INSTRUCTIONS

NUMBER OF QUESTIONS : 100

TIME : 2 Hrs

1. ATTEMPT ALL QUESTIONS WITHIN THE TIME.
2. EACH QUESTION CARRIES 1 MARK
3. NO NEGATIVE MARKS.
4. DON'T DO ROUGH WORK ON QUESTION PAPER AND OMR.
5. USE BLACK (OR) BLUE PEN FOR BUBBLING ON OMR.

CORRECT METHOD OF BUBBLING
① ● ③ ④

WRONG METHOD OF BUBBLING
✓ ⊗ ◑ ◕

INTO 10TH ICSE
MATHEMATICS

1. If $p = (-1)^{205}$ and $q = (-1)^{202}$, then p + q is

   1) $(-1)^{407}$ 2) $(-1)^4$ 3) 0   4) 2

2. What sum of money will amount to ₹3,630 in 2 years at 10% per annum compound interest?

   1) ₹2,500   2) ₹3,000   3) ₹3,800   4) ₹4,000

3. The HCF of $64x^6y^4$, $48x^4y^8$ and $54x^5y^4$ is _____

   1) $2x^4y^4$ 2) $6x^2y^2$ 3) $8x^4y^4$ 4) $8x^2y$

4. $0.1\overline{2} - 0.\overline{12} =$ _____

   1) $0.0\overline{11}$ 2) $0.00\overline{1}$ 3) $0.0\overline{01}$ 4) $0.\overline{001}$

5. The area of a square field is 1681 m². Find the cost of fencing the field at the rate of ₹3 per metre

   1) ₹672   2) ₹564   3) ₹492   4) ₹372

6. If the numerator of a fraction is decreased by 1 its value becomes $\frac{2}{3}$, but if the denominator is increased by 5 its value becomes $\frac{1}{2}$. What is the fraction?

   1) $\frac{2}{9}$ 2) $\frac{7}{9}$ 3) $\frac{5}{9}$ 4) $\frac{3}{9}$

7. In a game if we hit a balloon, we get 300 points and if we miss the balloon, we lose 100 points. Raj hits 15 balloons and misses 40 balloons. Find his net score

   1) 500   2) 400   3) 300   4) 200

8. On what sum of money will compound interest for 2 years at 5 percent per year amount to ₹164?

   1) ₹1200   2) ₹1500   3) ₹1600   4) ₹1400

9. If $x + 1/x = 6$, then find $x^2 + 1/x^2$

   1) 34   2) 36   3) 32   4) 38

10. If $x = -2$ and $x^2 + y^2 + 3xy = -5$, then find y

    1) -2   2) 3   3) -4   4) 9

11. $\sqrt{\dfrac{81(x+y)^2}{144(x-y)^2}} = $ _____

    1) $\dfrac{9(x+y)^{\sqrt{2}}}{12(x-y)^{\sqrt{2}}}$ 2) $\dfrac{9(x+y)^2}{12(x-y)^2}$ 3) $\dfrac{3(x+y)}{4(x-y)}$ 4) $\dfrac{9(x+y)}{12(x-y)}$

12. The ratio between a two digit number and the number obtained on reversing its digits is 4 : 7. If the difference between the digits of the number is 3, find the number

    1) 36   2) 52   3) 74   4) 85

13. If $a - b - c = 3$ and $a^2 + b^2 + c^2 = 77$ then the value of $ab - bc + ca$ is

    1) 26   2) 11   3) -11   4) 34

14. If $2y + \dfrac{1}{2y} = \ell$ and $2y - \dfrac{1}{2y} = m$, then $\ell^2 - m^2 = $ _____

    1) 2   2) 4   3) 6   4) 0

15. If $p + q = 15$ and $pq = 54$, then $p - q$ can be

    1) 3   2) 5   3) 4   4) 6

16. Factorize $y^2 + 2xy + 2xz - z^2$

    1) $(x - y + z)(y + z)$ 2) $(x + y + z)(y - z)$

    3) $(y - z)(y + z + 2x)$ 4) $(y + z)(y - z) + 2x)$

17. If $x^2 - y^2 = 28$ and $x + y = 7$ then $(x - y)^2 = $ _____

    1) 8   2) 4   3) 16   4) 12

18. Factorize $a^4 + a^3 + a^2 + a$

    1) $(a + 1)(a^2 + 1)(a - 1)$ 2) $a(a - 1)(a^2 + 1)$

    3) $(a^2 + a)(a^2 + 1)$ 4) $a(a + 1)(a^2 + 1)$

19. The present ages of A and B are in the ratio 9 : 4. Seven years hence, the ratio of their ages will be 5 : 3 then the present ages of A and B respectively

