

# FIITJEE SAMPLE PAPER

(FIITJEE Talent Reward Exam - 2021)

for students presently in

## Class 10 (Paper 1)



Time: 3 Hours (9:30 am – 12:30 pm)

Code 1000

Maximum Marks: 204

### Instructions:

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

1. You are advised to devote 60 Minutes on Section-I, 60 Minutes on Section-II and 60 Minutes on Section-III.
2. This Question paper consists of 3 sections. Marking scheme is given in table below:

Section	Subject	Question no.	Marking Scheme for each question	
			Correct answer	Wrong answer
SECTION – I	APTITUDE	1 to 30	+3	0
SECTION – II	PHYSICS (PART-A)	31 to 42	+2	0
	CHEMISTRY (PART-B)	43 to 54	+2	0
	MATHEMATICS (PART-C)	55 to 66	+2	0
SECTION – III	PHYSICS (PART-A)	67 to 80	+1	-0.25
	CHEMISTRY (PART-B)	81 to 94	+1	-0.25
	MATHEMATICS (PART-C)	95 to 108	+1	-0.25

3. 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.
4. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.
5. 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 108 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 : \_\_\_\_\_

## Recommended Time: 60 Minutes for Section – I

### Section – I

### APTITUDE TEST

This section contains **30 Multiple Choice Questions** number **1 to 30**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

**Directions (Q. 1 to 3):** In the following question there is a number series with one term missing shown by question mark (?). This term is one of the alternatives given. Choose that number.

- 3, 5, 8, 13, 21, ?, 55  
(A) 25 (B) 49  
(C) 36 (D) 34
- 80, 78, 75, 71, ?, 60  
(A) 76 (B) 73  
(C) 65 (D) 66
- 2, 7, 17, 32, 52, ?  
(A) 77 (B) 64  
(C) 72 (D) 81

**Directions (Q. 4 to 5):** In each of the following questions choose appropriate option from given alternatives such that the relationship defined by ':' is preserved.

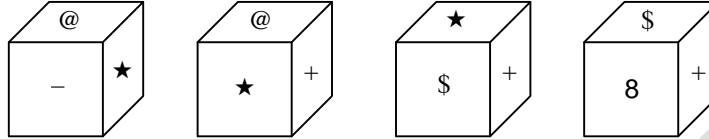
- ABCD : NPRT :: FGHI : ?  
(A) KLMN (B) OQRT  
(C) RTUW (D) SUWY
- Ace : bdF :: Fhj : ?  
(A) ghk (B) giK  
(C) dfH (D) fhL
- A's mother says to A, 'My mother has a son whose son is C'. How is C related to A?  
(A) Cousin (B) Father  
(C) Brother (D) Grandfather

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**Space for Rough Work**

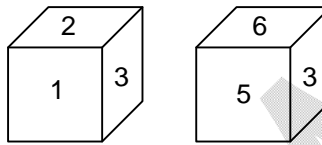
7. If **PANTHER** is coded as **6901257** and **DAMP** is coded as **3946**, then how is **MATTER** coded?  
 (A) 491175 (B) 411957  
 (C) 491157 (D) 419157

8. Four positions of a die are shown. Which symbols or number will be on the face opposite to the face with symbol (star)?



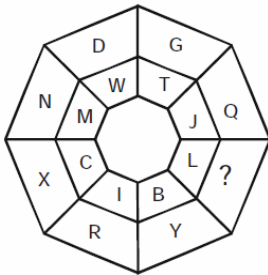
- (A) @ (B) \$  
 (C) 8 (D) +

9. Two positions of a die are shown. Which digit will appear on the face opposite to the face with number 4?



- (A) 3 (B) 5  
 (C) 6 (D) 2

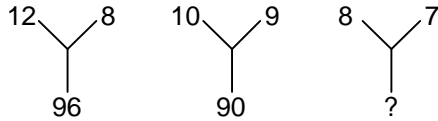
10. Find the missing character from among the given alternatives.



