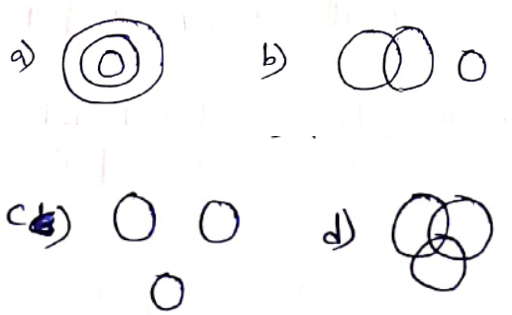
b) E

c) D

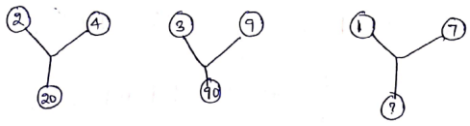
d) F



54. Which of the following represents Granite, Tree and Water.



55. Find the missing character in the following question



a) 160

b) 100

c) 50

d) 75

56. Assertion (A) : Penguins are birds, find in the hottest region of the earth.

Reason (R) : Birds in hot regions do not have wings

a) Both A & R are true and R is the correct explanation of A

b) Both A & R are true, but R is not the correct explanation of A

c) A is true, but R is false

d) Both A and R are false

57. A statement followed by some conclusions are given below

Statement : Religions teach the guiding principles for leading one's life.

Conclusions : I. Religion is a way of life.
II. Religion is a teacher

a) Only conclusion I follows

b) Only conclusion II follows

c) Both I and II follows

d) Neither I or Nor II follows

58. The following equation may be corrected by interchanging with two signs?

$5 \times 15 \div 7 - 20 + 4 = 77$

a) – and +

b) × and ÷

c) + and ÷

d) + and ×

59. Choose the correct alternative that will continue the same & replace? In the given series
2, 12, 36, 150, ?

a) 194

b) 210

c) 252

d) 258

Direction (Q. No. 60 – 62): Read the following information and answer the following questions below.

Some boys and girls are standing in a row.

The first girl is followed by 1 boy, the second by 2 boys and so on. There are 35 boys and girls in the line.

60. How many boys are there between position 5 and 17

a) 12

b) 10

c) 8

d) 13

61. How many girls are there?

a) 6

b) 7

c) 8

d) 9

62. How many girls are between position 21 and 30?

a) 1

b) 2

c) 3

d) None

63. AC, FH, KM, PR, ?

a) UX

b) TV

c) UW

d) VW

64. a – b – ca – b – c – a – cc

a) ababac

b) ababca

c) acacab

d) acbcab

65. In a certain code DURABLE is written as QTCBDKA. How is 'COUNTRY' written that code?

a) VPDOZSU

b) TNBOXQS

c) VPDMZSU

d) TNBOZSU

66. In what ratio is the segment joining (-1, -12) and (3,4) divided by the X-axis

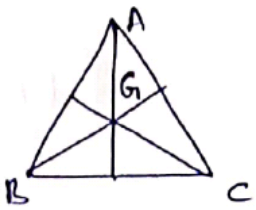
a) 1 : 3

b) 3 : 2

c) 3 : 1

d) 2 : 3

67. An equilateral triangle ABC having its centroid as G as shown in figure. If AB = 12 cm, then find the length of AG?



a) $12\sqrt{3}$ cm

b) $9\sqrt{3}$ cm

c) $6\sqrt{3}$ cm

d) $4\sqrt{3}$ cm

68. If the orthocenter and centroid of a triangle are the same, then the triangle is

a) Scalene

b) Right angled

c) Equilateral

d) Obtuse angled

69. Sum of length's of all edges of a cube is 84 cm. Find it's volume?

a) 686 Cubic cm's

b) 343 Cubic cm's

c) 171.5 Cubic cm's

d) 514.5 Cubic cm's

70. If $\frac{2\sin\theta - \cos\theta}{\cos\theta + \sin\theta} = 1$, then value of cot θ is:

a) 1/2

b) 1/3

c) 3

d) 2

71. If $sec^2\theta + tan^2\theta = 7$, then the value of θ, when $0° \leq \theta \leq 90°$, is

a) 30°

b) 60°

c) 0°

d) 90°

72. The compound interest on Rs. 2400 at 10% per annum, for a certain period of time is Rs. 504. Find the time in years.

a) 15

b) 2.5

c) 2

d) 3

73. The single discount equivalent to two successive discounts of 20% and 5% is

a) 24%

b) 25%

c) 22%

d) 23%

74. The cost price of 24 apples is the same as the selling price of 18 apples. The percentage of gain is.

a) $12\frac{1}{2}$

b) $14\frac{2}{3}$

c) $16\frac{2}{3}$

d) $33\frac{1}{3}$

75. Find the least number which must be subtracted from 2423 so that the resultant number when divided by 15, 25 and 40 leaves remainder of 7 in each case.