    1) 8, 18   2) 18, 8   3) 6, 8   4) 18, 6

20. $(0.01024)^{1/5} = $ _____

    1) $\sqrt{0.4}$ 2) 0.2   3) 0.4   4) $\sqrt[3]{0.4}$

21. If $64 > x^3$, then the greatest possible integer value of x is _____

    1) 1   2) 2   3) 3   4) 4

22. If $2^a = 4^b = 8^c = 64$, then which of the following relations hold true?

    1) $a + b + c = 8$ 2) $a + b + c = 9$ 3) $a + b + c = 10$ 4) $a + b + c = 11$

23. If $\left(\dfrac{a}{b}\right)^{\frac{5}{14}} + \left(\dfrac{b}{a}\right)^{\frac{5}{14}} = 9$, then find the value of $\left(\dfrac{a}{b}\right)^{\frac{5}{7}} + \left(\dfrac{b}{a}\right)^{\frac{5}{7}}$

    1) $\dfrac{1}{6}$ 2) $\sqrt{6}$ 3) 79   4) 34

24. Find the value of $\dfrac{1}{1 + x^{a-b}} + \dfrac{1}{1 + x^{b-a}}$

    1) 0   2) -1   3) 1   4) x^{a+b}

25. If $5^{-5y} = \dfrac{1}{3125}$ and $9^x = \dfrac{1}{81}$, then $x - y =$ _____

    1) -5   2) -2   3) -3   4) 2

26. If $x^y \times y^x = 256$, then find $y^2 - x^2$ (where x and y are positive integers and $x < y$)

    1) 15   2) 12   3) 14   4) 16

27. Calculate the amount on ₹7,500 in 2 years and at 6% compounded annually

    1) ₹9200   2) ₹8250   3) ₹8427   4) ₹9427

28. If $x = \sqrt{3}, y = \sqrt{27}$ and $z = \sqrt{243}$, then which of the following is/are rational numbers?

    1) xy 2) xz 3) yz 4) All of these

29. The square root of $14 - 8\sqrt{3}$ is

    1) $2\sqrt{2} + \sqrt{6}$ 2) $2\sqrt{2} - \sqrt{6}$ 3) $2\sqrt{2} + 6$ 4) $8 + \sqrt{6}$

30. At what rate percent per annum C.I. will ₹2,000 amount to ₹2,315.25 in 3 years?

    1) r = 5%   2) r = 8%   3) r = 4%   4) r = 6%

31. In how many years will ₹2,000 amount to ₹2,662 at 10 percent C.I?

    1) 3 years   2) 2 years   3) 4 years   4) 5 years

32. If the sum of two integers is -26 and one them is 14, then find the other integer

    1) -12   2) 12   3) -40   4) 40

33. If $x - 2 = 5$ then $\dfrac{x - 1}{6} =$

    1) 1   2) 2   3) 3   4) 4

34. The HCF of two numbers is 18. Which of the following cannot be their LCM?

    1) 324   2) 260   3) 648   4) 360

35. If A = (3x + 6) and B = $2x^2$ + 3x + 4, then the degree of AB is _____

    1) 4   2) 3   3) 2   4) 1

36. If $2^n = 4096$, then 2^{n-5} is _____

    1) 128   2) 64   3) 256   4) 32

37. If $\dfrac{7}{x} + \dfrac{8}{y} = 2$ and $\dfrac{2}{x} + \dfrac{13}{y} = 22$ then the value of $2x + 2y$

    1) $-\dfrac{1}{2}$ 2) $\dfrac{1}{2}$ 3) 1   4) 0

38. 12 persons can do a price of work is 20 days. How many persons are required to do the same in 24 days?

