



RRB NTPC MODEL PAPER **1**



1. The Tirthankara's are a related to

- A) Jainism
- B) Buddhism
- C) Hinduism
- D) Sikhism

2. "Grey revolution" is related with

- A) Petroleum
- B) Fertilizer production
- c) Overall development of agriculture
- D) Leather production

3. Who was the First Indian women to win "miss world" title?

- A) Raita faria Powell
- B) Sushmita Sen
- C) Aishwarya Rai
- D) Lara Dutta

4. Who is authored the book "straight from the Heart"

- A) Kapil Dev
- B) Kapil sibal
- C) Kapil Sri Mohan
- D) None

5. IC chips for computers are generally made of

- A) Silicon
- B) Lead
- C) Chromium
- D) Gold

6. Security Council of the UN comprises of 10 non-permanent members and their tenure is

- A) 5 years
- B) 4 years
- C) 3 years
- D) 2 years

7. What is impulse equal to?

- A) Change in momentum
- B) Change in force
- C) Change in velocity
- D) Change in acceleration

8. Lal Bahadur Shastri is also known as

- A) Guru ji
- B) Man of Peace
- C) Punjab Kesari
- D) Mahatma

9. Which of the following disease is not affected by bacteria?

- A) Anthrax
- B) T.B
- C) Rubella
- D) Cholera

10. Jama Masjid in Delhi was constructed by

- A) Firoz Shan Tughlaq
- B) Shan Jhan
- C) Aurangzeb
- D) Sher Shan Suri



11. Which software has "spread sheets"?

- A) Power point
- B) Microsoft work
- C) Windows media player
- D) Microsoft Excel

12. According to Dr.Ambedkar which article is the most important article of Indian Constitution?

- A) Article 21
- B) Article 24
- C) Article 32
- D) Article 256

13. How many seats are reserved for women in Municipality?

- A) $\frac{1}{5}$
- B) $\frac{1}{7}$
- C) $\frac{1}{3}$
- D) $\frac{1}{4}$

14. Which of the following bank has launched India's first Comprehensive digital service platform, YONO, Which stands for "You Only Need One"

- A) SBI
- B) ICICI BANK
- C) DENA BANK
- D) CANARA BANK

15. The word "Mach" is used to measure

- A) Sound
- B) Light
- C) Ships Speed
- D) Aero plans Speed

16. Pradhan Mantri Surakhit matriwa Abhiyan Provides facility of free health check-up and Required treatment on day of every month

- A) 1st
- B) 9th
- C) 15th
- D) 30th

17. Which is the highest quality of hard coal?

- A) Anthracite
- B) Bituminous
- C) Lignite
- D) Peat

18. How many Indian states share their boundaries with Nepal?

- A) 3
- B) 4
- C) 8
- D) 5

19. Who built the rroup of Moments at Mahabalipuram?

- A) Chola Kings
- B) Pallava Kings
- C) Chera Kings



D) Chalukya Kings

20. India's Population is what percentage of the world population?

- A) 8%
- B) 17%
- C) 26%
- D) 36%

21. Who among the following Governor General Framed the triple alliance against Tipu Sultan?

- A) Warren Hastings
- B) Lord Cornwallis
- C) Lord Wellesley
- D) Lord William Bentinck

22. Which state is known as the "Spice Garden of India"?

- A) Kerala
- B) Karnataka
- C) Andhra Pradesh
- D) Tamil Nadu

23. Which of the following technological inventions came first?

- A) Telegraph
- B) Telescope
- C) Telephone
- D) Teletype

24. During which five year planning was NABARD Established

A) Fifth

B) Sixth

C) Third

D) Ninth

25. The Headquarters of UNESCO is in

- A) New York
- B) Hague
- C) Paris
- D) Moscow

26. How many Countries participated in the world cup cricket 2019?

- A) 10
- B) 15
- C) 12
- D) 14

27. Kilowatt -hour is the unit of

- A) Energy
- B) Power
- C) Force
- D) Momentum

28. The smallest planet in solar system is

- A) Venus
- B) Mercury
- C) Jupiter
- D) Mars

29. Name the commission that came to India in 1928 to return India's Constitution system?



- A) Rowlett Act
- B) Pitt's India Act
- C) Partition of Bengal
- D) Siman Commission

