## FIITJ EE Big Bang Edge Test - 2022 for studens presenty in Class 11 (going to 12) (Paper 1)

Time: 3 Hours (9:00 am - 12:00 pm) CODE: 1112-1

Maximum Marks: 243
$\square$

## 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 $\mathbf{6 0}$ Minutes on Section-l and $\mathbf{1 2 0}$ Minutes on Section-II.
2. This Question paper consists of 2 sections. Marking scheme is given in table below:

| Section | Subject |  | Question no. | Marking Scheme for each question |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Correct answer | Wrong answer |
| SECTION - I | APTITUDE TEST |  |  | 1 to 30 | +3 | 0 |
| SECTION - II | PHYSICS | (PART-A) | 31 to 47 | +3 | 0 |
|  | CHEMISTRY | (PART-B) | 48 to 64 | +3 | 0 |
|  | MATHEMATICS | (PART-C) | 65 to 81 | +3 | 0 |

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 below.

Note: Please check this Question Paper contains all 81 questions in serial order. If not so, exchange for the correct Question Paper.

OMR Answer Sheet No. : $\qquad$
Registration Number : $\qquad$
Name of the Candidate : $\qquad$
Test Centre
: $\qquad$

## Recommended Time: 60 Minutes for Section - I

## Section - I

## APTITUDE TEST

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

1. Find out the missing term of the series.

0,4,6,3,7,9,6,?,12
(A) 8
(B) 10
(C) 11
(D) 12
2. Two positions of a dice are shown below. If 1 is at the bottom, which number will be on the top?

(i)
(ii)
(A) 2
(B) 3
(C) 4
(D) 5
3. The ratio of expenditure and saving is $3: 2$. If the income increases by $15 \%$ and the savings increases by $6 \%$, then by how much per cent should be expenditure increases ?
(A) 25
(B) 21
(C) 12
(D) 24
4. A pupil's marks were wrongly entered as 83 instead of 63 . Due to that the average marks for the class got increased by half $(1 / 2)$. The number of pupils in the class is:
(A) 10
(B) 20
(C) 40
(D) 73
5. When $X$ is subtracted from the numbers 9,15 and 27 , then remainders are in the continued proportion. What is the value of $X$ ?
(A) 8
(B) 6
(C) 4
(D) None of these
6. Count the number of rectangles in the given figure.

(A) 20
(B) 18
(C) 16
(D) 15
7. In what ratio must a person mix three kinds of tea costing Rs. $60 / \mathrm{kg}$, Rs. $75 / \mathrm{kg}$ and Rs. $100 / \mathrm{kg}$ so that the resultant mixture when sold at Rs. $96 / \mathrm{kg}$ yields a profit of $20 \%$ ?
(A) $1: 2: 4$
(B) $3: 7: 6$
(C) $1: 4: 2$
(D) None of these
8. At what percent pr annum will Rs. 3000 amounts to Rs. 3993 in 3 years, if the interest in compounded annually?
(A) $9 \%$
(B) $10 \%$
(C) $11 \%$
(D) $13 \%$
9. Of the 200 candidates who were interviewed for a position at a call center, 100 had a twowheeler, 70 had a credit card and 140 had a mobile phone. 40 of them had both, a two-wheeler and a credit card, 30 had both, a credit card and a mobile phone and 60 had both, a two wheeler and mobile phone and 10 had all three. How many candidates had none of the three?
(A) 0
(B) 20
(C) 10
(D) 18

Directions (10-14): Study the following information carefully to answer the given questions.
Eight people P, Q, R, S, T, U, V and W were born in three different months(of the same year) but not necessarily in the same order, namely March June and December such that not less than two people and not more than three people were born in a month. Each of them also likes a different fruit namely Guava, Peach, Banana, Cherry, Mango, Orange,
Kiwi and apple but not necessarily in the same order.
$\Rightarrow$ Only Q and W were born in March. R likes Apple and was born in the same month as T. R was not born in December. The one who likes Mango was born in the month which has 30 days only.
$\Rightarrow U$ was not born in the same month as T . S likes Cherry and born in the same month as $\mathrm{U} . \mathrm{V}$ does not like Mango.
$\Rightarrow$ The one who likes Kiwi and the one who likes Banana were born in the same month, The one who likes Kiwi was not born in the same month as W.
$\Rightarrow U$ does not like Kiwi. The one who likes Guava was born in the same month as P. Q does not like Peach. T does not like Mango.
10. As per the given arrangement which of the following combination represents only the people who were born in December?.
(A) T, V
(B) U, P, T
(C) V, U
(D) U, V, S