- (A) M (B) O  
 (C) Q (D) R

*Space for Rough Work*

11. Find the missing character from among the given alternatives.



- (A) 56 (B) 60  
(C) 65 (D) 70
12. What should come next in the following letter series?  
**Z X V T R P N L J Y W U S Q O** \_\_\_  
(A) M (B) K  
(C) H (D) J
13. 'DEAN' is related to 'NDAE' and 'ROAD' is related to 'DRAO'. In the same way 'SOME' is related to?  
(A) EOMS (B) EMOS  
(C) ESMO (D) MSEO
14. Mohan correctly remembers that his father's birthday is before twentieth January but after sixteenth January, whereas his sister correctly remembers that their father's birthday is after eighteenth January but before twenty third January. On which date in January is definitely their father's birthday?  
(A) Eighteenth (B) Nineteenth  
(C) Twentieth (D) Twenty one

**Directions (Q. 15 to 19):** In each question below is given a group of letters followed by digit/symbol code. You have to find out correct code for the word given below.

<b>Letter</b>	P	M	A	D	E	J	I	T	Q	U	O	F	H	W	B
<b>Digit/Symbol Code</b>	6	\$	7	1	%	2	δ	8	3	©	4	@	9	5	*

**Conditions:**

- (i) If the first letter is a consonant and the last letter is a vowel, their codes are to be interchanged.  
(ii) If the first letter is a vowel and the last letter is a consonant both are to be coded as the code for the last letter.  
(iii) If both the first and the last letters are consonants, both are to be coded as '#'.

15. OHBWDFT  
(A) 89\*51@4 (B) 49\*51@8  
(C) 89\*51@8 (D) 49\*51@4

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*Space for Rough Work*

16. HOPDAMI  
 (A) 94617\$9 (B) 84617\$8  
 (C) 94617\$8 (D) 84617\$9
17. UAQFJPE  
 (A) ©73@26% (B) %73@26©  
 (C) %73@26% (D) 73@26©
18. FEPWBUH  
 (A) %65\*©9 (B) #%65\*©#  
 (C) 9%65\*©@ (D) 9%65\*©9
19. DEJATMI  
 (A) 1%278\$8 (B) 1%278\$1  
 (C) 8%27881 (D) 8%278\$1
20. If 'P' denotes 'multiplied by', 'R' denotes 'added to', 'T' denotes 'subtracted from' and 'W' denotes 'divided by', then  
**64 W 4 P 8 T 6 R 4 = ?**  
 (A) 96 (B)  $2\frac{2}{3}$   
 (C) 130 (D) 126
21. What should come next in the following letter series?  
**A Z A B Y A B C X A B C D W A B C D E V A B C D E**  
 (A) F (B) T  
 (C) A (D) G
22. D is brother of B. M is brother of B. K is father of M. T is wife of K. How is B related to T?  
 (A) Son (B) Daughter  
 (C) Son or Daughter (D) Brother
23. Town D is to the West of town M. Town R is to the South of town D. Town K is to the East of town R. Town K is towards which direction of town D?  
 (A) South (B) East  
 (C) North-East (D) South-East

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*Space for Rough Work*

24. In a certain code, ROAM is written as 5913 and DONE is written as 4962. How is MEAN written in that code?  
(A) 5216 (B) 3126  
(C) 3216 (D) 9126

**Directions (Q. 25 to 27):** Study the following information to answer the given questions.

In a certain code, 'her idea has merit' is written as 'fo la bu na' 'merit list has been displayed' is written as 'jo ke la si na, 'her name displayed there' is written as 'ya si bu zo' and 'name is merit list' is written as 'na ya go ke'.

25. What does 'ke' stands for?  
(A) been (B) has  
(C) merit (D) list
26. What is code for 'idea'?  
(A) fo (B) la  
(C) bu (D) na
27. What does 'zo' stand for?  
(A) there (B) displayed  
(C) name (D) her

**Directions (Q. 28 to 30):** Study the following information to answer the given questions.

Five plays A, B, C, D and E were organized in a week from Monday to Saturday with one play each day and no play was organized on one of these days. Play D was organized before Thursday but after Monday. Plays E was organized on Saturday. Play C was not organized on the first day. Play B was organized on the next day on which play C was organized. Play A was organized on Tuesday.

