FIITJEE SAMPLE PAPER – 2016

for **students presently in**

Class 10

Paper 1

Time: 3 Hours (9:30 am – 12:30 pm) | Code | 1000 | *Maximum Marks: 417*

Instructions:

Caution: Class, Paper, Code as given above MUST be correctly marked in the answer OMR sheet before attempting the paper. Wrong Class, Paper or Code will give wrong results.

1. This Question paper consists of 2 sections. All questions will be multiple choice single correct out of four choices with marking scheme in table below:

Section		Question no.	Marking Scheme for each question	
			correct answer	wrong answer
SECTION – I	IQ	Q. 1 to 24	**+3**	**0**
		Q. 25 to 36	**+4**	**0**
		Q. 37 to 45	**+5**	**0**
SECTION – II (PHYSICS, CHEMISTRY & MATHEMATICS)	PHYSICS	Q. 46 to 63	**+3**	**0**
		Q. 64 to 68	**+4**	**0**
		Q. 69 to 70	**+5**	**0**
	CHEMISTRY	Q. 71 to 88	**+3**	**0**
		Q. 89 to 93	**+4**	**0**
		Q. 94 to 95	**+5**	**0**
	MATHEMATICS	Q. 96 to 113	**+3**	**0**
		Q. 114 to 118	**+4**	**0**
		Q. 119 to 120	**+5**	**0**

2. Answers have to be marked on the OMR sheet. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.

3. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.

4. **Before attempting paper write your OMR Answer Sheet No., Registration Number, Name** and **Test Centre** in the space provided at the bottom of this sheet.

Note: *Please check this Question Paper contains all **120** questions in serial order. If not so, exchange for the correct Question Paper.*

OMR Answer Sheet No.   : _____

Registration Number   : _____

Name of the Candidate : _____

Test Centre   : _____

Section-I   **IQ**

Straight Objective Type

*This section contains 45 multiple choice questions numbered 1 to 45. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. In the question given below is a sequence in which some letters are missing from the choices. Select the choice that gives the letters that can fill the blanks in the given sequence.
   a_cd_c_a_da_d_b_
   (A) bbdcbac   (B) bbcdabc
   (C) bacbbabc   (D) bcdbabc

2. If "DISTANCE" is coded as "ECNATSID", then how will "UDOMETER" be coded?
   (A) RETEOMDU   (B) RETMEODU
   (C) RETEMODU   (D) RETMOEDU

Direction (Q. 3 to 4): In this type of questions, two numbers are given. These numbers are related to each other in some way. Another number is also given. The candidate is required to find out the relationship between the first two numbers and choose the number from the given alternatives, which bears the same relationship to the third number, as the first two bear.

3. 2 : 9 : : 64 : ?
   (A) 125   (B) 257
   (C) 422   (D) 600

4. 18 : 48 : : 180 : ?
   (A) 294   (B) 230
   (C) 392   (D) 294

5. If "Yellow" is coded as "Black", "Black" is coded as "Blue", "Blue" is coded as "Pink", "Pink" is coded as "Red", "Red" is coded as "Green", then what is colour of human blood?
   (A) Red   (B) Yellow
   (C) Pink   (D) Green

6. 4 April 1988 fell on Monday. What day of the week was 3 November 1987?
   (A) Monday   (B) Tuesday
   (C) Wednesday   (D) Friday

7. Pointing towards a man in the photograph Archana said "He is the son of the only son of my grandmother". How is that man related to Archana?
   (A) Brother   (B) Cousin
   (C) Uncle   (D) Father

Space for Rough Work

8.   Choose the correct diagram given below which can best represent the following data.
      Fruit, Apple, Golden Apple.