a) 8

b) 12

c) 16

d) 20

76. The square root of 5329 is

a) 97

b) 96

c) 94

d) 73

77. $4 - \frac{5}{1+\frac{1}{3+\frac{1}{2+\frac{1}{4}}}} = ?$

a) $\frac{40}{31}$

b) $\frac{4}{9}$

c) $\frac{1}{8}$

d) $\frac{31}{40}$

78. 0.121212 equals to in $\frac{P}{Q}$ form?

a) $\frac{4}{11}$

b) $\frac{2}{11}$

c) $\frac{4}{33}$

d) $\frac{2}{33}$

79. Given below are the ages of a group of children. What is the Median age?
7, 9, 8, 6, 5, 3, 9, 2

a) 6.5 years

b) 6 years

c) 6.125 years

d) 5 years

80. The sum and product of the roots of the equation $x^2 - x - 4 = 0$ are respectively

a) 4, 1

b) 1, 4

c) -4, 1

d) 1, -4

81. If the number obtained on increasing 30 by x% is the same as decreasing 50 by x%, what is x% of (80+4x)?

a) 30

b) 45

c) 25

d) 20

82. If the third term of A.P is 7 and 6^{th} term is 13 then find the sum of first 5 term.

a) 31

b) 35

c) 36

d) 39

83. Find the value of $sin\ 75°$

a) $\frac{\sqrt{3}+1}{2}$

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

c) $\frac{\sqrt{6}\sqrt{2}}{4}$

d) $\frac{\sqrt{6}+\sqrt{2}}{4}$

84. Find the LCM of $\frac{36}{225}, \frac{48}{150}$ and $\frac{72}{85}$

a) $\frac{72}{85}$

b) $\frac{140}{15}$

c) $\frac{150}{225}$

d) $\frac{144}{5}$

85. The difference between $\frac{1}{3}$ and $\frac{1}{4}$ of a number is equal to its square root. Find the number.

a) 120

b) 72

c) 136

d) 144

86. The speeds of three cars in the ratio of 4:3:2. The ratio between the time taken by the cars to cover the same distance will be

a) 2:3:4

b) 6:8:12

c) 3:4:6

d) 6:4:3

87. A certain number of men can do a work in 20 days. If there were 4 more men, the work can be done in 5 days less.

How many men were there initially?

a) 12

b) 16

c) 15

d) 20

88. 420 gm of sugar solution has 40% sugar in it. How much sugar should be added to make it 65% in the solution?

a) 275 gm

b) 150 gm

c) 300 gm

d) 450 gm

89. Two pipes can fill a cistern in 20 minutes and 24 min respectively. And a drain pipe can empty 9 gallons per minute.

All the three pipes working together can fill the tank in 15 minutes.

The capacity of the tank is

a) 180 gallons

b) 300 gallons

c) 360 gallons

d) 540 gallons

90. In an 800 m race A beats B by 160 m or 20 sec/ In how many seconds can A cover 360 m?

a) 34 sec

b) 38 sec

c) 40 sec

d) 36 sec

91. The Avg. of a set of x numbers is 3x. If (x-1) is subtracted from each number. Then what will be the resultant Avg.

a) 2x +1

b) 2x – 1

c) x – 1

d) 4x – 1

92. The average marks of 14 students is calculated as 71. But it was later found that the marks of one student had been wrongly entered as 42 instead of 56 and another as 74 instead of 32. The correct average is