30. "Atal Pension Yojana"(APS), a schema focused on Works in the "Un organized Sector", was launched in

- A) 2014
- B) 2015
- C) 2017
- D) 2018

31. Who is the chief election commissioner of India as of now?

- A) Achal Kumar Joti
- B) Naseem Zaidi
- C) Om Prakash Rawat
- D) H.S Brahma

32. National Handloom Day is celebrated on

- A) 4th August
- B) 5TH August
- C) 6th August
- D) 7th August

33. Who was the chairman of the state's Reorganization commission?

- A) H.N Kusru
- B) K.M. Pannikar
- C) Syed fazel Ali

D) None

34. The minimum age limit for the membership of the Vidhan Parishad is

- A) 21 years
- B) 25 years
- C) 30 years
- D) 35 years

35. Who raised the slogan "Swaraj is my birthright and I shall have it"?

- A) Mahatma Gandhi
- B) BAL Gangadhar Tilak
- C) Subhas Chandra Bose
- D) Lala Lajpat Raj

36. Which of the following indicates the circle of the Saranath pillar?

- A) Law
- B) Revolution
- C) Progress
- D) Religion

37. The largest Herbarium of India is located at

- A) Kolkata
- B) Lucknow
- C) Mumbai
- D) Coimbatore

38. Which one of the following soils is suitable for cotton production?

- A) Regur



- B) Red
- C) Bhangar
- D) Khadar

39. Kaildhara falls is situated on which river?

- A) Tapi
- B) Sarasvati
- C) Narmada
- D) Indrāvati

40. Which of the following is Inexhaustible National Resources?

- A) Air
- B) Minerals
- C) Forest
- D) Coal

41. AD, CE, EF, GG?

- A) II
- B) IH
- C) HI
- D) IJ

42. Find the missing one

336	170	748
523	78	349
431	?	328

- A) 33
- B) 34
- C) 36

D) 37

43. In the following question, by using which mathematical operator will the Expression becomes correct?

$$30 \div 6 \div 4 \div 5 \div 4$$

- A) -, +, × and ÷
- B) +, =, × and -
- C) =, ×, + and -
- D) -, +, = and ×

44. PEN =613 and STRING=580934 Then RIPPENING?

- A) 09631934
- B) 09163934
- C) 09316934
- D) 09613934

45. A boy leaves his school and travels 8km towards the east. He takes a left turn and travels 6km in that direction, and Then turns towards the east and travels another 5km. finally, he turns right and travels 10km. in which direction is he now from his school

- A) South-east
- B) West
- C) East
- D) North-East

46. Arrange the words as per the dictionary

- i) preview ii) preventive iii) prefer iv) Preformation

A) iii, ii, i, iv



B) iv, iii, i, ii

C) iii, iv, ii, i

D) iii, i, ii, iv

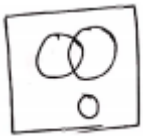
47. Identify the diagram that best represents relationship among the given classes

Vegetable, park, carrot

A)



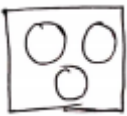
B)



C)



D)



48. In a certain language, "HAMMER" is written as "MAHERM" How is "MATTER" written in that code language?

A) TREMAT

B) TAMERT

C) TAEMRT

D) TARMET

49. Statements: i) Some bags are hot

ii) All hot things are cakes

Conclusion: I) All cakes are bags

ii) All bags are cakes

A) Conclusion I follow

B) Conclusion II follows

C) Neither one Nor II follows

D) Both I and II follows

50. Find the odd one

A) Mustard gas

B) Gasoline

C) Diesel

D) Natural gas

51. 9, 1331, 18, 121, 27, ?