28. On which day was play B organized?  
(A) Thursday (B) Friday  
(C) Wednesday (D) Saturday
29. On which day was no play organized?  
(A) Monday (B) Saturday  
(C) Thursday (D) Tuesday
30. Which play was organized on Wednesday?  
(A) A (B) B  
(C) C (D) D

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*Space for Rough Work*

**Recommended Time: 60 Minutes for Section – II****Section – II****PHYSICS – (PART – A)**

*This part contains 12 Multiple Choice Questions number 31 to 42. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.*

31. Four resistance of 4 ohms are connected in parallel. The resultant resistance will be :  
(A) 4 ohms (B) 3 ohms  
(C) 2 ohms (D) 1 ohm
32.  $Vm^{-1}$  is the unit of :  
(A) Potential (B) Electric field intensity  
(C) Electric current (D) Electric potential energy
33. What will be the power consumed by a  $25 \Omega$  wire if it is put across a mains of 250 volts?  
(A) 2.5 kw (B) 25 kw  
(C) 2.5 w (D) 25 w
34. According to Ohm's law the graph of potential difference and current is \_\_\_\_\_.  
(A) Straight line passing through origin (B) Curved  
(C) Line having an intercept on X-axis (D) Circular
35. Two lines of force due to a bar magnet  
(A) Intersect at the neutral point  
(B) Intersect near the poles of the magnet  
(C) Intersect on the equatorial axis of the magnet  
(D) Do not intersect at all

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*Space for Rough Work*

36. Light Waves are:  
(A) Mechanical Waves (B) Electromagnetic Waves  
(C) Longitudinal Waves (D) None of These
37. Convex mirror can form  
(A) Real image (B) Erect image  
(C) Magnified image (D) Both (A) and (C)
38. The radius of curvature of a convex lens is 10 m. The power of the lens will be :-  
(A) + 0.1 D (B) - 0.1 D  
(C) + 10 D (D) - 10 D
39. The incident ray passing through centre of curvature of concave mirror after reflection passes through :-  
(A) Pole of mirror (B) Focus of mirror  
(C) Centre of curvature (D) None of these
40. Convex mirror is a :-  
(A) Diverging mirror (B) Converging mirror  
(C) Converging as well as diverging (D) Doesn't converge or diverge
41. The image formed by plane mirror is :-  
(A) Virtual, inverted (B) Real, erect  
(C) Virtual, erect (D) None of these
42. A current of 0.2 Ampere is passing through a resistance of 20 ohm. The voltage applied at the ends of resistance is :  
(A) 40 volts (B) 20 volts  
(C) 10 volts (D) 4 volts

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**Space for Rough Work**



## CHEMISTRY – (PART – B)

This part contains **12 Multiple Choice Questions** number **43 to 54**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

43. When a magnesium ribbon is burnt in air, the ash formed is  
(A) Black (B) White  
(C) Yellow (D) Pink
44. The reaction in which two compounds exchange their ions to form two new compounds is called  
(A) Displacement reaction (B) Combination reaction  
(C) Double displacement reaction (D) Redox reaction
45. Preservatives are used to preserve  
(A) Food (B) Acid  
(C) Base (D) Water
46. If the pH value is greater than 7, then solution is  
(A) Acidic (B) Basic  
(C) Neutral (D) Salty
47. KOH is used in making of  
(A) Drain cleaner (B) Antacid  
(C) Cement (D) Liquid soap
48. Acids ionize in water to produce  
(A)  $\text{OH}^-$  ions (B)  $\text{H}^+$  ions  
(C)  $(\text{SO}_4)^{2-}$  ions (D)  $\text{H}_2\text{O}$  molecules.

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**Space for Rough Work**

49. Haematite is an ore of  
(A) Iron (B) Aluminium  
(C) Copper (D) Tin
50. Which is correct order as per the reactivity of the metals  
(A)  $Zn > Fe > Cu > Ag$  (B)  $Fe > Zn > Cu > Ag$   
(C)  $Cu > Zn > Fe > Ag$  (D)  $Zn > Cu > Fe > Ag$
51. Which of the following non-metal is good conductor of electricity?  
(A) Graphite (B) Phosphorus  
(C) Hydrogen (D) Bromine
52. Chemically rust is  
(A) Hydrated ferrous oxide (B) Only ferric oxide  
(C) Hydrated ferric oxide (D) None of these
53. The correct order of second ionization potential of C, N, O and F is  
(A)  $C > N > O > F$  (B)  $O > N > F > C$   
(C)  $O > F > N > C$  (D)  $F > O > N > C$
54. The correct sequence of the electron affinity of C, N, O and F is  
(A)  $C > N < O < F$  (B)  $O > N > C > F$   
(C)  $C < N > O < F$  (D)  $C > N > O > F$

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*Space for Rough Work*

## MATHEMATICS – (PART – C)

This part contains **12 Multiple Choice Questions** number **55 to 66**. Each question has **4 choices (A), (B), (C) and (D)**, out of which **ONLY ONE** is correct.