## Space for Rough Work

11. As per the given arrangement which of the following person represent the one who was born in the same month as the one who likes Orange?
(A) U
(B) P
(C) $R$
(D) W
12. Which of the following fruits does T like as per the given arrangement?
(A) Orange
(B) Peach
(C) Guava
(D) Banana
13. Which of the following combinations is correct as per the given arrangement?
(A) December - Peach
(B) June - Orange
(C) June - Banana
(D) December - Banana
14. Who amongst the following likes Peach as per the given arrangement?
(A) P
(B) V
(C) U
(D) W
15. I am facing South. I turn right and walk 20 metre. Then I turn right again and walk 10 metre. Then I turn left and walk 10 metre and then turning right walk 20 metre. Then I turn right again and walk 60 metre. In which direction am I from the starting point?
(A) North-East
(B) North-West
(C) North
(D) West
16. Point $H$ is 6 m west of point $F$. Point $J$ is 3 m south of point D . A person starts from point H in south direction, reaches a point K, takes a left turn and reaches point J. Find KE.
(A) 15 m
(B) $3 \sqrt{ } 5 \mathrm{~m}$
(C) $2 \sqrt{ } 5 \mathrm{~m}$
(D) can't be determine
17. Arun can finish a work in 12 days; Ajit can finish the same work in 15 days while Amit can finish the same work in 20 days. Find the total Time taken when all three work together to complete the work.
(A) 6 days
(B) 5 days
(C) 4 days
(D) 3 days

Directions (18-19): Study the following arrangement and answer questions given: 48 @BDE!YI7*KW6AL5\#9O2U^@3N(M\$
18. How many such letters are there in the above arrangement each of which is immediately preceded by a symbol and immediately followed by a consonant?
(A) Four
(B) Three
(C) None
(D) One
19. How many such numbers are there each of which is immediately preceded by a symbol?
(A) None
(B) One
(C) Two
(D) Three


20．Choose the alternative which is closely resembles the water－image of the given combination． RAJ589D8
（1） $\operatorname{B\forall า\text {ฉ}2\mathrm {D}8}$
（2）$\downarrow \forall า \supseteq 82 D 8$
（3）$\measuredangle \forall \Gamma$ 28aD8
（4）$y \forall \Gamma 28 \partial D 8$
（A） 1
（B） 2
（C） 3
（D） 4

21．Choose the alternative which is closely resembles the mirror image of the given combination． EFFECTIVE
（1）ヨVITフヨキヲヨ
（2）EVITCEFFE
（3）ヨコヨヨコTIVヨ
（4）ヨVIT〇ヨFヨヨ
（A） 1
（B） 2
（C） 3
（D） 4

22．Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures Problem Figures： Answer Figures：

（A） 1
（B）（C
（D）（E）
（1）
（2）
（3）
（4）
（5）
（A） 1
（B） 2
（C） 3
（D） 5

23．Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line．


（1）

（2）

（3）

（4）
（A） 1
（C） 3
（D） 4
24．Select the figure which satisfies the same conditions of placement of the dots as in Figure－X．

