BIG BANG
EDGE TEST

SAMPLE PAPER
For Students presently in Class XI

Paper 2

JEE Advanced

Paper Code: 1112-2

Duration : 135 minutes *Maximum Marks : 201*

Please read the instructions and guidelines carefully :

Important Note : Please ensure to accurately input the details for the Question Paper Code as indicated at the top of this sheet (Side 2) into the corresponding columns / fields on the OMR sheet before proceeding with the paper. Incorrectly filled information regarding the class or paper may result in inaccurate outcomes or results.

"This paper has been scientifically designed to evaluate your potential – manifested and hidden for the target examinations mentioned in various sections of the paper. Thus, your adherence to the instructions is critical in the evaluation of the same"

1. This Question paper consists of 2 sections.
2. Student should devote allotted time for each section. If a section is easy, then it is easy for everyone & was meant to be like that with a goal in mind. Do not switch over to another section if you find the section to be easy. If a section is tough, then it is tough for everyone. You are advised to spend 60 Minutes on Section-I and 75 Minutes on Section-II. Dedicating the required time to finish each section successfully is essential. Opening the next section before completing the allotted time for the preceding section is not permitted. This adherence is crucial for assessing your true potential, as each section is meticulously crafted to evaluate your potential for the corresponding competitive examinations.
3. Candidate should open the seal of Section-II only after devoting 60 minutes on Section-I.
4. Sheets will be given to each candidate for rough work. Candidate must fill all details on the rough sheet and submit the same to invigilator along with OMR sheet. Candidate must mention the Question No. while doing the rough work in the sheet.
5. Please note candidates are not allowed to bring any prohibited items into the exam hall such as electronic devices, mobile phones, smart watch, earphones, calculators, books, notes, formula sheets, and bags.
6. Marking scheme is given in table below:

Section	Subject		Question no.	Marking Scheme for each question	
				Correct answer	Wrong answer
SECTION – I (JEE Advanced) Time Allotted: 60 Minutes	**Higher Order Thinking Skills (IQ)**		**1 to 30**	**+3**	**–1**
SECTION – II (JEE Advanced) Time Allotted: 75 Minutes	**PHYSICS**	**(PART-A)**	**31 to 33**	**+3**	**–1**
	CHEMISTRY	**(PART-B)**	**34 to 36**	**+3**	**–1**
	MATHEMATICS	**(PART-C)**	**37 to 39**	**+3**	**–1**
	PHYSICS	**(PART-D)**	**40 to 41**	**+4 *Partial Marking**	**–2**
	CHEMISTRY	**(PART-E)**	**42 to 43**	**+4 *Partial Marking**	**–2**
	MATHEMATICS	**(PART-F)**	**44 to 45**	**+4 *Partial Marking**	**–2**
	PHYSICS	**(PART-G)**	**46 to 50**	**+4**	**–1**
	CHEMISTRY	**(PART-H)**	**51 to 55**	**+4**	**–1**
	MATHEMATICS	**(PART-I)**	**56 to 60**	**+4**	**–1**

*** Partial Marking: (Q. No. 40 to 45):**

Full Marks	**: +4**	If only (all) the correct option(s) is(are) chosen;
Partial Marks	**: +3**	If all the four options are correct but ONLY three options are chosen;
Partial Marks	**: +2**	If three or more options are correct but ONLY two options are chosen, both of which are correct;
Partial Marks	**: +1**	If two or more options are correct but ONLY one option is chosen and it is a correct option;
Zero Marks	**: 0**	If none of the options is chosen (i.e. the question is unanswered)
Negative Marks	**: -2**	In all other cases.

Section – I

Time: 60 Minutes

HIGHER ORDER THINKING SKILLS (IQ)

*This part contains **18 Multiple Choice Questions** number **1 to 18.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. If '-' stands for 'division', '+' for 'multiplication', '÷' for 'subtraction' and '×' for 'addition', which one of the following equations is correct?
   (A) $6+20-12\div7-1=38$ (B) $6-20\div12\times7+1=57$
   (C) $6+20-12\div7\times1=62$ (D) $6\div20\times12+7-1=70$

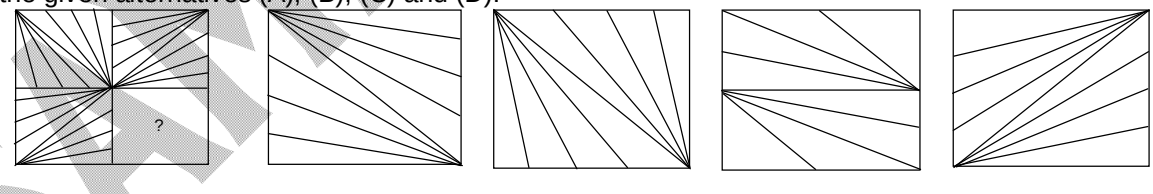
2. If A is B's brother, B is C's sister and C is D's father, then D is A's
   (A) Brother (B) Niece
   (C) Nephew (D) Data inadequate

3. If a year starts and ends with Sunday then how many Sundays are there in that year?
   (A) 51 (B) 52
   (C) 53 (D) Either (B) or (C)

4. In a certain code language if the word 'CONCEPT' is coded as DQQGJVA, then how will you code the word 'EXECUTION' in that language?
   (A) FZHEGZZPW (B) FZHGYZPWW
   (C) FZHGZZPXW (D) FZHGZZPWW

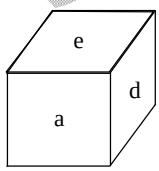
5. In a certain code language, if the value of $13\times14=23$ and $28\times57=81$, then what is the value of 65×49?
   (A) 100 (B) 90
   (C) 110 (D) 120

6. In the question given below, complete the missing portion of the given pattern by selecting from the given alternatives (A), (B), (C) and (D).