55. If  $\alpha$  and  $\beta$  are the zeroes of the quadratic polynomial  $x^2 + 5x + 4$  then  $\alpha - \beta = ?$

- (A)  $\pm 3$  (B)  $\pm 4$   
(C) 0 (D) 5

56. If  $\sin x + \operatorname{cosec} x = 2$  then  $\sin^n x + \operatorname{cosec}^n x = ?$

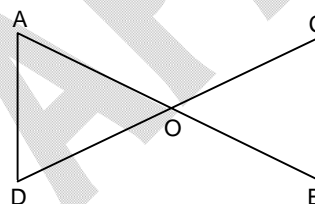
- (A)  $2^n$  (B)  $2^{n-1}$   
(C)  $2^{n+2}$  (D) 2

57. The HCF of the polynomial  $(x^2 - 4x + 4)(x + 3)$  and  $(x^2 + 2x - 3)(x - 2)$  is

- (A)  $(x + 3)$  (B)  $(x - 2)$   
(C)  $(x + 3)(x - 2)$  (D)  $(x + 3)(x - 2)^2$

58. In the given figure  $OA \times OB = OC \times OD$ , then which of the following is correct.

- (A)  $\angle A = \angle B$   
(B)  $\angle A = \angle C$   
(C)  $\angle D = \angle C$   
(D) none of these



59. If  $2y \cos \theta = x \sin \theta$  and  $2x \sec \theta - y \operatorname{cosec} \theta = 3$  then the value of  $x^2 + 4y^2$  is

- (A) 2 (B) 1  
(C) 0 (D) 4

60. If  $\alpha$  and  $\beta$  are zeroes of a polynomial  $p(x)$ , then which of the following is not true.

- (A)  $p(\alpha) + p(\beta) = 0$  (B)  $p(\alpha) - p(\beta) = 0$   
(C)  $\frac{p(\alpha)}{p(\beta)} = 0$  (D)  $k_1 p(\alpha) + k_2 p(\beta) = 0, k_1, k_2 \neq 0$

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*Space for Rough Work*

61. Find the sum of all three digit numbers which leave remainder 2 when divided by 5  
(A) 98910 (B) 9820  
(C) 9830 (D) 9840
62. If a point p is equidistant from the sides of a triangle ABC then p must be  
(A) incentre (B) circumcenter  
(C) orthocenter (D) centroid
63.  $\tan 38^\circ - \cot 22^\circ = ?$   
(A)  $\frac{1}{2} \operatorname{cosec} 38^\circ \sec 22^\circ$  (B)  $2 \sin 22^\circ \cos 38^\circ$   
(C)  $-\frac{1}{2} \operatorname{cosec} 22^\circ \sec 38^\circ$  (D) none of these
64. The digit in unit's place of the product  $81 \times 82 \times 83 \times \dots \times 89$  is  
(A) 1 (B) 0  
(C) 2 (D) 3
65. The value of k for which  $x + k$  is a factor of  $x^3 + kx^2 - 2x + k + 4$  is  
(A) -5 (B) 2  
(C)  $-\frac{4}{3}$  (D)  $\frac{6}{7}$
66. If p and q are the zeroes of  $kx^2 - 3x + 2k$  and  $p + q = pq$ , then find the value of k  
(A)  $-\frac{2}{3}$  (B)  $\frac{3}{2}$   
(C) 1 (D) 3

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Space for Rough Work

## Recommended Time: 60 Minutes for Section – III

### Section – III

## PHYSICS – (PART – A)

*This part contains 14 Multiple Choice Questions number 67 to 80. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.*