（X）

（1）

（2）

（3）

（4）
（A） 1
（B） 2
（C） 3
（D） 4
25. What is the remainder when $16^{3}+17^{3}+18^{3}+19^{3}$ is divided by 70 ?
(A) 35
(B) 2
(C) 5
(D) 0
26. If ${ }^{\text {st }}$ April 1963 was a Monday, then which day of the week will $1^{\text {st }}$ August 1959 be?
(A) Saturday
(B) Monday
(C) Tuesday
(D) Thursday
27. In a certain code language if the word 'CHAMBER' is code as CHADBEI, then how will you code the word 'INDUSTRY' in that language?
(A) IEDUIBIG
(B) IEDCSBIG
(C) IEDCJTIG
(D) IEDCJBIG
28. Find out the missing term of the series.
$\frac{2}{3}, \frac{4}{7}, ?, \frac{11}{21}, \frac{16}{31}$
(A) $\frac{5}{9}$
(B) $\frac{6}{11}$
(C) $\frac{7}{13}$
(D) $\frac{9}{17}$
29. An alloy of iron and nickil weight 50 g . It contains $80 \%$ iron. How much iron should be added to the alloy so that percentage of iron is increased to 90 ?
(A) 50 g
(B) 60 g
(C) 30 g
(D) 40 g
30. A earns $25 \%$ more than B. C earns $25 \%$ more than A. A earns $20 \%$ more than D. E earns $20 \%$ more than A. A, B, C, D, and E earn integer amounts less than Rs. 100. What is the total amount earned by all five of them put together?
(A) Rs. 300
(B) Rs. 245
(C) Rs. 305
(D) Rs. 480

## Space for Rough Work

## Recommended Time: 120 Minutes for Section - II

## Section - II <br> PHYSICS - (PART - A)

This part contains 17 Multiple Choice Questions number 31 to 47. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.
31. Two particles $P$ and $Q$ are projected simultaneously away from each other from a point $A$ as shown in figure. The velocity of $P$ relative to $Q$ in $\mathrm{ms}^{-1}$ at the instant when the motion of $P$ is horizontal is
(A) $10 \sqrt{4-\sqrt{3}}$
(B) $20 \sqrt{4-\sqrt{3}}$
(C) $10 \sqrt{4+\sqrt{3}}$

(D) $20 \sqrt{4+\sqrt{3}}$
32. A particle is projected with speed $u$ at angle $\alpha$ with horizontal to pass over a tower of height $h$. The product of the two possible times taken to pass over the tower is
(A) $\frac{2 u}{g}$
(B) $\frac{2 h}{g}$
(C) $\frac{u}{g}$
(D) $\frac{4 h}{g}$
33. A block of mass 1 kg is placed on the rough horizontal surface of a car moving with a constant acceleration $\mathrm{a}=2 \mathrm{~m} / \mathrm{s}^{2}$ starting from rest as shown. The net work done by frictional force on the block relative to ground in first 4 sec is
(A) 8 Joule
(B) 16 Joule
(C) 32 Joule
(D) 64 Joule

34. A uniform rod of length $L$ and mass $M$ is acted on by two unequal forces $F_{1}$ and $F_{2}\left(F_{2}<F_{1}\right)$ as shown in the figure. The tension in the rod at a distance $y$ from the
 end $A$ is given by
(A) $F_{1}\left(1-\frac{y}{L}\right)+F_{2}\left(\frac{y}{L}\right)$
(B) $F_{2}\left(1-\frac{y}{2}\right)+F_{1}\left(\frac{y}{L}\right)$
(C) $\left(F_{1}-F_{2}\right) \frac{\mathrm{Y}}{\mathrm{L}}$
(D) $\frac{\left(F_{2}+F_{1}\right) y}{L}$
35. A particle moves in $x-y$ plane according to the law $x=4 \sin t$ and $y=4(1-\cos t)$. Then find the distance (in meter) covered by the particle in 2 seconds. ( $x$ and $y$ are in meters)
(A) 8
(B) 4
(C) 10
(D) 16
36. A block of mass $m$ is pushed down on a rough inclined plane (coefficient of friction is 0.25 ) with a velocity $v_{0}$ as shown in the figure. Then, the block will
(A) decelerate and come to rest
(B) accelerate downward
(C) move downward with velocity $\mathrm{v}_{0}$