A) 19

B) 11

C) 17

D) 13

52. Clever: Smart: Apprehensive:?

A) Calm

B) Certain

C) Worried

D) Confident

53. Rahul's age is three times the age of Sumit. If Rahul is 15 years old presently,



determine the age (in years) of Sumit after 12 years

- A) 16
- B) 15
- C) 10
- D) 17

54. QRU: RQF::GIC: ?

- A) GHI
- B) HGH
- C) HHX
- D) IGV

55. Introducing women, a boy says, "She is the wife of my Grandfather's son". My grandfather has only one child. How is the woman related to the boy?

- A) Aunt
- B) Wife
- C) Mother
- D) Can't determined

56. In a class 42 students, Swati's rank is 19th from the bottom. Purshottom is 6 ranks below Swati. What is Purshottam's rank from the top?

- A) 30th
- B) 32nd
- C) 33rd
- D) 34th

57. Select the odd one from the given alternatives

- A) FJEX
- B) UXTV
- C) IMHN
- D) PTOU

58. If # means "Subtraction", & means "division", @ means "addition" and % means "Multiplication", then $315\&3\#9@4\%6=?$

- A) 120
- B) 190
- C) 221
- D) 420

59. Statements: No dog is a cat

All hens are cats

Some cats are hen

Conclusions: I) No hen is a dog

II) At least some caps are cats.

- A) Only conclusion I is true
- B) Neither I nor II is true
- C) Only Conclusion II is true
- D) Both conclusions I&II are true

60. Find the missing one

m -Q -C - M - Q - CM

- A) QCMCQ
- B) CQMCQ
- C) CQCMQ
- D) CQMQC



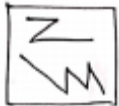
61. If a mirror is placed on the line MN, then which of the Answer Figures is the right Image of the given figure?



A)



B)



C)



D)



62. A batsman of England cricket team in his 17th innings makes a score 85 runs and thereby, Increase his Average by 3 runs. What is his average after the 17th innings? He had never been "Not out".

- A) 47
- B) 37
- C) 39

D) 43

63. Aladder is resisting a wall at a height of 10 m. If the ladder is inclined with the ground at an angle of 30° , then the distance of the foot of the ladder from the wall is

- A) $\frac{10}{\sqrt{3}} m$
- B) $\frac{20}{\sqrt{3}} m$
- C) $10\sqrt{3} m$
- D) $20\sqrt{3} m$

64. Factories $x^2 + 3x - 18$

- A) $(x+18)(x+1)$
- B) $(x+1)(x+18)$
- C) $(x+6)(x-3)$
- D) $(x+6)(x+3)$

65. Rohit walks at 17 km/hr. and Ruchita cycles at 22 km/hr. towards each other .What was the distance between them when they started if they meet after 44 minutes?

- A) 42.9km
- B) 35.8km
- C) 21.5km
- D) 28.6km

66. If the sum of roots of a quadratic equation is - and product of the roots is 12.Find the quadratic Equation.

- A) $x^2 + 7x + 12 = 0$
- B) $x^2 - 7x + 12 = 0$
- C) $x^2 - 7x - 12 = 0$



D) $x^2 + 7x - 12 = 0$

67. 20% discount is offered on an item .By applying promo code the customer wins 10% cashback .What is the Effective discount?

- A) 30.8%
- B) 30%
- C) 12%
- D) 28%

68. The first and last terms of arithmetic progressions are 32 and -43.If the sum of the series is -88, then it has how many terms?