      (A)   (B)

      (C)   (D)
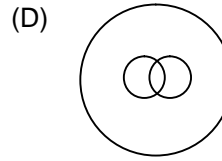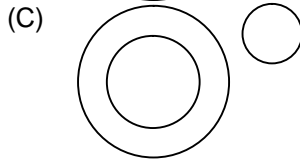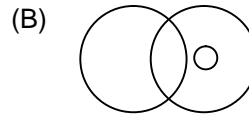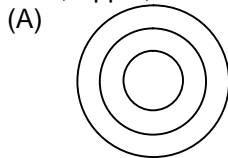
9.   A, CD, GHI, ?, UVWXY
      (A) LMNO   (B) MNO
      (C) MNOP   (D) NOPQ

10.   One of the term in the following number series is wrong. Identify the wrong term.
      6, 13, 24, 51, 98, 201, 408
      (A) 6   (B) 13
      (C) 51   (D) 408

Directions (Q. 11 to 13): In each of the following questions, 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 in the two given matrices. The columns and rows of Matrix I are numbered from 0 to 4 and those of Matrix II from 5 to 9. A letter from these matrices can be represented first by row and then the column number, e.g., M can be represented by 02, 14, 21 etc.

Matrix I					
	0	1	2	3	4
0	D	O	B	A	I
1	O	B	A	I	D
2	B	A	I	D	O
3	A	I	D	O	B
4	I	D	O	B	A

Matrix II					
	5	6	7	8	9
5	W	N	R	M	L
6	N	R	M	L	W
7	R	M	L	W	N
8	M	L	W	N	R
9	L	W	N	R	M

11.   DRAW
      (A) 41, 66, 23, 55   (B) 32, 75, 44, 76
      (C) 23, 57, 30, 68   (D) 14, 89, 12, 78

12.   BAND
      (A) 43, 21, 97, 33   (B) 11, 21, 79, 41
      (C) 34, 44, 66, 14   (D) 20, 30, 89, 23

13.   BLOW
      (A) 11, 68, 42, 69   (B) 21, 95, 33, 97
      (C) 34, 68, 10, 88   (D) 34, 86, 44, 78

Space for Rough Work

14. Find the missing number?
    2, 6, 12, 20, 30, 42 _____
    (A) 49   (B) 56
    (C) 48   (D) None

15. What is the least number of cuts required to cut the cube into 24 identical pieces?
    (A) 2   (B) 4
    (C) 6   (D) 8

16. Moin started to walking towards South and after covering 5 km then he turned to the left and cover 3 km. After that he turned to the right and cover 5 km. Now towards which direction Moin is facing now?
    (A) North-East   (B) South
    (C) North   (D) South-East

17. A and B can do a piece of work in 12 days, B and C in 15 days, C and A in 20 days. How long will each take separately to do the same work?
    (A) 10, 20, 30   (B) 30, 20, 60
    (C) 30, 40, 60   (D) 20, 15, 40

18. At what time between 5 O'clock and 6 O'clock will the minute and the hour hand be perpendicular to each other?

    (A) 5 hr $10\frac{9}{11}$ min. and again 5 hr $43\frac{5}{11}$ min.   (B) 5 hr $10\frac{10}{11}$ min. and again 5 hr $43\frac{7}{11}$ min.

    (C) 5 hr $10\frac{8}{11}$ min. and again 5 hr $43\frac{6}{11}$ min.   (D) None of these

19. Find the missing term.

    (A) 2   (B) 3
    (C) 4   (D) 5

20. K is 40 m South-West of L. If M is 40 m South-East of L, then M is in which direction of K?
    (A) East   (B) West
    (C) North-East   (D) South

Space for Rough Work

21. The different positions of a dice are given below. What will be the number of dots on the face opposite the face having 2 dots?


   (i)   (ii)
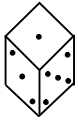
(A) 1   (B) 3
(C) 6   (D) Cannot be determined

22. Anu and Vinay are ranked seventh and eleventh respectively from the top in a class of 31 students. What will be Vinay's rank from the bottom in the class?
(A) 20   (B) 21
(C) 22   (D) 23

23. In class of 60 students girls are twice in number than boys. If Sachin got 11th rank from top and there are 7 girls upward to Sachin, then what is Sachin's rank from bottom in the boys?
(A) 16th (B) 4th
(C) 17th (D) 18th

24. One morning Ram and Shyam were talking to each other face to face. If Shyam's shadow was exactly to the right of Ram. Which direction Shyam was facing?
(A) South   (B) North
(C) East   (D) West