(D) first accelerate then decelerate
37. A man walking eastward at $5 \mathrm{~m} / \mathrm{s}$ observes that wind is blowing from the north. On doubling his speed eastward, he observes that wind is blowing from north-east. The velocity of the wind is
(A) $\vec{v}_{w}=-5 \hat{i}-5 \hat{j} \mathrm{~m} / \mathrm{s}$
(B) $\vec{v}_{w}=5 \hat{i}+5 \hat{j} \mathrm{~m} / \mathrm{s}$
(C) $\vec{v}_{w}=5 \hat{i}-5 \hat{j} \mathrm{~m} / \mathrm{s}$
(D) $\vec{v}_{w}=-5 \hat{i}+5 \hat{j} \mathrm{~m} / \mathrm{s}$

38. If magnitude of vector product is $\sqrt{3}$ times the magnitude of scalar product, then angle between the two vector is
(A) $\pi / 2$
(B) $\pi / 6$
(C) $\pi / 3$
(D) $\pi / 4$
39. In the figure shown the pulley P is pulled up with an acceleration of 2 $\mathrm{m} / \mathrm{s}^{2}$. Block $A$ is moving down with an acceleration of $1 \mathrm{~m} / \mathrm{s}^{2}$. The acceleration of block B is:
(A) $2.5 \mathrm{~m} / \mathrm{s}^{2}$ in downward direction
(B) $2.5 \mathrm{~m} / \mathrm{s}^{2}$ in upward direction
(C) $9 \mathrm{~m} / \mathrm{s}^{2}$ in upward direction
(D) $3 \mathrm{~m} / \mathrm{s}^{2}$ in downward direction

40. Given $\overrightarrow{\mathrm{F}}=\left(x y^{2}\right) \hat{i}+\left(x^{2} y\right) \hat{\mathrm{j}}$ Newton. Find the work done by $\overrightarrow{\mathrm{F}}$ when a particle is taken along the semicircular path OAB where the co-ordinates of $B$ are $(4,0)$.
(A) $\frac{65}{3} \mathrm{~J}$
(B) $\frac{75}{2} \mathrm{~J}$
(C) $\frac{73}{4} \mathrm{~J}$
(D) 0 J

41. When a body of mass $M$ slides down an inclined plane of inclination $\theta$, through a distance $s$, the work done by normal reaction is: ( $\mu$ is coefficient of friction)
(A) zero
(B) $\mu M g \sin \theta s$
(C) $M g(\mu \cos \theta-\sin \theta) s$
(D) $\mu \mathrm{Mg} \cos \theta \mathrm{s}$
42. A block of mass 10 kg accelerates uniformly from rest to a speed of $2 \mathrm{~m} / \mathrm{s}$ in 20 second. The average power at in time interval 0 to 20 second is
(A) 10 W
(B) 1 W
(C) 20 W
(D) 2 W
43. A particle is moving eastwards with velocity of $5 \mathrm{~m} / \mathrm{sec}$. In 10 seconds, the velocity changes to 5 $\mathrm{m} / \mathrm{sec}$ northwards. The average acceleration in this time is:
(A) $\frac{1}{\sqrt{2}} \mathrm{~m} / \sec ^{2}$ towards north-west
(B) $\frac{1}{\sqrt{2}} \mathrm{~m} / \sec ^{2}$ towards north-east
(C) D
(D) $\frac{1}{2} \mathrm{~m} / \sec ^{2}$ towards north
44. A 1000 Kg aeroplane moves in straight flight with a constant velocity. The force of air friction is 1800 N . The net force on the plane is
(A) zero
(B) 1800 N
(C) 9000 N
(D) 3600 N
45. Work - energy theorem is valid in the presence of
(A) external forces only.
(B) internal forces only.
(C) conservative forces only.
(D) all types of forces.
46. Two blocks of mass 5 kg and 10 kg respectively are connected by a massless string as shown in the figure. The whole system is kept on a frictionless surface. A force of 50 N is applied horizontally as shown in the figure. The tension T in the string will be
(A) $\frac{50}{3} \mathrm{~N}$
(B) 25 N
(C) 50 N
(D) $\frac{100}{3} \mathrm{~N}$
47. Find the acceleration of blocks of mass m. Assume pulleys are massless and frictionless.
(A) $g / 3$
(B) $2 g / 3$
(C) $g / 2$
(D) $g / 6$


Space for Rough Work

## CHEMISTRY - (PART - B)

## This part contains 17 Multiple Choice Guestions number 48 to 64. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.