67. In an electric heater, 1500 watt is marked. If this heater is used for 10 hours continuously, then what will be the consumption of energy  
 (A) 30 Unit (B) 40 Unit  
 (C) 15 Unit (D) 19 Unit
68. The value of equivalent resistance between the point A and B in the given circuit, will be :  
 (A) 6 R (B)  $\frac{4R}{11}$   
 (C)  $\frac{11R}{4}$  (D)  $\frac{R}{6}$
- 
69. When 1 J of work is done to move a charge of 1 C from one point to another point then the potential difference between two points in a given circuit will be :  
 (A) 1 V (B) 4 V  
 (C) 8 V (D) zero
70. A certain household has consumed 200 units of energy during a month. Its value in joules will be :  
 (A)  $3.6 \times 10^{10}$  (B)  $7.2 \times 10^{19}$   
 (C)  $3.6 \times 10^8$  (D)  $7.2 \times 10^8$

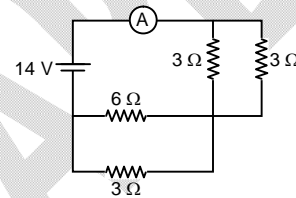
*Space for Rough Work*

71. A permanent magnet  
 (A) Attracts all substances  
 (B) Attracts only magnetic substances  
 (C) Attracts magnetic substances and repels all non-magnetic substances  
 (D) Attracts non-magnetic substances and repels magnetic substances
72. If the image of the person formed by the mirror is erect and of the same size. The mirror used by the person is  
 (A) Convex mirror  
 (B) Concave mirror.  
 (C) plane mirror  
 (D) May be concave or convex
73. A real object is kept at a distance twice of focal length of a convex lens. The nature of the image formed by lens will be :-  
 (A) Virtual  
 (B) Real  
 (C) May be real or virtual  
 (D) The image will not exist

74. The reading of ideal ammeter in the circuit is :-

- (A)  $\frac{7}{4}$  A  
 (C)  $\frac{4}{7}$  A

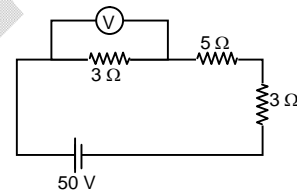
- (B) 4 A  
 (D) 2 A



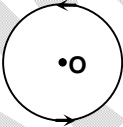
75. If the reading of voltmeter connected in the circuit is 10 V. The resistance of voltmeter is

- (A) Zero  
 (C) 6 Ω

- (B) infinite  
 (D) 3 Ω



*Space for Rough Work*

76. Two equivalent convex lens of focal length 10 cm in kept in contact. The net power of combination of lens is :-  
(A) 0 D (B) - 20 D  
(C) + 20 D (D) + 10 D
77. A converging lens of focal length 5 cm is placed in contact with another covering lens of focal length of 10 cm. The combined focal length of system is  
(A) + 15 cm (B) - 15 cm  
(C)  $-\frac{10}{3}$  cm (D)  $+\frac{10}{3}$  cm
78. The focal length of lens with power - 2 D is :-  
(A) + 0.5 m (B) - 0.5 m  
(C) - 50 cm (D) Both (B) and (C)
79. The direction of magnetic field at the centre of circular loop (O), if current is flowing anticlock wise is :-  
(A) Rightward  
(B) Leftward  
(C) Outside the plane of loop  
(D) Inside the plane of loop
- 
80. Total internal reflection happens when :-  
(A) Ray passes from denser to rarer medium  
(B) Ray passes from rarer to denser medium  
(C) Ray passes from denser to rarer medium with angle of incidence more than critical angle  
(D) None of these

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**Space for Rough Work**

## CHEMISTRY – (PART – B)

This part contains **14 Multiple Choice Questions** number **81 to 94**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