25. In the given question is based on the diagram given below showing four persons stationed at the four corners of a square piece of plot as shown.
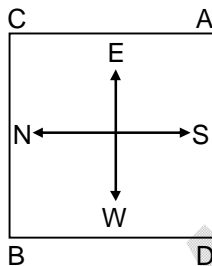
A starts crossing the field diagonally, after walking half the distance, he turns right, walks some distance and turns left. Which direction is A facing now?
(A) North-east   (B) North-west
(C) North   (D) South-east

Space for Rough Work

26.   If A + B means A is the son of B
        A – B means A is the wife of B
        A × B means A is the brother of B
        A ÷ B means A is the mother of B
        A * B means A is the sister of B
        Which of the following represents P is the maternal uncle of Q?
        (A) R × P ÷ Q   (B) P × R ÷ Q
        (C) P + R ÷ Q   (D) P + R × Q

Direction (Q. 27 to 28): A cube painted yellow on all its faces then it is cut into 27 smaller cubes of identical size.

27.   How many small cubes are painted on one face only?
        (A) 1   (B) 6
        (C) 8   (D) 12

28.   How many cubes are not painted on any faces?
        (A) 1   (B) 4
        (C) 6   (D) 8

Directions (Q. 29 to 30): The diagram given below shows the number of students who got distinction in three subjects out of 500 students. Study the diagram carefully and answer the questions that follow:
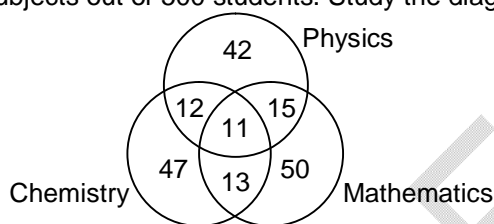
29.   What is the percentage of students who got distinction in two subjects?
        (A) 8%   (B) 9%
        (C) 10%   (D) 12%

30.   What is the percentage of students who got distinction?
        (A) 28%   (B) 35%
        (C) 38%   (D) 40%

Space for Rough Work

Directions (Q. 31 to 32): Each of the questions below consists of a question and two statements number I and II given below it. Decide whether the data provided in the statements are sufficient to answer the question.
Read both the statements and given answer
(A) If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
(B) If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
(C) If the data either in statement I alone or in statement II alone is sufficient to answer the question.
(D) If the data in both statement I and II together are necessary to answer the question.

31.   Vinod's and Javed's salaries are in the proportion of 4 : 3 respectively. What is Vinod's salary?
       (I) Javed's salary is 75% that of Vinod's salary.
       (II) Javed's salary is Rs. 4500.

32.   Can Ritesh retire from office X in January 2006, with full pension benefits?
       (I) Ritesh will complete 30 years of service in office X in April 2000 and desires to retire.
       (II) As per office X rules, an employee has to complete minimum 30 years of service and attain age of 60. Ritesh has 3 years to complete age of 60.

Directions (Q. 33 to 36): Study the following information carefully and answer the questions given below:
Seven boy A, D, Y, U, P, Q and J live in three different buildings – Ashiana, Top-view and Ridge. Each of them is flying kites of different colours i.e. red, green, blue, white, black, yellow and pink, (not necessarily in the given order). Not more than three or less than two stay in any of the buildings. Q is flying a pink kite and lives in the same building as only J. i.e. Ashiana. Y is flying a black kite and does not live in Ridge building. U does not live in the same building as A or P and is flying a yellow coloured kite. D lives in Ridge building with only one more person and is flying a green kite. None in the top-view building flies a white kite. P does not fly a blue kite. -

33.   Who live in Ridge building?
       (A) D, U   (B) D, A, P
       (C) Y, A, P   (D) A, P

34.   Who is flying the blue kite?
       (A) A   (B) J
       (C) P   (D) Data inadequate

35.   Who flies the red kite?
       (A) A   (B) J
       (C) P   (D) Data inadequate

36.   Who stay in Top-view building?
       (A) Y, J, P   (B) A, P
       (C) A, P, D   (D) None of these

Space for Rough Work

Directions (Q. 37 to 39): In each question given below two statements followed by two conclusions numbered I and II. You have to take the two given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts. Give Answer:

(A) if only conclusion I follows
(B) if only conclusion II follows
(C) if either I or II follows
(D) if neither I nor II follows
(E) if both I and II follow

37. **Statement:** I. Some pubs are cows.
II. No kitten are pubs.
Conclusions: I. No pubs are kitten.
II. Some cows are kitten.