48. When 4 g of $\mathrm{CaCO}_{3}$ and sand mixture is treated with excess of $\mathrm{HCl}, 0.88 \mathrm{~g}$ of $\mathrm{CO}_{2}$ is produced. Calculate \% weight of $\mathrm{CaCO}_{3}$.
(A) 40
(B) 50
(C) 60
(D) 70
49. To obtain maximum mass of $\mathrm{NO}_{2}$ from a given mass of a mixture of $\mathrm{NH}_{3}$ and $\mathrm{O}_{2}$, the ratio of mass of $\mathrm{NH}_{3}$ to $\mathrm{O}_{2}$ should be
$2 \mathrm{NH}_{3}+\frac{7}{2} \mathrm{O}_{2} \rightarrow 2 \mathrm{NO}_{2}+3 \mathrm{H}_{2} \mathrm{O}$
(A) $\frac{17}{40}$
(B) $\frac{4}{7}$
(C) $\frac{17}{56}$
(D) None of these
50. A piece of iron when kept in air increases its weight by $4.28 \%$. What percent of iron has been rusted? (At. Wt. of $\mathrm{Fe}=56, \mathrm{O}=16$ ) Rust is $\mathrm{Fe}_{2} \mathrm{O}_{3}$
(A) $2 \%$
(B) $5 \%$
(C) $10 \%$
(D) $42.8 \%$
51. Bohr radius of a shell in H -atom is $8.46 \AA$. The number of electrons in this shell are:
(A) 2
(B) 8
(C) 18
(D) 32
52. Which atomic number is likely to have the following quantum numbers for the last electron?
$\left(n=3, l=1, m=-1, s=+\frac{1}{2}\right)$
(A) 11
(B) 13
(C) 17
(D) 19
53. The formation of oxide ion $\mathrm{O}^{2-}(\mathrm{g})$ requires first an exothermic and then an endothermic step as shown below:
$\mathrm{O}(\mathrm{g})+\mathrm{e}^{-} \rightarrow \mathrm{O}^{-}(\mathrm{g}) ; \quad \Delta \mathrm{H}^{\circ}=-142 \mathrm{~kJ} \mathrm{~mol}^{-1}$
$\mathrm{O}^{-}(\mathrm{g})+\mathrm{e}^{-} \rightarrow \mathrm{O}^{2-}(\mathrm{g}) ; \quad \Delta \mathrm{H}^{\circ}=+844 \mathrm{~kJ} \mathrm{~mol}^{-1}$
This is because:
(A) oxygen is more electronegative
(B) Oxygen has high electron affinity
(C) $\mathrm{O}^{-}$ion will tend to resist the addition of another electron
(D) $\mathrm{O}^{-}$ion has comparatively larger size than oxygen atom
54. Elements of which set do not belong to the same group but resemble chemically in many properties?
(A) Li and Mg
(B) Be and Al
(C) B and Si
(D) All of these
55. Covalent character is maximum in
(A) NaF
(B) $\mathrm{Na}_{2} \mathrm{O}$
(C) $\mathrm{Na}_{3} \mathrm{~N}$
(D) All equal
56. The given increasing order of energies of various molecular orbitals is not true for which of the following molecules?
$\sigma 1 \mathrm{~s}<\sigma * 1 \mathrm{~s}<\sigma 2 \mathrm{~s}<\sigma * 2 \mathrm{~s}<\left(\pi 2 \mathrm{p}_{\mathrm{x}}=\pi 2 \mathrm{p}_{\mathrm{y}}\right)<\sigma 2 \mathrm{p}_{\mathrm{z}}<\left(\pi * 2 \mathrm{p}_{\mathrm{x}}=\pi * 2 \mathrm{p}_{\mathrm{y}}\right)<\sigma * 2 \mathrm{p}_{z}$
(A) $\mathrm{B}_{2}$
(B) $\mathrm{C}_{2}$
(C) $\mathrm{N}_{2}$
(D) $\mathrm{O}_{2}$
57. In $[\mathrm{O}=\mathrm{C}=\mathrm{C}=\mathrm{C}=\mathrm{O}]$ state of hybridization on each carbon
(A) $\mathrm{sp}^{2} \mathrm{sp} \mathrm{sp}^{2}$
(B) $\mathrm{sp}^{3} \mathrm{sp} \mathrm{sp}$
(C) sp sp sp
(D) $\mathrm{sp}^{2} \mathrm{sp} \mathrm{sp}$
58. Which of the following structures are non superimpossable (Mirror Image)?
(1)