a) 67

b) 62

c) 69

d) 71

93. If $x = (7 - 4\sqrt{3})$, then the value of $\left(x + \frac{1}{x}\right)$ is

a) $3\sqrt{3}$

b) $8\sqrt{3}$

c) 14

d) $14 + 8\sqrt{3}$

94. Which of the following are in descending order of their value?

a) $\frac{5}{9}, \frac{7}{11}, \frac{8}{15}, \frac{11}{17}$

b) $\frac{5}{9}, \frac{8}{15}, \frac{11}{17}, \frac{7}{11}$

c) $\frac{11}{17}, \frac{7}{11}, \frac{8}{15}, \frac{5}{9}$

d) $\frac{11}{17}, \frac{7}{11}, \frac{5}{9}, \frac{8}{15}$

95. If $\frac{2a+b}{a+4b} = 3$, then find the value of $\frac{a+b}{a+2b}$

a) $\frac{2}{7}$

b) $\frac{5}{9}$

c) $\frac{10}{7}$

d) $\frac{10}{9}$

96. Which one of the following longitudes determines the Indian standard time?

a) 85.5°E

b) 86.5°E

c) 84.5°E

d) 82.5°E

97. 'NCERT' stands for

a) National Committee of Educational Research and Training

b) National Council of Educational Research and Training

c) National Council for Educational Research and Teaching

d) National Council of Employment Resources and Training

98. Introducing a man, a woman said. "His, wife is the only daughter of my father". How is that man related to the woman?

a) Brother

b) Father-in-law

c) Husband

d) Maternal Uncle

99. From the given alternative words, select the word which can't be formed using the given word CONCENTRATION

a) CONCERN

b) CONTAINER

c) CONCERT

d) CENTRAL

100. MENU : 15 :: READ: ?

a) 28

b) 18

c) 16

d) 30

Solutions

1. (a)

2. (c)

3. (b)

4. (c)

5. (d)

6. (b)

7. (a)

8. (b)

9. (d) Australia is known as forgotten land. It was discovered by Captain Cook in 1770.

10. (b) Metal oxides are basic as they react with dilute acids to form salt and water.

11. (c)

12. (b)

13. (b)

14. (c)

15. (b)

16. (b)

17. (c)

18. (b)

19. (a)

20. (c)

21. (c)

22. (c)

23. (a)

24. (b) Sarojini Naidu is the first Indian woman President of INC in 1925 Kanpur session.

25. (d)

26. (a)

27. (a)

28. (c)

29. (d)

30. (a)

31. (b)

32. (d)

33. (c)

34. (b)

35. (d)

36. (d)

37. (a) DNS → Domain Name System.

DNS is large system in which computer having a database that stores the IP address and the domain names.

38. (b)

39. (c)

40. (b)

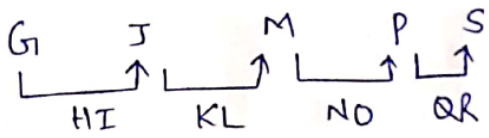
41. (c) Here only 226 is the perfect square of 15. Rest all numbers are not perfect square of any whole number.

42. (d) Synonym of 'Adversary' is 'Enemy'. similarly synonym of 'Adversity' is 'Difficulty'

43. (a) As $F \rightarrow \underset{\left(\substack{Positional \\ value\ of\ F}\right)}{(6)^3} = 216$

$\Rightarrow L \rightarrow (12)^3 = 1728$

44. (b) Acc to the question



45. Here, each letter is coded as twice its position is Reverse English alphabetical order as,

$$\underset{30}{\overset{15}{L}}\ \underset{52}{\overset{26}{A}}\ \underset{28}{\overset{14}{M}}\ \underset{22}{\overset{11}{P}}$$

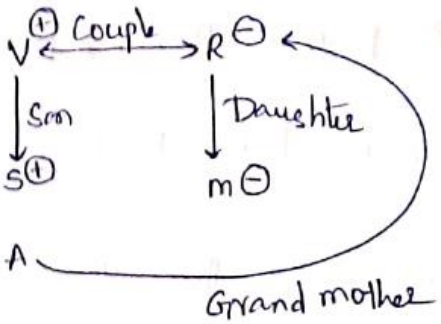
Similarly

$$\underset{14}{\overset{7}{T}}\ \underset{24}{\overset{12}{O}}\ \underset{4}{\overset{2}{Y}}$$

46. (a) Children go to school

$\because$ School $\rightarrow$ House

47. From the given conformation, relation diagram is as shown



'S' might be the Father (or) Uncle of A.