38. **Statements:** I. Some cameras are radios.
II. Some statues are cameras.
Conclusions: I. Some radios are statues.
II. No radio is statue.

39. **Statement:** I. All gardens are schools.
II. All schools are colleges.
Conclusions: I. All gardens are colleges.
II. Some gardens are not colleges.

Direction (Q. 40 to 41): Select the figure from amongst the answer figures which will continue the same series as established by the four problem figures.
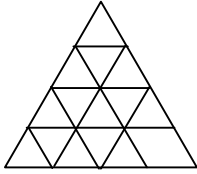
40.

(A) 1
(C) 3
(B) 2
(D) 4

41.

(A) 1
(C) 3
(B) 2
(D) 5

Space for Rough Work

42. In each of the following questions. Find the minimum number of straight lines required to make the given figure.

(A) 9 (B) 11
(C) 15 (D) 16

Directions (Q. 43 to 45): Study the following information carefully and answer the questions given below:
(i) Eight persons A, B, C, D, E, F, G and H work in three different companies X, Y and Z.
(ii) There are two ladies who work in different companies and their specialization is also different.
(iii) Two of them have specialization in Finance, another two have specialization in Human Resources, two have specialization in Marketing, one is engineer and one of them is specialist in Computer.
(iv) D is a specialist in Human Resource working in Company X while her friend G is a Finance specialist and works in a Company Z.
(v) H is a Human Resource specialist who works with Marketing specialist B but does not work in Company Y.
(vi) The two persons with same specialization do not work together.
(vii) Marketing specialist F works in Company Y and his friend A who is Finance specialist works in Company X with only one other specialist.
(viii) In no company more than three persons work.
(ix) C is an engineer and his sister works in Company Z.
(x) No lady is an engineer or Computer specialist.

43. In which company does C work?
(A) X (B) Y
(C) Z (D) None of these

44. In which two companies do Human Resource specialists work?
(A) X and Y (B) Y and Z
(C) X and Z (D) None of these

45. The two ladies are
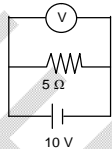(A) B and D (B) D and G
(C) D and H (D) Either (A) or (B)

Space for Rough Work

Section-II   (Physics, Chemistry and Mathematics)

Physics   *(Part – A)*

Straight Objective Type

*Physics contains 25 multiple choice questions numbered 46 to 70. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

46.   Select the insulator out of these
(A) Aluminium   (B) Graphite
(C) Wood   (D) Silver

47.   Power is a _ _ _ _ _ _ _ _ _ _ _ _ _ _ quantity
(A) Vector   (B) Scalar
(C) Can't be determined   (D) None of these.

48.   When we use biomass to generate electricity, we convert which form of energy locked in the biomass to electrical energy?
(A) Chemical energy   (B) Kinetic energy
(C) Nuclear energy   (D) Muscular energy

49.   To produce biogas in a biogas plant, we need
(A) air but not water   (B) water but not air
(C) air and water   (D) neither air nor water

50.   Chemical properties of an element are determined mainly by its
(A) atomic number   (B) mass number
(C) neutron number   (D) atomic weight

51.   The temperature of the material undergoing nuclear fusion should be at least
(A) 10 K   (B) 100 K
(C) 10^3K   (D) 10^7K

52.   The effective resistance in series combination is
(A) smaller than the largest resistance   (B) smaller than the smallest resistance
(C) larger than the largest resistance   (D) None of these.

53.   The conductivity of conductors is because it has
(A) Some free electron   (B) Few electrons
(C) Large Number of free electron   (D) None of these

Space for Rough Work


54. Which of the following cannot be deflected by a magnetic field?
    (A) Alpha rays   (B) Beta rays
    (C) Gamma rays   (D) Cosmic rays

55. When a charged particle moves uniformly through a uniform magnetic field it can suffers a change in its
    (A) energy   (B) mass
    (C) speed   (D) direction of motion

56. The magnetic field near the centre of a current carrying coil is uniform and_____.
    (A) parallel to the plane of coil   (B) perpendicular to the plane of coil
    (C) circular   (D) Both (B) and (C)

57. A vertical wire carries a current in upward direction. An electron beam sent horizontally towards the wire will be deflected
    (A) towards right   (B) towards left
    (C) upwards   (D) downwards

58. One kilowatt is equal to _____ horse power.
    (A) 1.34   (B) 1.32
    (C) 1.28   (D) 1.38

59. The reading of voltmeter in the given circuit is

    (A) 10 V   (B) –10 V
    (C) +5 V   (D) – 5 V.