    1) 20   2) 10   3) 15   4) 18

39. The total railway fare for 5 members in 3-tier and 3 members in 2-tier is ₹2,050 whereas, the total railway fare for 8 members in 3-tier and 5 members in 2-tier is ₹3,350. Find the fare to be paid by a couple travelling through 2-tier

    1) ₹500   2) ₹700   3) ₹600   4) ₹400

40. If two numbers are equal, then

    1) Their LCM is equal to their HCF   2) Their LCM is less than their HCF

    3) Their LCM is equal to two times their HCF   4) Their HCF is less than their LCM

41. X is a perfect square. Which of the following is necessarily be true?

1) X^2 is a perfect square 2) $\sqrt{X}$ is a perfect square

3) Both 1 and 2 4) Neither 1 nor 2

42. A sum of `6,400 earns a compound interest of `1,008.80 in 18 months, when the interest is reckoned half-yearly. Find the rate of interest

1) r = 10% 2) r = 9% 3) r = 8% 4) r = 7%

43. Arrange 3/4, 9/13, 12/17 and 1/2 in the ascending order

1) 1/2, 9/13, 3/4, 12/17 2) 3/4, 9/13, 1/2, 12/17

3) 1/2, 3/4, 9/13, 12/17 4) 1/2, 9/13, 12/17, 3/4

44. If $a^2 + 16a + k$ is a perfect square, then find the value of k

1) 4 2) 16 3) 36 4) 64

45. Find the square root of $3^{6n^2}\left(36\right)^{2a}\left(16\right)^{b}$

1) $3^{3n^2}6^{2a}2^{2b}$ 2) $3^{6n}6^{2}2^{b}$ 3) $3^{3n^2}6^{a}2^{b}$ 4) $3^{6n}6^{a}2^{2b}$

46. The value of a machine depreciated by 10% per year during the first two years and 15% per year during the third year. Express the total depreciation of the machine, as percent, during the three years

1) 21.15% 2) 31.15% 3) 41.15% 4) 20.15%

47. Calculate the amount and the compound interest on ₹12,000 in 3 years when the rates of interest for successive years are 8%, 10% and 15% respectively

1) ₹4,394.40 2) ₹3,394.40 3) ₹5,394.40 4) ₹6,394.40

48. If $x = -23 + 22 + (-23) + 22.....(40\ terms)$ and
$y = 11 + (-10) + 11 + (-10) + ...(20 terms)$ then $y - x$ is _____

1) 40 2) 10 3) 20 4) 30

49. The value of $3^{2^{4^{0^{7^8}}}} + 8^{3^{2^{0^{4^7}}}}$

1) 215 2) 251 3) 521 4) 152

50. A and B each have certain number of oranges. A says to B, "if you give me 10 of your oranges, I will have twice the number of oranges left with you." B replies, "if you give me 10 of your oranges, I will have the same number of oranges as left with you." Find the number of oranges with A and B respectively

1) 70, 50 2) 70, 40 3) 60, 50 4) 70, 70

51. Find the odd one among the following

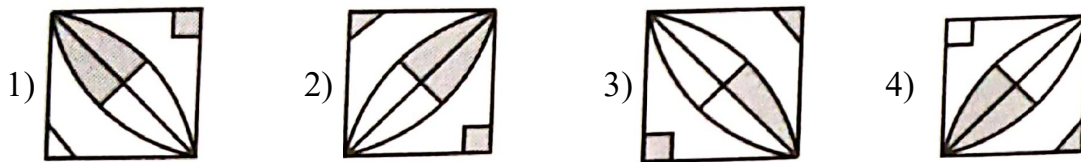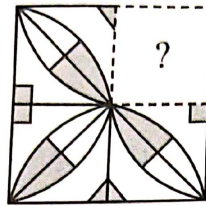51. Find the odd one among the following

    1) Wood   2) Stone   3) Cork   4) paper

52. Three positions of a dice are given below. Find the number of dots on the face opposite to the face having two dots
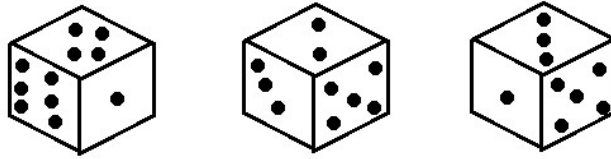
    1) 1   2) 6   3) 4   4) 3

53. Select a figure from the options which will complete the pattern in the give figure

    1)   2)   3)   4)

54. If '@' denotes '+', '#' denotes '+', '*' denotes '−' and '$' denotes '×', then what is the valueo f 16 # 125 @ 25 $ 8 * 19?