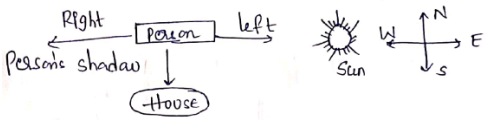
so, relation of S with A is can't determined.

48. $24 \div 6 \times 4 + 9 - 8 = ?$

$4 \times 4 + 9 - 8 = ?$

$\Rightarrow 25 - 8 = ? \Rightarrow 17$

49. (b) At 8:00 am the Sun is the East direction.



clearly, the person is walking towards the South direction.

Solutions (Q.No. 50 – 52)

People	Dramatics	Computer Science	Maths	Physics	History
Madhu	✓	✓		✓	
Shobha	✓	✓			✓
Anitha		✓	✓	✓	✓
Poonam	✓			✓	✓
Nisha			✓	✓	✓

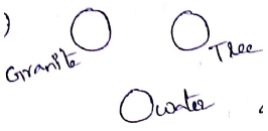
50. (c) Nisha is good in Physics, History & Mathematics

51. (a) Poonam is good in Physics, History & Dramatics

52. (c) Anjali is good in given four subjects.

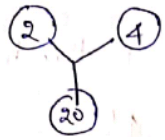
53. (b) The Region common to all three diagrams i.e E shows literate males, who are Doctors

54. (c)



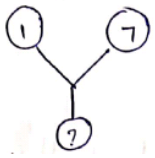
all are diff.
Engineers

55. (c)



$\Rightarrow 2^2 + 4^2 = 4 + 6 = 20$

Similarly



$\Rightarrow 1^2 + 7^2 = 1 + 49 = 50$

56. (d)

57. (a)

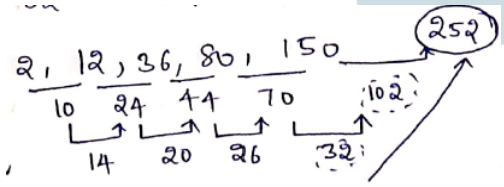
58. (c)

$5 \times 15 + 7 - 20 \div 4$

$= 5 \times 15 + 7 - 5$

$= 85 - 5 = 77$

59. (c)

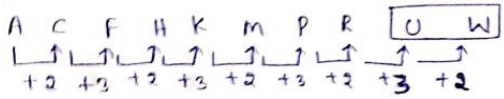


60. (c)

61. (b)

62. (a)

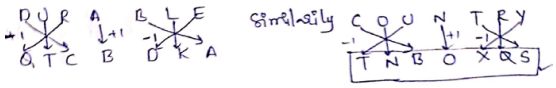
63. (c) Pattern of the series as shown below



64. (c) Pattern of the series is shown below.

a$\underline{a}$b$\underline{c}$c / a$\underline{a}$b$\underline{c}$c / $\underline{a}$a$\underline{b}$c$\underline{c}$ ⇒ acacab

65. (b)



66. (c)

$$\underset{(-1,-12)}{\qquad} \overset{m:n}{\qquad} \underset{(x,0)}{\qquad} \underset{(3,4)}{\qquad}$$

i) $\frac{3m-n}{m+n} = x$

ii) $\frac{4m-12n}{m+n}$

⇒ By solving i & ii

$4m - 12n = 0$

$\Rightarrow 4m = 12n \Rightarrow \frac{m}{n} = \frac{3}{1}$

$\therefore$ Ration is 3:1

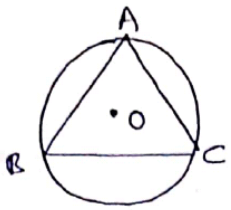
67. (d) The centroid of triangle ABC is G

⇒ AG is the circumradius of an equilateral Δ^{le} ABC

$\Rightarrow AG = side/\sqrt{3}$

$\Rightarrow \therefore AG = \frac{12}{\sqrt{3}} = 4\sqrt{3}$ cm

68. (c)



Here AB = BC = CA

So, the concerned triangle is equilateral $\Delta^{le.}$

69. (b)