- A) 16
- B) 15
- C) 17
- D) 14

69. In what ratio the segment joining (12,-1) and (-3, 4) divided by Y axis?

- A) 4:1
- B) 1:4
- C) 4:3
- D) 3:4

70. The cost price of a table is Rs 3,200.A merchant wants to make 25% profit by selling it.At the time of sale he declares a discount of 20% on the market price. The marked price is

- A) 5,500
- B) 5,000
- C) 6,000
- D) 4,000

71. A certain amount of money is divided among X, Y and Z. If X receives 25% more than Y and Y receives 25% less than Z, then X: Y: Z is equal to

- A) 14:12:13
- B) 15:12:16
- C) 10:9:12
- D) 12:10:11

72. Having the same capacity a taps fill up a water tank in 20 minutes. How many taps of the same capacity are required to fill up the same water tank in 15 minutes?

- A) 10
- B) 12
- C) 15
- D) 18

73. In an examination, 35% of the candidates failed in mathematics and 25% in English. If 10% failed in both mathematics and English, then how much percent of candidates passed in both the subjects?

- A) 50%
- B) 55%
- C) 57%
- D) 60%

74. Mohan gets 3 marks for each correct sum and losses 2 marks for each wrong sum. He attempt 30 sums and obtain 40 marks the number of sums solved correctly is

- A) 15
- B) 20



C) 25

D) 10

75. What is the mode of the following numbers?

1, 2, 4, 6, 4, 3, 5, 4

A) 1

B) 2

C) 3

D) 4

76. Find median of the dates 27, 39, 49, 20, 21, 28 38

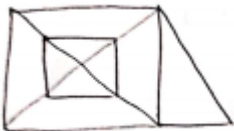
A) 49

B) 21

C) 28

D) 38

77. How many triangles are there in the following figures?



A) 16

B) 18

C) 20

D) 22

78. Find the missing one



A) 54

B) 51

C) 48

D) 44

79. The difference between a position proper fraction and its reciprocal is $\frac{9}{20}$. The fraction

A) $\frac{3}{5}$

B) $\frac{3}{10}$ TM

C) $\frac{4}{5}$

D) $\frac{5}{4}$

80. Three numbers are in the ratio of 3:4:5 and their LCM is 2400, Their HCF is

A) 40

B) 80

C) 120

D) 200

81. The value of $\frac{(2.3)^3 - 0.27}{(2.3)^2 + .69 + .09}$ is

A) 0

B) 1.6

C) 2

D) 3.4

82. Simplify



$$\frac{1}{1 + \frac{2}{3}} = \frac{1}{1 + \frac{2}{3} + \frac{8}{9}} = \frac{1}{1 - \frac{2}{3}}$$

- A) $\frac{11}{13}$
- B) $\frac{13}{15}$
- C) $\frac{13}{11}$
- D) $\frac{15}{13}$

83. If $\alpha = 0.1039$, then the value of

$$\sqrt{4\alpha^2 - 4\alpha + 1} + 3\alpha$$

- A) 0.1039
- B) 0.2078
- C) 1.1039
- D) 2.1039

84. $\sqrt{\frac{48.4}{0.289}}$ is equal to

- A) $1\frac{5}{17}$
- B) $12\frac{1}{17}$
- C) $12\frac{16}{17}$
- D) $129\frac{7}{17}$

85. Aman sells two chairs at Rs.120 each and by doing so he gains 25% on one chair and loses 25% on the other. His loss on the whole in Rs. is

- A) 20

- B) 16
- C) 25
- D) 30

86. If the diagonals of a rhombus are 8 and 6, then the square of its side is

- A) 25
- B) 55
- C) 64
- D) 36

87. The volume of a solid hemisphere is 19404 cm^3 . Its total surface area is

- A) 4158 cm^2
- B) 2858 cm^2
- C) 1738 cm^2
- D) 2038 cm^2

88. If $n = 7 + 4\sqrt{3}$ then the value of $(\sqrt{n} + \frac{1}{\sqrt{n}})$ is

- A) $2\sqrt{3}$
- B) 4
- C) 4
- D) $-2\sqrt{3}$

89. If $\tan A - \cot A = X$, Then value of X is

- A) $(1 + 2\cos^2 A) / (\sin A \cos A)$
- B) $(\sin A \cos A) / (1 - 2\cos^2 A)$
- C) $(\sin A \cos A) / (1 + 2\cos^2 A)$
- D) $(1 - 2\cos^2 A) / (\sin A \cos A)$