    1) 27   2) 37   3) 38   4) 25

55. Which of the following Venn diagrams best represents the relationship amongst, 'Females, Doctors and Teachers'?

    1)   2)   3)   4)

56. A number is multiplied by $2\frac{1}{3}$ times itself and then 61 is subtracted from the product obtained. If the final result is 9200, then the number is _____

    1) 36   2) 63   3) 67   4) 37

57. Which of the following is the net of a triangular pyramid?

    1)   2)   3)   4) Both 1 and 2
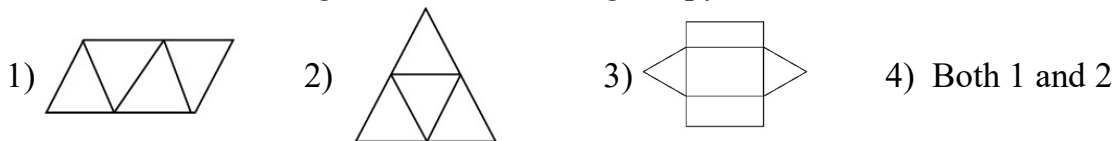
Direction: The given pie chart shows the favourite ice cream flavours of some children. Study the given pie chart carefully and answer the following question. Total number of children = 1080

58. Find the ratio of number of children who like mango ice cream to the number of children who like butterscotch ice cream
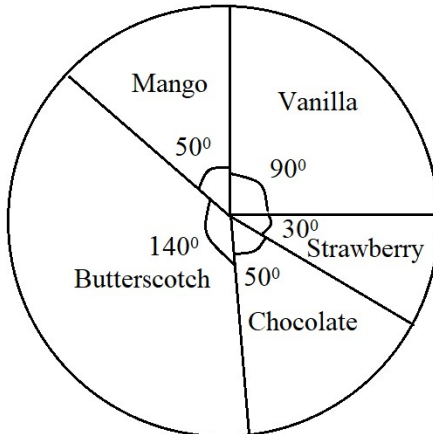
    1) 7 : 5   2) 5 : 7   3) 5 : 14   4) 9 : 14

59. At a school, 20% of the students are seniors. If all of the seniors attended the school play and 60% of all the students attended the play, then what percent of the non-seniors attended the play?

    1) 20%   2) 40%   3) 50%   4) 100%

60. At present, Anil is 1.5 times of Sunil's age, 8 years hence, the respective ratio of Anil and Sunil's ages will be 25 : 18. What is the present age of Sunil?

    1) 50 years   2) 36 years   3) 42 years   4) 28 years

PHYSICS

61. A block of iron of mass 7.5kg and of dimensions $12 \times 8 \times 10$ is kept on a table top on its base of side $12cm \times 8cm$. The pressure exacted on the table top by the block is (in Pa)

    1) 75   2) 7812.5   3) 760   4) 781.25

62. A rubber ball floats on water with its $\frac{1}{3}^{rd}$ volume outside water. The density of rubber is

    1) 667kg/m³   2) 336kg/m³   3) 1325kg/m³   4) 777kg/m³

63. A body weighs 200gf in air and 190gf when completely immersed in water. The up thrust on the body is

    1) 30gf   2) 20gf   3) 10gf   4) 5gf

64. The gravitational force is

    1) Always repulsive
    2) Either repulsive or attractive
    3) Always attractive
    4) Neither repulsive nor attractive

65. Equation for change in momentum $\Delta P = m\Delta V$ is valid only when

    1) Velocity of moving particle is smaller than light velocity

    2) Velocity of moving particle is greater than light velocity

    3) Velocity of moving particle is much smaller than light velocity

    4) Velocity of moving particle is much larger than light velocity

66. A body accelerates from rest for some time, with an acceleration α and reaches maximum velocity and retards with constant retardation β and comes to rest. If total time of journey is t, then the max velocity reached by the body

    1) $(\alpha + \beta)t$
    2) $\alpha\beta t$
    3) $\left(\dfrac{\alpha}{\beta}\right)t$
    4) $\left[\dfrac{\alpha\beta}{\alpha + \beta}\right]t$

67. Arrange the following speeds in increasing order

    i) $10\,\text{ms}^{-1}$
    ii) $1\,\text{km min}^{-1}$
    iii) $18\,\text{kmh}^{-1}$