Sum of all edges of the cube

$\Rightarrow$129 = 84 cm

$\Rightarrow$ a = 7 cm

Then it's volume $= a^3 = 7^3 = 343$ Cubic cm

70. (a)

$$\frac{2\sin\theta - \cos\theta}{\cos\theta + \sin\theta} = 1$$

$$\Rightarrow 2\sin\theta - \cos\theta = \cos\theta + \sin\theta$$

$$\Rightarrow \sin\theta = 2\cos\theta \Rightarrow \cot\theta = \frac{1}{2}$$

71. (b)

$$\sec^2\theta + \tan^2\theta = 7$$

$$\Rightarrow \underset{[\because \sec^2\theta - \tan^2\theta = 1]}{1 + \tan^2\theta} + \tan^2\theta = 7$$

$$\Rightarrow 2\tan^2\theta = 7 - 1 = 6$$

$$\Rightarrow \tan^2\theta = \frac{6}{2} = 3$$

$$\Rightarrow \tan\theta = \sqrt{3}$$

$$\Rightarrow \theta = 60°$$

72. (c)

$$C.I = P\left(\left(1 + \frac{R}{100}\right)^t - 1\right)$$

P$\rightarrow$ Principal

t $\rightarrow$ time in years

r $\rightarrow$ rate % p.a.

$$504 = 2400\left(\left(1 + \frac{10}{100}\right)^t - 1\right)$$

$$\Rightarrow 0.21 = (1.1)^t - 1$$

$$\Rightarrow 1.21 = (1.1)^2$$

$$\Rightarrow (1.1)^2 = (1.1)^t$$

$$\Rightarrow t = 2 \text{ years}$$

73. (a)

Single equivalent discount

$$= 20 + 5 - \frac{20\times5}{100} = 24\%$$

74. (d) let the C.P of 1 apple = R. 1

$\therefore$ C.P of 18 apples = Rs. 18

S.P of 18 apples = Rs. 24

$$\Rightarrow \therefore \text{gain\%} = \frac{6}{18} \times 100$$

$$= \frac{100}{3} = 33.3\%$$

75. (c)

The number = n*LCM (15,25,40)+7

n$\rightarrow$ +ve integer

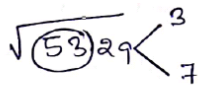
LCM (15,25,40) = n* 600+7

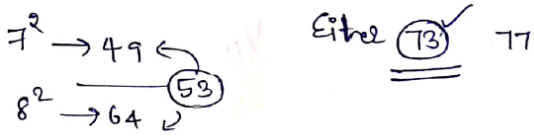
The closest such number is 2407

Hence, the least number to be subtracted

=2423 – 2407 = 16

76. (d)





77. (c)

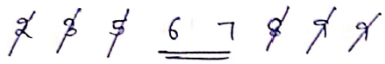
$$4 - \frac{5}{1 + \frac{1}{3 + \frac{4}{9}}} = 4 - \frac{5}{1 + \frac{9}{31}}$$

$$= 4 - \frac{5 \times 31}{40} = \frac{32 - 31}{8} = \frac{1}{8}$$

78. (c) $0.\overline{12}$

$$= \frac{12}{99} = \frac{4}{33}$$

79. (a)



$$= \frac{6+7}{2} = 6.5 \text{ years}$$

80. (d)

Polynominal $ax^2 + bx + c = 0$

$sum = -\frac{b}{a}$ $Product = \frac{c}{a}$

$\therefore x^2 - x - 4 = 0$

$\Rightarrow Sum = \frac{-(-1)}{1}$ $Product = \frac{-4}{1}$

$= 1$ $= -4$

81. (b)

$$\frac{30(100+x)}{\cancel{100}} = \frac{50(100-x)}{\cancel{100}}$$

$$\Rightarrow \frac{100+x}{100-x} = \frac{5}{3} \Rightarrow 200 = 8x$$

$$\Rightarrow x = 25$$

$$x\% \; of \; (80 = 4x) = 180 \times \frac{1}{4}$$

= 45

82. (b)

$a + (n-1)d$

$\Rightarrow a + 2d = 7$

$a + 5d = 13$

$3d = 6$

$d = 2; 9 = 3$

$$S_n = \frac{n}{2}[2a + (n-1)d]$$

$$= \frac{5}{2}[6 + (4 \times 2)]$$

$$= 35$$

83. (d)