90. A student multiplied a number by $\frac{4}{5}$ instead of $\frac{5}{4}$. what is the percentage error in the calculation

- A) 56.25%
- B) 18%
- C) 28.13%
- D) 36%

91. Two rice varieties costing Rs 20 per Kg and Rs30 per kg were mixed as 2:3 and sold as to gain 10% what was the SP of the mixture?

- A) 31.2
- B) 28.6
- C) 30
- D) 26

92. What is the remainder when $(x^{11}+1)$ is divided by $(x+1)$

- A) 0
- B) 2
- C) 11
- D) 12

93. The unit digit in the product $(122)^{173}$ is

- A) 4
- B) 2
- C) 6
- D) 8

94. Kamal will complete work in 20 days. If Suresh is 25% more Efficient than Kamal, he can complete the work in days?

- A) 12 days
- B) 15 days
- C) 16 days
- D) 13 days

95. Convert the decimal fraction into $\frac{p}{q}$ from

0.257

- A) $\frac{19}{66}$
- B) $\frac{25}{99}$
- C) $\frac{19}{99}$
- D) $\frac{17}{66}$

96. The first Europeans to come to India were

- A) British
- B) Dutch
- C) French
- D) Portuguese

97. Who was the first Indian to become member of British Parliament?

- A) Badruddin Tyabji
- B) W.C.Bannerjee
- C) D.N.Wacha
- D) Dada Bhai Naoroll

98. Sand stone is which type of rock?

- A) Calcareous Rock
- B) Igneous Rock
- C) Metamorphic Rock



D) Sedimentary Rock

99. Ganga is result of confluence of rivers Bhagirathi and Alakananda at which place?

A) Deva Prayag

B) Karan Prayag

C) Gangotri

D) Rudra Prayog

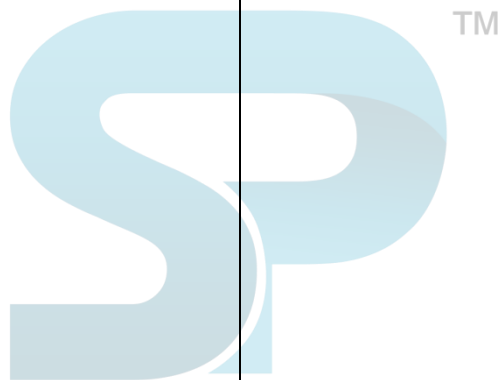
100. Who was the last Mughal Emperor?

A) Babur

B) Noor Jehan

C) Akbar

D) Bahadur Shan II





SOLUTIONS:

1. Answer, A

2. Answer, B

3. Answer, A

In the year of 1966

4. Answer, A

5. Answer, A

6. Answer, D

7. Answer, A

8. Answer, B

9. Answer, C

Rubella is caused by rubella virus

10. Answer, B

11. Answer, D

12. Answer, C

13. Answer, C

14. Answer, A

15. Answer, D

1 Mach = 1195 km/hr. (or) 717 miles/hour

16. Answer, B

17. Answer, A

18. Answer, D

Five states Bihar, U.P, Uttarakhand, and West Bengal, Sikkim

19. Answer, B

20. Answer, B

India's Population is 17.74% of total world population

21. Answer, B

22. Answer, A

23. Answer, B

24. Answer, B

25. Answer, C

26. Answer, A

2019- 10 Countries

2015- 14 countries

2011- 14 countries

27. Answer, ATM

28. Answer, B

29. Answer, D

30. Answer, B

31. Answer, C

32. Answer, D

33. Answer, C

State Reorganization Commission was formed by Government of India in 1953

34. Answer, C

35. Answer, B

36. Answer, C

37. Answer, A

The largest herbarium in India is Indian Botanical Garden, Kolkata. It consists of 1000000 numbers of Specimens.