81. In the decomposition of lead (II) nitrate to give lead (II) oxide, nitrogen dioxide and oxygen gas, the coefficient of nitrogen dioxide (in the balanced equation) is  
(A) 1 (B) 2  
(C) 3 (D) 4
82. Dilute hydrochloric acid is added to granulated zinc taken in a test tube. The following observations are recorded. Point out the correct observation.  
(A) The surface of metal becomes shining  
(B) The reaction mixture turns milky  
(C) Odour of a pungent smelling gas is recorded  
(D) A colourless and odourless gas is evolved
83. In which of the following, heat energy will be evolved?  
(A) Electrolysis of water  
(B) Dissolution of  $\text{NH}_4\text{Cl}$  in water  
(C) Burning of L.P.G.  
(D) Decomposition of  $\text{AgBr}$  in the presence of sunlight
84. On immersing an iron nail in  $\text{CuSO}_4$  solution for few minutes, you will observe  
(A) No reaction takes place  
(B) The colour of solution fades away  
(C) The surface of iron nails acquires a black coating  
(D) The colour of solution changes to green
85. An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are  
(A)  $\text{X} = \text{Fe}$ ,  $\text{Y} = \text{Fe}_2\text{O}_3$  (B)  $\text{X} = \text{Ag}$ ,  $\text{Y} = \text{Ag}_2\text{S}$   
(C)  $\text{X} = \text{Cu}$ ,  $\text{Y} = \text{CuO}$  (D)  $\text{X} = \text{Al}$ ,  $\text{Y} = \text{Al}_2\text{O}_3$
86. Bronsted-Lowry acid in reaction  $\text{H}_2\text{O} + \text{NH}_3 \longrightarrow \text{NH}_4^+ + \text{OH}^-$  is  
(A)  $\text{H}_2\text{O}$  (B)  $\text{NH}_3$   
(C)  $\text{OH}^-$  (D)  $\text{NH}_4^+$

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*Space for Rough Work*



87. Which of the following salts has no water of crystallization?  
(A) Blue vitriol (B) Washing soda  
(C) Baking soda (D) Gypsum
88. The function of quick lime in soda lime mixture is to  
(A) Absorb moisture present in soda lime (B) Increase the efficiency of soda lime  
(C) Increase the pH of soda lime (D) Take part in reaction with NaOH
89. The pH of a solution of HCl is 4. This shows that the molarity of the solution is  
(A) 4.0M (B) 0.4M  
(C) 0.0001M (D) 0.001M
90. Which of the following does NOT form an acidic salt?  
(A) Phosphoric acid (B) Carbonic acid  
(C) Hydrochloric acid (D) Sulphuric acid
91. During smelting, an additional substance is added which combines with impurities to form a fusible product known as  
(A) Slag (B) Mud  
(C) Gangue (D) Flux
92. Aluminum is used for making cooking utensils. Which of the following properties of aluminum are responsible for the same?  
(i) Good thermal conductivity  
(ii) Good electrical conductivity  
(iii) Ductility  
(iv) High melting point  
(A) (i) and (ii) (B) (i) and (iii)  
(C) (ii) and (iii) (D) (i) and (iv)
93. In the reaction  $R'OH + RCOOH \xrightarrow[\Delta]{\text{conc. } H_2SO_4} A$ . A is  
(A)  $R'COOR$  (B)  $RCOOR'$   
(C)  $RCHO$  (D)  $R'CHO$
94. The reaction of sodium acetate with soda lime is lab method for  
(A) Ethane (B) Ethene  
(C) Ethyne (D) Methane

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*Space for Rough Work*

## MATHEMATICS – (PART – C)

This part contains **14 Multiple Choice Questions** number **95 to 108**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

95. If  $x + k$  is the HCF of  $x^2 + ax + b$  and  $x^2 + cx + d$  then what is the value of  $k$ ?
- (A)  $\frac{b+d}{a+c}$  (B)  $\frac{a+b}{c+d}$   
 (C)  $\frac{a-b}{c-d}$  (D) none of these
96. If  $\triangle ABC \sim \triangle PQR$  and  $\frac{PQ}{AB} = \frac{5}{2}$  then  $\text{area}(\triangle ABC) : \text{area}(\triangle PQR) = ?$
- (A)  $\frac{25}{4}$  (B)  $\frac{4}{25}$   
 (C)  $\frac{5}{2}$  (D)  $\frac{25}{2}$
97. From the top of a tower 100m high, the angles of depression of the bottom and the top of a building just opposite to it are observed to be  $60^\circ$  and  $45^\circ$  respectively. Then height of the building is
- (A)  $\frac{100(3 - \sqrt{3})}{3}$  m (B)  $\frac{100(3 + \sqrt{3})}{3}$  m  
 (C)  $\frac{3 + \sqrt{3}}{3}$  m (D)  $\frac{50(3 - \sqrt{3})}{3}$  m
98. If  $x = 2 + \sqrt{3}$  and  $xy = 1$ , then  $\frac{x}{\sqrt{2} + \sqrt{x}} + \frac{y}{\sqrt{2} - \sqrt{y}} = ?$
- (A)  $\sqrt{2}$  (B)  $\sqrt{3}$   
 (C) 1 (D) none of these