60. The length of a conductor is doubled and its radius is halved, its resistance is
    (A) unchanged   (B) doubled
    (C) quadrupled   (D) eight times its value

61. Two protons
    (A) always repel each other   (B) always attract each other
    (C) do not exert forces on each other   (D) may attract each other

62. Magnetic effects of current were discovered by:
    (A) Faraday   (B) Oersted
    (C) Ampere   (D) Joule

Space for Rough Work

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63. In order to convert an A.C. generator into DC generator
    (A) a rectangular wire loop has to be used
    (B) slip rings and brushes must be used
    (C) a stronger magnetic field has to be used
    (D) split ring type commutator must be used.

64. The magnetic induction at a point P which is at a distance of 4cm from a long current-carrying wire is 10^{-3} T. The field of induction at a distance of 12cm from the current carrying wire will be:
    (A) 3.33×10^{-4} T   (B) 1.11×10^{-4} T
    (C) 3×10^{-3} T   (D) 9×10^{-3} T

65. There is a magnetic field acting in a plane perpendicular to this sheet of paper downwards into the paper. A particles starts moving in the plane of the paper from left to right as shown in figure. The path indicated by the arrow could be due to which particle:
    (A) proton   (B) neutron
   (C) electron   (D) alpha particle
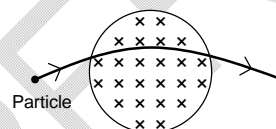
66. An Ideal Voltmeter has _ _ _ _ _ _ _ _ resistance
    (A) 100 Ω   (B) 0 Ω
    (C) 10000 Ω   (D) Infinite

67. The current I and voltage V graph for a given metallic wire at two different temperatures T_1 and T_2 are shown in the figure. It is concluded that
    (A) $T_1 > T_2$ (B) $T_1 < T_2$
   (C) $T_1 = T_2$ (D) $T_1 = 2T_2$
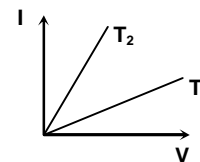
68. If a current of 1 A is flowing in 20 Ω resistor. Whats the heat generated in the resistor in 1 sec.–
    (A) 1500 J   (B) 100 J
    (C) 10 J   (D) 20 J.

69. In the circuit shown, The potential difference between A and B is V volt. Find the current flowing between A and B.
    (A) 8 V/R   (B) 12 V/R
    (C) 4 V/R   (D) 16 V/R
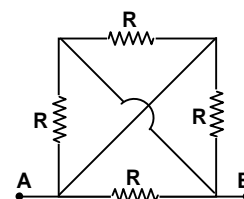
70. In the network shown below, the ring has zero resistance. Find the resistance between points A and B.
    (A) 1R   (B) 10R
    (C) 4R   (D) 2R
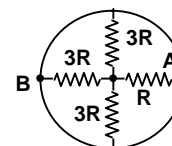
Space for Rough Work

Chemistry   *(Part – B)*

Straight Objective Type

*Chemistry contains 25 multiple choice questions numbered 71 to 95. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

71. Which of the following are made up of bases?
    (A) Antacid tablet   (B) Soap
    (C) Toothpaste   (D) All of the above

72. Which of the following is a strong acid?
    (A) H_2CO_3 (B) CH_3COOH
    (C) HCl (D) $HCOOH$

73. Which of the following reactions involves the combination of two elements?
    (A) $CaO + CO_2 \rightarrow CaCO_3$ (B) $4Na + O_2 \rightarrow 2Na_2O$
    (C) $SO_2 + \frac{1}{2}O_2 \rightarrow SO_3$ (D) $NH_3 + HCl \rightarrow NH_4Cl$

74. Which of the following is not a balanced equation?
    (A) $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$ (B) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
    (C) $KClO_4 \xrightarrow{\Delta} KCl + 2O_2$ (D) $Cu + 2HNO_3 \rightarrow Cu(NO_3)_2 + 2NO_2 + H_2O$