38. Answer, A

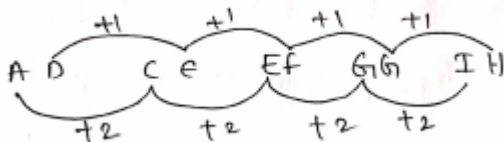
Black soils known as regur it is suitable for cotton productions

39. Answer, C

Kapildhara waterfall is located on the Amarkantak district of the central Indian State of Madhya Pradesh. It is situated on Narmada River.

40. Answer, A

41. Answer, B



42. Answer, C

$$7 \times 4 \times 8 - 2 \times 2 \times 6 = 170$$

$$3 \times 4 \times 9 - 5 \times 2 \times 3 = 78$$

$$3 \times 2 \times 8 - 4 \times 3 \times 1 = 36$$

43. Answer, C

$$30 - 6 = 4 \times 5 + 4$$

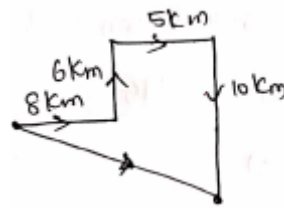
$$24 = 20 + 4$$

$$24 + 24$$

44. Answer, D

PEN STRING Hne, R I P E N I N G
 6 1 3 5 8 0 9 3 4 0 9 6 1 3 9 3 4

45. Answer, A



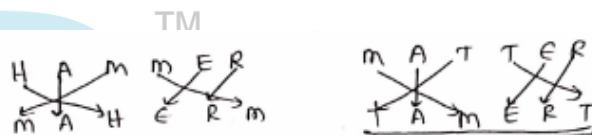
He is South-east from his school

46. Answer, C

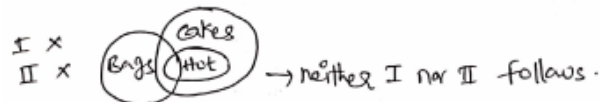
47. Answer, C



48. Answer, B



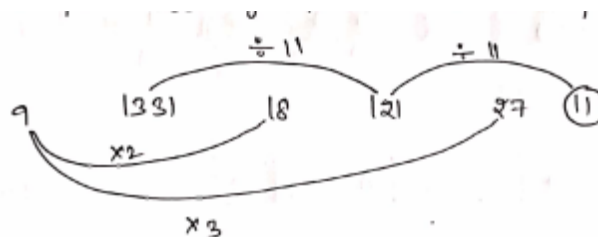
49. Answer, C



50. Answer, A

Except mustard gas, all are crude oil products.

51. Answer, B



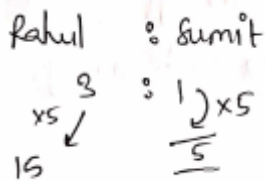
52. Answer, C



Synonym of Apprehensive--worried

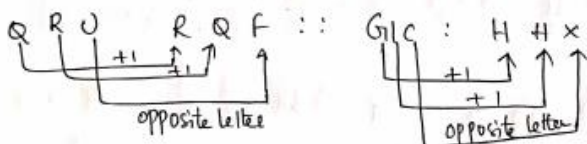
53. Answer, D

Rahul: Sumit

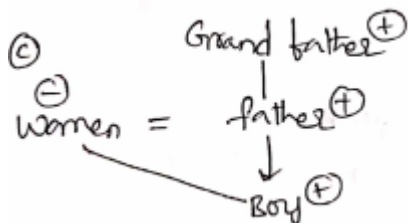


After 12 years = 12+5=17 years

54. Answer, C



55. Answer, C



Women is the mother of the boy

56. Answer, A

Swati's rank from bottom=19

Purshottam rank from bottom=19-6

$$=13$$

Purshottam rank from the top=42-13+1

$$=30$$

57. Answer, B

+4, -5, +6 series expect UXTV

58. Answer, A

$$315 \div 3 - 9 + 4 \times 6 = 105 - 9 + 24$$

$$=129 - 9$$

$$=120$$

59. Answer, D



60. Answer, B

$$m \underline{c} a \mid \underline{a} c m \mid m \underline{c} a \mid \underline{a} c m = \underline{c a m c a}$$