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**Space for Rough Work**

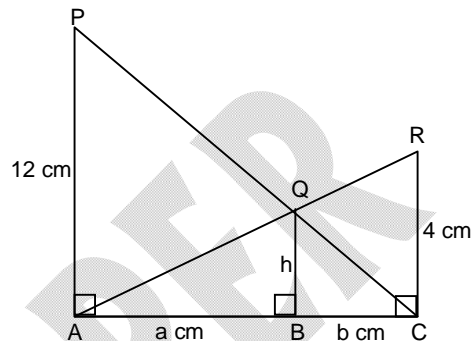
99. If  $x + \frac{1}{x} = 4$  then  $x^5 + \frac{1}{x^5} = ?$

- (A) 723  
(C) 725

- (B) 724  
(D) 726

100. In the given figure, PA, QB and RC are each perpendicular to AC. If AP = 12 cm, RC = 4 cm then QB = ?

- (A) 2 cm  
(B) 3 cm  
(C)  $\frac{1}{5}$  cm  
(D) 4 cm



101. A card is drawn at random from a pack of 52 cards. The probability that the drawn card is not a king is

- (A)  $\frac{1}{13}$   
(C)  $\frac{4}{13}$

- (B)  $\frac{9}{13}$   
(D)  $\frac{12}{13}$

102. If AD, BE and CF are the medians of the  $\Delta ABC$ , then  $\frac{AD^2 + BE^2 + CF^2}{AB^2 + BC^2 + CA^2} =$

- (A)  $\frac{3}{2}$   
(C)  $\frac{3}{4}$

- (B)  $\frac{1}{4}$   
(D)  $\frac{6}{7}$

103. Three dice are thrown at the same time. What is the probability that the sum of three numbers that turn up is 15?

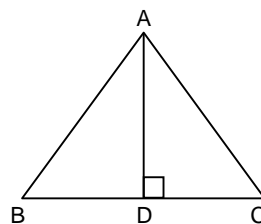
- (A)  $\frac{11}{216}$   
(C)  $\frac{9}{216}$

- (B)  $\frac{5}{108}$   
(D)  $\frac{1}{18}$

Space for Rough Work

104. Given an equilateral triangle ABC such that AD is its altitude on side BC. Then which of the following is true

- (A)  $AB^2 = \frac{1}{2} AD^2$   
 (B)  $3AB^2 = 2AD^2$   
 (C)  $3AB^2 = 4AD^2$   
 (D)  $4AB^2 = 3AD^2$

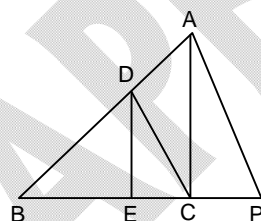


105. If  $\sin\theta + \cos\theta = m$  then value of  $(\sin\theta - \cos\theta)$  is

- (A)  $\sqrt{2+m^2}$  (B)  $m$   
 (C)  $\sqrt{2+\frac{m}{2}}$  (D)  $\sqrt{2-m^2}$

106. In the given figure if  $DE \parallel AC$  and  $DC \parallel AP$  then which of the following is true

- (A)  $BE(AD + CP) = BE^2$   
 (B)  $BE \times CP = EC \times BC$   
 (C)  $BC \times CP = EC \times BC$   
 (D)  $BD \times DE = BE^2$



107. If  $a^2 \sec^2\theta - b^2 \tan^2\theta = c^2$ . Find the value of  $\sin\theta$

- (A)  $\pm \sqrt{\frac{c^2 - b^2}{c^2 - a^2}}$  (B)  $\pm \sqrt{\frac{c^2 + 2b}{c^2 - 2a}}$   
 (C)  $\pm \sqrt{\frac{c+b}{c^2 + a^2}}$  (D)  $\pm \sqrt{\frac{c^2 - a^2}{c^2 - b^2}}$

108. If  $\sin A + \sin^2 A = 1$ , then the value of  $\cos^2 A + \cos^4 A =$

- (A) 1 (B) 0  
 (C) 2 (D) -2

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Space for Rough Work

# FIITJEE SAMPLE PAPER – 2021

(FIITJEE Talent Reward Exam - 2021)

for students presently in

## Class 10 (Paper 1)

### ANSWERS

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