75. $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$
    The above reaction is an example of a
    (A) Combination reaction   (B) Double displacement reaction
    (C) Decomposition reaction   (D) Displacement reaction

76. Which of the following is not a property of mercury?
    (A) Lustre   (B) Malleability
    (C) Ductility   (D) Both (B) & (C)

77. Which of the following is second most abundant in the earth's crust?
    (A) Cu   (B) Zn
    (C) Al   (D) Fe

78. Phenolphthalein is
    (A) Yellow in acidic medium, pink in basic medium
    (B) Pink in acidic medium, colourless in basic medium
    (C) Colourless in acidic medium, pink in basic medium
    (D) Pink in acidic medium, yellow in basic medium

79. Washing soda ($Na_2CO_3.10H_2O$) on exposure to air gives
    (A) $Na_2CO_3.9H_2O$ (B) $Na_2CO_3.7H_2O$
    (C) $Na_2CO_3.5H_2O$ (D) $Na_2CO_3.H_2O$

Space for Rough Work

80. Plaster of Paris is

    (A) $CaSO_4$
    (B) $CaSO_4 \cdot \dfrac{1}{2}H_2O$
    (C) $CaSO_4.H_2O$
    (D) $CaSO_4.2H_2O$

81. Which of the following is a dibasic acid?
    (A) HCl
    (B) H_3PO_2
    (C) HNO_3
    (D) $H_2C_2O_4$

82. The equation, $Cu + xHNO_3 \rightarrow Cu(NO_3)_2 + yNO_2 + 2H_2O$, the values of x and y are

    (A) 3 and 1
    (B) 8 and 6
    (C) 4 and 2
    (D) 7 and 1 respectively

83. Which of the following is the ore of a metal which belongs to group–14?
    (A) Galena
    (B) Cinnabar
    (C) Bauxite
    (D) Pysolusite

84. Which of the following statement is correct?
    (A) Carbonates ore are roasted for reduction
    (B) Calcination is the heating of ores in excess of air
    (C) $Al_2O_3.H_2O$ is the formula for bauxite
    (D) Liquation is applicable for tin

85. How many times a solution of pH = 3 be diluted to get a solution of pH = 6?
    (A) 2 times
    (B) 10 times
    (C) 100 times
    (D) 1000 times

86. pH of sodium carbonate (Na_2CO_3) solution will be
    (A) 7
    (B) > 7
    (C) < 7
    (D) 1

87. On electrolysis of brine solution, the products formed are
    (A) Sodium and chlorine
    (B) Hydrogen, chlorine and oxygen
    (C) Hydrogen, chlorine and sodium hydroxide
    (D) Sodium hydroxide, chlorine and oxygen

88. Potash alum is a
    (A) Simple salt
    (B) Complex salt
    (C) Acid salt
    (D) Double salt

89. When lead nitrate is heated, it breaks down into lead monoxide, nitrogen dioxide and oxygen

    $2Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2$

    The reaction is an example of
    (A) Combination reaction
    (B) Decomposition reaction
    (C) Double decomposition reaction
    (D) Displacement reaction

Space for Rough Work

90. The reaction in which two compounds exchange their ions to form two new compounds is called
    (A) A displacement reaction
    (B) A decomposition reaction
    (C) An isomerisation reaction
    (D) A metathesis reaction

91. When hydrogen sulphide gas is passed through a blue solution of copper sulphate, a black precipitate of copper sulphide is obtained and the sulphuric acid so formed remains in the solution. The reaction is an example of
    (A) A combination reaction
    (B) A displacement reaction
    (C) A decomposition reaction
    (D) A double decomposition reaction

92. When the gas sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction $SO_2 + 2H_2S \rightarrow 2H_2O + 3S$ occurs
    Here, hydrogen sulphide is acting as
    (A) An oxidizing agent
    (B) A reducing agent
    (C) A dehydrating agent
    (D) A catalyst

93. Which of the following mineral does not contain aluminium?
    (A) Cryolite
    (B) Mica
    (C) Corundum
    (D) Dolomite