61. Answer, D

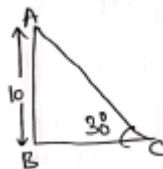
62. Answer, B

$$\text{Average Score before 17th innings} = 85 - (3 \times 177) = 34$$

$$\text{Average score after 17th innings} = 34 + 3$$

$$= 37$$

63. Answer, C



$$\frac{AB}{BC} = \tan 30^\circ \Rightarrow \frac{10}{BC} = \frac{1}{\sqrt{3}} \Rightarrow BC = 10\sqrt{3}m$$

64. Answer, C

$$\begin{aligned} x^2 + 3x - 18 &= x^2 + 6x - 3x - 18 \\ &= x(x + 6) - 3(x + 6) \\ &= (x + 6)(x - 3) \end{aligned}$$



65. Answer, D

$$\text{Time} = \frac{\text{distance}}{\text{Relative speed}}$$

$$\frac{44}{60} = \frac{x}{39} \Rightarrow x = 28.6$$

66. Answer, A

$$X^2 - (\text{Sum of roots})x + \text{Product of roots} = 0$$

$$\Rightarrow x^2 - 7x + 12 = 0$$

67. Answer, D

$$\text{Effective discount} = -20 - 10 + 2$$

$$= 28\%$$

68. Answer, A

$$\text{Sum} = \frac{n}{2} [\text{First term} + \text{last term}]$$

$$-88 = \frac{n}{2} [32 - 43] \Rightarrow -176 = n(-11)$$

$$n = 16$$

$$x = \frac{(m a_2 + n a_1)}{(m+n)} \quad 0 = \frac{m(-3) + 12(n)}{m+n} \\ \Rightarrow \underline{m:n = 4:1}$$

69. Answer, A

Let the dividing ratio m: n

$$x = \frac{mx_2 + nx_1}{(m+n)} \quad 0 = \frac{m(-3) + 12(n)}{m+n}$$

$$\Rightarrow M: n = 4:1$$

70. Answer, B

$$\text{M.P of table} = 3200 \times \frac{125}{100} \times \frac{100}{80} \\ = 5000$$

71. Answer, B

$$x = \frac{125}{100}y; \quad x:y = 5:4 \quad y = \frac{75}{100}z; \quad y:z = 3:4$$

$$x:y:z = 15:12:16$$

72. Answer, B

$$9 \times 20 = x = 15, \quad x = 12$$

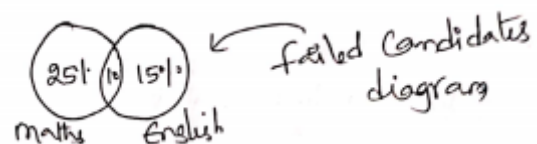
[∴ Capacity same]

73. Answer, A

Venn diagram is shown below

Failed candidates in Mathematics = 35%

Failed candidates in English = 25%



% of passed Candidates in both subjects

$$= 100 - (25 + 10 + 15)$$

$$= 50\%$$

74. Answer, B

$$\text{Total marks} = 30 \times 3 = 90$$

$$90 - 40 = 50$$

$$\text{Wrong Questions} = \frac{50}{3+2} = 10$$

$$\text{Correct questions} = 20$$



75. Answer, D

The mode is the value which appears the most often in the data

76. Answer, C

Series - 20, 21, 27, 28, 38, 39, 49

77. Answer, B

78. Answer, A

Pattern given in fig is as follows.