$sin\ 75° = sin\ (45° + 30°)$

$= sin\ 45°\ cosin\ 30° + cos\ 45°\ sin\ 30°$

$$= \frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{2}}\ \frac{1}{2}$$

$$\Rightarrow \frac{\sqrt{3}+1}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{6}+\sqrt{2}}{4}$$

84. (d)

$$LCM = \frac{LCM\ of\ Numerator}{H.C.F\ of\ Denominator}$$

$$= \frac{144}{5}$$

85. (d)

$\frac{1}{3}, \frac{1}{4}$

LCM = 3, 4 = 12

$\frac{4}{3}) \; 1 = \sqrt{x}$

$\Rightarrow x = 144$

86. (c)

$\downarrow speed \propto \frac{1}{time\uparrow}$ Inverse proportion

$\therefore time = \frac{1}{4} : \frac{1}{3} : \frac{1}{2}$

$= 6:8:12$ i.e 3:4:6

87. (a)

Mens	Days
x	20
(x+4)	15

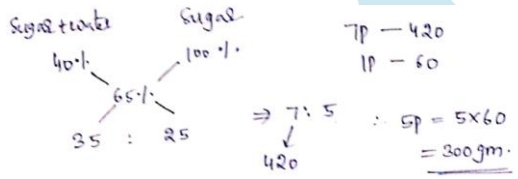
$m_1 d_1 = m_2 d_2$

$\Rightarrow \frac{2}{4}(x) = (x+104)\frac{1}{5}3$

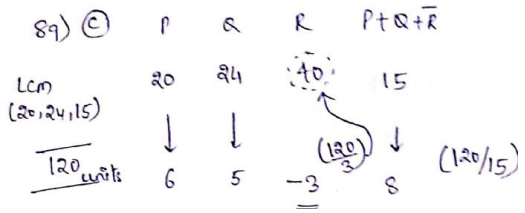
$\Rightarrow 4x = 3x + 12$

$\Rightarrow x = 12$

88. (c)



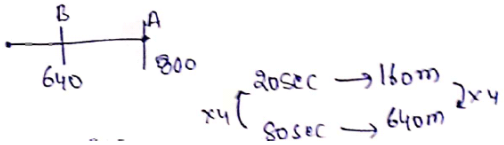
89. (c)



Capacity = Rate ×time = 9 gallons ×40

= 360 gallons

90. (d)



80 sec → 800

1 sec – 10m (10 m/s)

360 m⟶ 36 sec

91. (a)

Avg = 3x – (x – 1)

= 2x + 1

$\left[\because num \underset{1}{\downarrow} (decrease)\ Avg \underset{1}{\downarrow} (decrease)\right]$

92. (c)

$$\frac{-wrong + correct}{Total\ number}$$

$$= \frac{-42 + 56 - 74 + 32}{14}$$

$$= \frac{-116 + 98}{14} = -2$$

Actual = 71

now : 71 – 2 = 69

93. (c)

$x = 7 - 4\sqrt{3}$

$$\frac{1}{x} = \frac{1}{7 - 4\sqrt{3}} \frac{7 + 4\sqrt{3}}{7 + 4\sqrt{3}}$$

$= 7 + 4\sqrt{3}$

$$x + \frac{1}{x} = 7 - 4\sqrt{3} + 7 + 4\sqrt{3}$$

= 14

94. (d) by converting fraction into decimal then

$0.647 > 0.63 > 0.56 > 0.533$

So,

$\frac{11}{17} > \frac{7}{11} > \frac{5}{9} > \frac{8}{15}$

95. (d)

$\frac{2a+b}{a+4b} = 3 \Rightarrow 2a + b = 3(a + 4b)$

$\Rightarrow a = -11b$

$\therefore \frac{a+b}{a+2b} = \frac{-11b+b}{-11b+2b} = \frac{-10b}{-9b} = \frac{10}{9}$

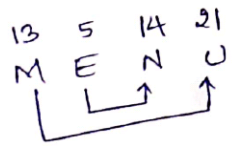
96. (d)

97. (b)

98. (c)

99. (d)

100. (c)

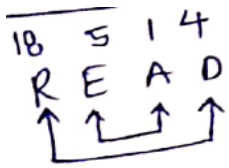


$\Rightarrow (21 + 13) - (5 + 14)$

$= 34 - 19$

$= 15$

similarly



$(18 + 4) - (5 + 1)$

$= 22 - 6$

$= 16$