94. Leaching comes under
    (A) Concentration of ore
    (B) Reduction of ore
    (C) Refining of ore
    (D) Formation of ore

95. Electrolytic refining is used in the extraction of
    (A) Aluminium
    (B) Iron
    (C) Copper
    (D) Zinc

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Mathematics   *(Part – C)*

Straight Objective Type

*Mathematics contains 25 multiple choice questions numbered 96 to 120. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

96. $3.\overline{27}$ is
(A) an integer   (B) a rational number
(C) a natural number   (D) an irrational number

97.   If the sum of LCM and HCF of two numbers is 1260 and their LCM is 900 more than their HCF, then the product two numbers is
(A) 203400   (B) 194400
(C) 198400   (D) 205400

98.   The value of k for which the system of equations
$2x + 3y = 5$
$4x + ky = 10$
has infinite number of solutions, is
(A) 1   (B) 3
(C) 6   (D) 0

99.   The area of the triangle formed by the lines y=x, x=6 and y=0 is
(A) 36 sq.units   (B) 18 sq.units
(C) 9 sq.units   (D) 72 sq.units

100. In a $\triangle ABC, AD$ is the bisector of $\angle BAC$, If AB=6cm , AC=5cm and BD=3, then DC=
(A) 11.3cm   (B) 2.5cm
(C) 3:5cm   (D) None of these.

101. If $x \sin(90^\circ - \theta) \cot(90^\circ - \theta) = \cos(90^\circ - \theta),$ then x =
(A) 0   (B) 1
(C) -1   (D) 2

102. $\tan 5^\circ \times \tan 30^\circ \times 4 \tan 85^\circ$ is equal to
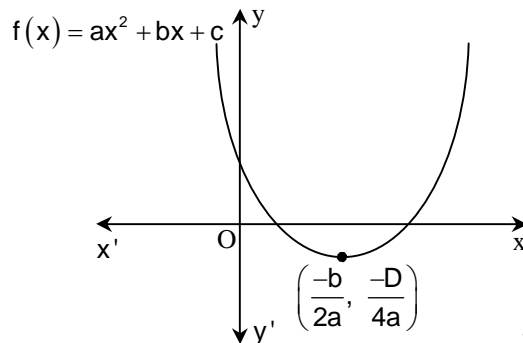(A) $\dfrac{4}{\sqrt{3}}$ (B) $4\sqrt{3}$
(C) 1   (D) 4

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103. If $\bar{x}$ is the mean of 10 natural numbers $x_1, x_2, x_3, \ldots\ldots\ldots x_{10}$, then sum of deviation from its mean is

(A) $10\bar{x}$ (B) 0

(C) $\bar{x}/10$ (D) 10

104. If one zero of the polynomial $f(x) = (k^2 + 4)x^2 + 13x + 4k$ is reciprocal of the other, then k

(A) 2   (B) -2

(C) 1   (D) -1

105. If the given diagram shows the graph of the polynomial $f(x) = ax^2 + bx + c$, then

(A) $a > 0, b < 0$ and $c > 0$ (B) $a > 0, b > 0$ and $c < 0$

(C) $a > 0, b > 0$ and $c > 0$ (D) $a < 0, b > 0$ and $c < 0$

106. What should be added to the polynomial $x^2 - 5x + 4$, so that 3 is the zero of the resulting polynomial?

(A) 1   (B) 2

(C) 4   (D) 5

107. The area of the triangle formed by the line $\dfrac{x}{a} + \dfrac{y}{b} = 1$ with the coordinate axes is

(A) ab (B) $2ab$

(C) $\dfrac{1}{2}ab$ (D) $\dfrac{1}{4}ab$

108. In a $\triangle ABC, \angle A = 90^0, AB = 5cm$ and AC=12 cm. If $AD \perp BC$ then AD=

(A) $\dfrac{13}{2}cm$ (B) $\dfrac{60}{13}cm$

(C) $\dfrac{13}{60}cm$ (D) $\dfrac{2\sqrt{15}}{13}cm$

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109. If ABC is an isosceles triangle and D is a point on BC such that $AD \perp BC$, then
     (A) $AB^2-AD^2=BD.DC$ (B) $AB^2-AD^2=BD^2-DC^2$
     (C) $AB^2+AD^2=BD.DC$ (D) $AB^2+AD^2=BD^2-DC^2$