5x2+2 = 12
12x2+2 = 26
26x2+2 = 54
54x2+2 = 110
110x2+2 = 222

79. Answer, C

Let the required fraction be x, then $\frac{1}{x} - x = \frac{9}{20}$

$$\frac{1-x^2}{x} = \frac{9}{20}$$

By solving it $x = \frac{4}{5}$

80. Answer, A

Let numbers 3x, 4x, 5x LCM=60x, $\Rightarrow 60x=2450$

$$x=40$$

The numbers = $3 \times 40 = 120$

$$4 \times 40 = 160$$

$$5 \times 40 = 200$$

Hence, Req H.C.F=40

81. Answer, C

$$\frac{(2.3)^3 - (0.3)^3}{(2.3)^2 + (2.3 \times 0.3) + (0.3)^2} = \frac{a^3 - b^3}{a^2 + ab + b^2} = (a - b) \\ = 2.3 - 0.3 = 2$$

82. Answer, B

83. Answer, C

$$\sqrt{4\alpha^2 - 4\alpha + 1} + 3\alpha \\ = \sqrt{(1 - 2\alpha)^2} + 3\alpha \\ = 1 - 2\alpha + 3\alpha \\ = 1 + \alpha \\ = 1.1039$$

84. Answer, CM

$$\sqrt{\frac{48.4}{0.289}} = \sqrt{\frac{48.400}{0.289}} = \sqrt{\frac{48400}{289}} = \frac{220}{17} = 12 \frac{16}{19}$$

85. Answer, B

$$\text{Loss \%} = \left(\frac{x}{10}\right)^2 = (2.5)^2 = 6.25\%$$

$$C.P = 240 \times \frac{100}{93.75} = 256$$

$$S.P = 240$$

$$\text{loss} = 16$$

86. Answer, A

$$D_1^2 + D_2^2 = 4a^2 \Rightarrow 64 + 36 = 4a^2 \Rightarrow a^2 = 25$$

87. Answer, A

$$\frac{2}{3}\pi r^3 = 19404$$

$$R=21\text{cm}$$



Total surface area $= 3\pi^2 = 4158 \text{ cm}^2$

88. Answer, B

$$n = 7 + 4\sqrt{3} = 4 + 3 + 2 \times 2 \times \sqrt{3} = (2 + \sqrt{3})^2$$

$$\sqrt{n} = 2 + \sqrt{3}; \frac{1}{\sqrt{n}} = 2 - \sqrt{3} \left(\sqrt{n} + \frac{1}{\sqrt{n}} \right) = 4$$

89. Answer, D

$$\begin{aligned} \tan A - \cot A = x &\Rightarrow \frac{\sin A}{\cos A} - \frac{\cos A}{\sin A} = \frac{\sin^2 A - \cos^2 A}{\sin A \cos A} = x \\ &\Rightarrow \frac{1 - 2\cos^2 A}{\sin A \cos A} = x \end{aligned}$$

90. Answer, D

Let number be $20x$ (LCM of 4&5)

$$\text{Wrong multiplication} = 20x \times \frac{4}{5} = 16x$$

$$\text{Actual multiplication} = 20x \times \frac{5}{4} = 25x$$

$$\% \text{error} = \frac{25x - 16x}{25x} \times 100 = 36\%$$

91. Answer, B

$$\text{C.P of the mixture} = \frac{(20 \times 2) + (30 \times 3)}{5} = 26$$

$$S.P = 1.1 \times 26 = 28.6$$

92. Answer, A

93. Answer, B

Power of $(122)^{173}$ is odd number

\therefore Unit digit in the product of $(122)^{173} = 2$

94. Answer, C

Kamal's one day work $= \frac{1}{20}$; Suresh one day

$$\text{work} = \frac{1}{20} \times \frac{125}{100} = \frac{1}{16}$$

Suresh can complete the work in 16 days.

95. Answer, D

$$0.\overline{257} = \frac{255}{990} = \frac{17}{66}$$

96. Answer, D

97. Answer, D

98. Answer, D

99. Answer, A

100. Answer, D