(2)

(3)

(4)

(A) 1 and 2
(C) 1 and 4
(B) 2 and 4
(D) 1 and 3
59. Which of the following acids has the 'smallest' acid dissociation constant?
(A)

(B) $\mathrm{CH}_{3} \mathrm{COOH}$
(C) $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{OH}$
(D)

60. The correct statement about the compound(s) given below are?

(A) ' $P$ ' and ' $Q$ ' are optically inactive.
(B) ' $P$ ' and ' $Q$ ' possesses "Centre of symmetry"
(C) ' $P$ ' optically inactive and ' $Q$ ' optically active
(D) ' $P$ ' optically active and ' $Q$ ' optically inactive
61. Among the following the strongest base is:
(A) $\mathrm{C}_{6} \mathrm{H}_{5} \ddot{\mathrm{~N}}_{2}$
(B) $\mathrm{H}_{5} \mathrm{C}_{6}-\mathrm{CH}_{2}-\ddot{\mathrm{N}}_{2}$
(D)

62. Hyperconjugation involves overlap of the following orbitals:
(A) $\sigma-\sigma$
(B) $\sigma-p$
(C) $p-p$
(D) $\pi-\pi$
63. In the given compound which function group is absent?

(A) Ketone
(B) Ether
(C) Amide
(D) Ester
64. Pure hydrogen is obtained by carrying electrolysis of
(A) water containing $\mathrm{H}_{2} \mathrm{SO}_{4}$
(B) water containing NaOH
(C) $\mathrm{Ba}(\mathrm{OH})_{2}$ solution
(D) KOH solution

## MATHEMATICS - (PART - C)

## This part contains 17 Multiple Choice Questions number 65 to 81. Each question has 4

 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.65. The least integral value of $k$ such that $(k-2) x^{2}+8 x+k+4$ is positive for all real values of $x$ is
(A) 1
(B) 2
(C) 3
(D) 5
66. If $\log _{6} 16=k$, then $\log _{18} 24=$
(A) $\frac{2(k+2)}{k-8}$
(B) $\frac{2(k+2)}{8-k}$
(C) $\frac{k+8}{k}$
(D) $\frac{k}{k+8}$
67. If $\cos \theta-\sin \theta=\sqrt{2} \sin \theta$; Then the value of $\cos \theta+\sin \theta$ is equal to;
(A) $\sqrt{2} \cos \theta$
(B) $-\sqrt{2} \cos \theta$
(C) $2 \cos \theta$
(D) none of these
68. The equations of the lines representing the sides of a triangle are $3 x-4 y=0, x+y=0$ and $2 x-3 y=7$. The line $3 x+2 y=0$ always passes through the
(A) incentre
(B) centroid
(C) circumcentre
(D) orthocentre
69. Value of $\left(1+\tan 21^{\circ}\right)\left(1+\tan 22^{\circ}\right)\left(1+\tan 23^{\circ}\right)\left(1+\tan 24^{\circ}\right)$ is
(A) 4
(B) 2
(C) 1
(D) 0