    1) $i < ii < iii$
    2) $ii < iii < i$
    3) $ii < i < iii$
    4) $iii < i < ii$

68. Rain drops reach on earth surface falling with same velocity. It is an example of

    1) curvilinear motion
    2) Uniform motion
    3) Accelerated motion
    4) Retarding motion

69. A rocket of mass 100kg burns 0.1kg of fuel per second. If the velocity of exhaust gas is $1\,\text{kms}^{-1}$, then it lifts with an acceleration of

    1) $1000\,\text{ms}^{-2}$
    2) $100\,\text{ms}^{-2}$
    3) $1\,\text{ms}^{-2}$
    4) $10\,\text{ms}^{-2}$

70. A particle moving in a straight line covers half the distance with speed of 3m/s. The other half of the distance is covered in two equal time intervals with speed of 4.5m/s and 7.5m/s respectively. The average speed of the particle during this motion is

    1) 4.0m/s
    2) 5.0m/s
    3) 5.5m/s
    4) 4.8m/s

71. The velocity time graph for motion of a body is as shown. The retardation of the body is

    1) $2\,\text{m/s}^2$
    2) $-2\,\text{m/s}^2$
    3) $4\,\text{m/s}^2$
    4) $-4\,\text{m/s}^2$

72. A force of 10N acts on a body of mass 2kg for 3-second initially at rest. The velocity acquired by the body will be

1) 30ms^{-1} 2) 20ms^{-1} 3) 15ms^{-1} 4) 10ms^{-1}

73. Velocity time graph of a particle of mass 100g moving in a straight line is as shown. The force acting on the particle will be
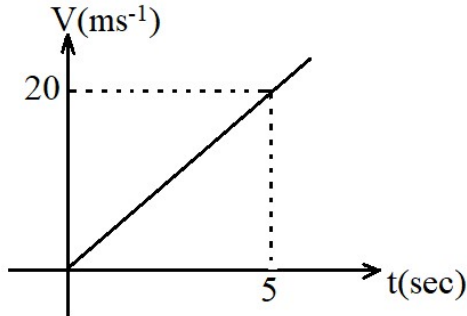
1) 0.2N   2) 0.3N   3) 0.6N   4) 0.4N

74. A boat floating in water tank is carrying a number of large stones. If the stones are unloaded into the water, the water level will

1) Rise   2) Remain unchanged

3) Fall   4) Cannot be predicted

75. A body travels in a circular path of radius 7m with constant speed. It reaches the same point where it has started then the displacement and distance are

1) 14m, 154m   2) 28m,154m   3) 0,44m   4) 0m,154m

76. Pressure is

1) Scalar quantity   2) Vector quantity   3) Tensor quantity   4) None of the above

77. A racing car has a uniform acceleration of 4m s^{-2} which is initially at rest. What distance will it cover in 10s after start?

1) 400m   2) 300m   3) 250m   4) 200m

78. A 8000kg engine pulls a train of 5 wagons, each of 2000kg, along a horizontal track. If the engine exerts a force of 40000N and the track offers a friction force of 5000N. then calculate the acceleration of the train

1) 1.94 m/s^2 2) 1.54 m/s^2 3) 2.54 m/s^2 4) 1.2 m/s^2

79. An object weighs 10N when measured on the surface of the earth. What would be its weight when measured on the surface of the moon?

1) 1.67N   2) 1.57N   3) 1.47N   4) 1.37N

80. A stone is thrown vertically upward with an initial velocity of 40m/s. Taking $g = 10m/s^2$, find the maximum height reached by the stone. What is the net displacement and the total distance covered by the stone?

1) 40m, 80m, 80m   2) 40m, 0m, 80m   3) 80m, 160m, 320m   4) 80m, 0m, 160m

CHEMISTRY

81. Which of the following are mono atomic molecules?
   1) Noble gases only
   2) Noble gases, carbon only
   3) Carbon, metals only
   4) Noble gases, carbon, metals

82. The number of oxygen atoms present in the molecular formula of Ferric sulphate are_____
   1) 6
   2) 4
   3) 12
   4) 8

83. $K_2Cr_2O_7 + xHCl \rightarrow 2KCl + yCrCl_3 + zH_2O + pCl_2$

   In the above balanced equation, the value of $x + y + z + p$ is_____
   1) 24
   2) 26
   3) 28
   4) 30