110. In an equilateral triangle ABC if $AD \perp BC$, then
     (A) $5AB^2 = 4AD^2$ (B) $3AB^2 = 4AD^2$
     (C) $4AB^2 = 3AD^2$ (D) $2AB^2 = 3AD^2$

111. If 5θ and 4θ are acute angles satisfying $\sin 5\theta = \cos 4\theta$, then $2\sin 3\theta - \sqrt{3}\tan 3\theta$ is equal to
     (A) 1   (B) 0
     (C) -1   (D) $1+\sqrt{3}$

112. The value of $(1 + \cot\theta - \mathrm{cosec}\,\theta)(1 + \tan\theta + \sec\theta)$ is
     (A) 1   (B) 2
     (C) 4   (D) 0

113. If $x\cos\theta = y\cos(\theta + 120) = z\cos(\theta + 240)$, then the value of $xy + yz + zx$ is
     (A) 1   (B) 0
     (C) – 1   (D) xyz

114. If $u_i = \dfrac{x_i - 25}{10}, \sum f_i u_i = 20, \sum f_i = 100$, then $\bar{x} =$
     (A) 23   (B) 24
     (C) 27   (D) 25

115. If the sum of the roots of the equation $x^2 - (k+6)x + 2(2k-1) = 0$ is equal to half of their product, then $k =$
     (A) 6   (B) 7
     (C) 1   (D) 5

116. $5^{2n} - 1$ (n is a positive integer) is always divisible by
     (A) 5   (B) 24
     (C) 7   (D) 26

117. What is the least number of four digits when increased by 7 divisible by 35, 48 and 56?
     (A) 1480   (B) 1473
     (C) 1487   (D) 1673

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118. Two isosceles triangles have equal vertical angles and their heights are in the ratio 5 : 6. The ratio of their areas are:
(A) 25 : 121   (B) 36 : 25
(C) 25 : 36   (D) 125 : 216

119. The mean of first five multiple of 3 is
(A) 9   (B) 12
(C) 10   (D) 15

120. The median of 2, 8, 9, 10, 5, 6, 7, 12 is given by
(A) 7   (B) 8
(C) 7.5   (D) 9

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FIITJEE SAMPLE PAPER – 2016

for **students presently in**

Class 10
Paper 1

ANSWERS

1.	A	2.	C	3.	B	4.	A
5.	D	6.	B	7.	A	8.	A
9.	C	10.	D	11.	D	12.	B
13.	A	14.	B	15.	C	16.	B
17.	B	18.	B	19.	C	20.	A
21.	B	22.	B	23.	C	24.	B
25.	B	26.	B	27.	B	28.	A
29.	A	30.	C	31.	B	32.	D
33.	A	34.	A	35.	C	36.	D
37.	A	38.	C	39.	A	40.	D
41.	B	42.	B	43.	B	44.	C
45.	D	46.	**C**	47.	**B**	48.	**A**
49.	**B**	50.	**A**	51.	**D**	52.	**C**
53.	**C**	54.	**C**	55.	**D**	56.	**B**
57.	**C**	58.	**A**	59.	**A**	60.	**D**
61.	**D**	62.	**B**	63.	**D**	64.	**A**
65.	**C**	66.	**D**	67.	**A**	68.	**D**
69.	**C**	70.	**D**	71.	**D**	72.	**C**
73.	**B**	74.	**D**	75.	**D**	76.	**D**
77.	**C**	78.	**C**	79.	**D**	80.	**B**
81.	**D**	82.	**C**	83.	**A**	84.	**D**
85.	**D**	86.	**B**	87.	**C**	88.	**D**
89.	**B**	90.	**D**	91.	**D**	92.	**B**
93.	**D**	94.	**A**	95.	**C**	96.	**B**
97.	**B**	98.	**C**	99.	**B**	100.	**B**
101.	**B**	102.	**A**	103.	**B**	104.	**A**
105.	**A**	106.	**B**	107.	**C**	108.	**B**
109.	**A**	110.	**B**	111.	**B**	112.	**B**
113.	**B**	114.	**C**	115.	**B**	116.	**B**
117.	**D**	118.	**C**	119.	**A**	120.	**C**