70 Find value of $\left(1+\cos \frac{\pi}{9}\right)\left(1+\cos \frac{3 \pi}{9}\right)\left(1+\cos \frac{5 \pi}{9}\right)\left(1+\cos \frac{7 \pi}{9}\right)$ ?
(A) $\frac{9}{16}$
(B) $\frac{11}{16}$
(C) $\frac{13}{16}$
(D) $\frac{5}{16}$
71. $\lim _{x \rightarrow 0} \frac{\tan x-\sin x}{x^{3}}$ equals
(A) $\frac{1}{2}$
(B) 0
(C) 1
(D) 2
72. If $A$ and $B$ are two sets and $A^{c}$ denotes complement of set $A$, then $A \cap(A \cup B)^{c}$ equals
(A) $\phi$
(B) A
(C) B
(D) $\mathrm{A} \cap \mathrm{B}$
73. $\lim _{x \rightarrow \frac{\pi}{2}} \frac{1+\cos 2 x}{(\pi-2 x)^{2}}$ equals
(A) 2
(B) 0
(C) 1
(D) $\frac{1}{2}$
74. If $x^{2}-\sqrt{3} x+1=0$, then value of $x^{2020}+x^{2014}+x^{2008}+x^{2002}$ is
(A) 0
(B) $\sqrt{3}$
(C) 1
(D) 2
75. Find minimum value of $\sin ^{4} x+\cos ^{4} x$ ?
(A) 1
(B) $\frac{1}{2}$
(C) $\frac{1}{4}$
(D) 0
76. Value of $\lim _{x \rightarrow a} \frac{\sqrt{a+2 x}-\sqrt{3 x}}{\sqrt{3 a+x}-2 \sqrt{x}}$ ?
(A) $\frac{2}{3 \sqrt{3}}$
(B) $\frac{1}{3 \sqrt{3}}$
(C) $\frac{2}{\sqrt{3}}$
(D) $6 \sqrt{3}$
77. In a class, 63\% students study physics and $76 \%$ students study chemistry. If $x \%$ students study both subjects, then
(A) $\mathrm{x} \leq 35$
(B) $x=64$
(C) $39 \leq x \leq 63$
(D) $x \geq 64$
78. If $a-b, b-c, c-a$ are in A.P., then the straight line $(a-b) x+(b-c) y+(c-a)=0$ will pass through
(A) $(1,2)$
(B) $(2,1)$
(C) $(2,3)$
(D) $(3,1)$
79. The incentre of the triangle formed by the lines $y=|x|$ and $y=1$ is
(A) $(0,2-\sqrt{2})$
(B) $(2-\sqrt{2}, 0)$
(C) $(2+\sqrt{2}, 0)$
(D) $(0,2+\sqrt{2})$
80. If the sum of the reciprocals of the intercepts made by a line on the coordinate axes is $1 / 5$, then the line always passes through
(A) $(5,-5)$
(B) $(-5,5)$
(C) $(-5,-5)$
(D) $(5,5)$
81. Equation of a line passing through the intersection of the lines $2 x+y=3$ and $x+y=1$ and perpendicular to the line $y=2 x+k$ is
(A) $x-2 y=0$
(B) $x+2 y=0$
(C) $y-x=0$
(D) $y+x=0$

## Space for Rough Work

## FIITJ EE Big Bang Edge Test - 2022 for studens prosenty in Class 11 (going to 12) (Paper 1) SAMPLE PAPER ANSWER KEY

| 1. | B | 2. | B | 3. | B | 4. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5. | D | 6. | A | 7. | C | 8. |
| 9. | C | 10. | D | 11. | D | 12. |
| 13. | D | 14. | D | 15. | A | 16. |
| 17. | B | 18. | B | 19. | C | 20. |
| 21. | A | 22. | D | 23. | C | 24. |
| 25. | D | 26. | A | 27. | D | 28. |
| 29. | A | 30. | C | 31. | B | 32. |
| 33. | C | 34. | A | 35. | A | 36. |
| 37. | C | 38. | C | 39. | C | 40. |
| 41. | A | 42. | B |  | A | 44. |
| 45. | D | 46. | A | 47. | B | 48. |
| 49. | C | 50. | C | 51. | D | 52. |
| 53. | C | 54. | D | 55. | C | 56. |
| 57. | C | 58. | A | 59. | C | 60. |
| 61. | C | 62. | B | 63. | B | 64. |
| 65. | D |  | B | 67. | A | 68. |
| 69. | A |  | A | 71. | A | 72. |
| 73. | D |  | A | 75. | B | 76. |
| 77. | C | 78. | A | 79. | A | 80. |

[^0]
[^0]:    81. B