84. Calculate the percentage of nitrogen in urea (NH_2CONH_2)

   Given : R.A.M. of $N = 14, C = 12, O = 16, H = 1$
   1) 46.67%
   2) 48.76%
   3) 82.32%
   4) 63.25%

85. The correct order of reactivity of the various metals is _____
   1) $Al > Mg > Fe > Pb > Cu$
   2) $Mg > Pb > Al > Fe > Cu$
   3) $Fe > Al > Mg > Pb > Cu$
   4) $Mg > Al > Fe > Pb > Cu$

86. Which of the following statements is incorrect?
   1) Slaked lime is used for white washing.

   2) Photosynthesis is considered as a combination.

   3) The more reactive element displaces the less reactive element from its salt solution.

   4) Neutralization reaction is an example for decomposition reaction.

87. Match the following

A)	$CaO + H_2O$	p)	Exothermic reaction
B)	$Pb(OH)_2 + HNO_3$	q)	Combination reaction
C)	$C + O_2$	r)	Endothermic reaction
D)	N_2+O_2	s)	Double displacement reaction
		t)	Displacement reaction

	A	B	C	D			A	B	C	D
1)	p,q	p,s	p,q	q,r		2)	p,s	p,t	p,q	p,r
3)	q,r	r,s	q,r	r,t		4)	q,r	p,s	q,r	r,t

I

88. **Statement-I:** Charge to mass ratio (e/m) of anode rays is independent of nature of the gas.

Statement –II: cathode rays are deflected by both electric and magnetic fields.

1) Statement –I, statement-II are correct   2) Statement –I is correct, II is incorrect

3) Statement-I is in correct, II is correct   4) Statement-I, II are incorrect

89. In an atom, if M shell is the valence shell, it can accommodate how many maximum electrons.

1) 18   2) 8   3) 2   4) 32

90. The characteristic of an electrovalent compound is_____

1) They are formed by sharing of electrons.

2) They are formed between metals and non-metals.

3) They often exist in liquid state.

4) They conduct electricity in any state.

91. On passing electric current, which of the following compound does not ionise_____

1) KCl 2) MgF_2 3) CCl_4 4) H_2SO_4

92. What are the group number and period number of element $_{16}^{32}Z$ respectively

1) $VIA, 2^{nd}$ 2) $VA, 3^{rd}$ 3) $VA, 2^{nd}$ 4) $VIA, 3^{rd}$

93. The oxide with most acidic nature among the following is _____

1) SiO_2 2) CaO 3) P_2O_5 4) Cl_2O_7

94. Which of the following pair of elements are called bridge elements?

1) Be, Na   2) B, Si   3) Al, Si   4) Na, Mg

95. Quick lime is suitable for drying which gas?

1) CO_2 2) SO_3 3) NH_3 4) HCl

96. Which of the following is the correct statement is _____

1) Pure $NaCl$ is deliquescent.

2) Hygroscopic substances absorb moisture from the atmosphere and form solutions.

3) Efflorescence occurs when vapour pressure in the hydrated crystals exceeds atmospheric pressure.

4) The mass of Glauber's salt increases when it is exposed to air.

97. The substance used in clark's process is _____

1) Permutit   2) Washing soda   3) Slaked lime   4) Zeolite

98. The gas that can prevents haemoglobin from carrying oxygen to different parts of the body is _____

1) CO_2 2) CO   3) H_2S 4) SO_2

99. Identify the order of relative contribution of various gases towards greenhouse effect:

1) $CFC > CO_2 > CH_4 > O_3$ 2) $CO_2 > CH_4 > CFC > O_3$

3) $CH_4 > CO_2 > O_3 > CFC$ 4) $O_3 > CFC > CO_2 > CH_4$

100. Match the following pollutants with their origins.

A)	Carbon monoxide	p)	Present in batteries, paints
B)	Sulphur dioxide	q)	Produced due to incomplete burning of petrol
C)	CFC's	r)	Produced from burning of diesel coal
D)	Pb.(Lead)	s)	Released by Refrigerators

1) $A \to p, B \to s, C \to q, D \to r$ 2) $A \to s, B \to p, C \to r, D \to q$

3) $A \to q, B \to r, C \to s, D \to p$ 4) $A \to r, B \to q, C \to p, D \to s$

THE END