(X) (A) (B) (C) (D)

7. In a dice a, b, c and d are written on the adjacent faces, in a clockwise order and e and f at the top and bottom. When c is at the top, what will be at the bottom?



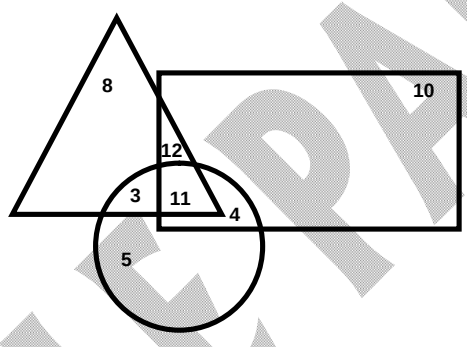
   (A) a (B) b
   (C) c (D) e

8. One evening Suma and her friend Rama are standing opposite each other. Suma found that her shadow is falling towards her right. Which direction is Rama facing?
(A) South (B) North
(C) East (D) West

9. A clock is so placed that at 3 P.M., the minute hand points towards North – West. In which direction does the hour hand point at 9 A.M.?
(A) North – east (B) South – west
(C) North (D) South

10. In a row of 35 students Rakesh when shifted by six places toward his right, then he becomes eighteenth from right. Then what was Rakesh's previous position from left before shifting?
(A) 10 (B) 13
(C) 12 (D) 11

11. In the following figure, the triangle represents the students who passed in Physics, the rectangle represents the students who passed in Chemistry and the circle represents the students who passed in Mathematics in a class.



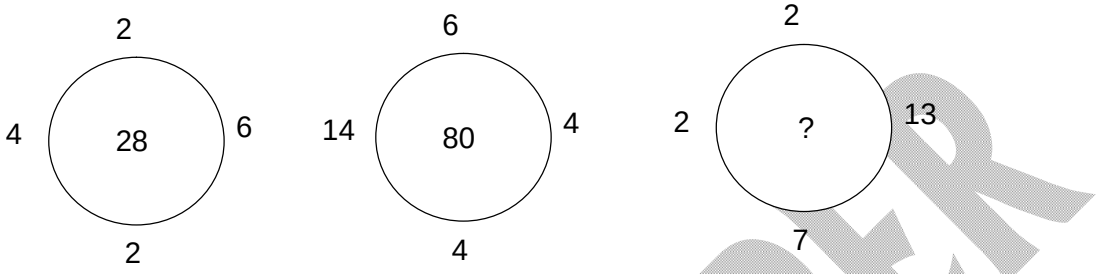
How many students passed in Chemistry but not in Mathematics?
(A) 22 (B) 11
(C) 18 (D) 17

12. The questions given below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.
Read both the statements and give the answer as:
(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 given in both statements I and II together are necessary to answer the question.
How many New Year's greeting cards were sold this year in your shop?
I. Last year 2935 cards were sold
II. The number of cards sold this year was 1.2 times that of last year.

13. A group of 1200 persons consisting of captains and soldiers is travelling in a train. For every 15 soldiers there is one captain. The number of captains in the group is
(A) 85 (B) 80
(C) 75 (D) 70

14. A number of friends decided to go on a picnic and planned to spend Rs. 960 on food. Four of them, however, did not turn up. As a consequence, the remaining ones had to contribute Rs. 40 each extra. The number of those who attended the picnic was
(A) 8 (B) 12
(C) 16 (D) 24

15. Insert the missing term in the questions given below.



(A) 40 (B) 32
(C) 35 (D) 30

16. If a meaningful word can be formed by re-arranging the letters USCALA; the last letter of the word so formed is the answer. Which one is that?
(A) C (B) S
(C) A (D) L

17. A vendor purchased 40 dozen bananas for Rs. 250. Out of these 30 bananas were rotten and could not be sold. At what rate per dozen should he sell the remaining bananas to make a profit a of 20%?
(A) Rs. 12 (B) Rs. 10
(C) Rs. 8 (D) Rs. 6

18. The difference between CI and SI for 3 years is 992. If the rate of Interest is 10%. Find the Principal?
(A) 22000 (B) 30000
(C) 28000 (D) 32000

*This part contains **FOUR (04)** comprehensions**.** Based on each comprehension, there are **THREE (03)** questions of **Multiple Choice Questions**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

Comprehension for Q. No. 19 to 21

Select the correct alternative which will continue the series in the questions given below:

19. 2, 8, 4, 64, 7, 343, 11, 1331, 16, ___
(A) 4286 (B) 3916
(C) 4096 (D) 4196

20. 17, 34, 102, 408, 2040, ___
(A) 13220 (B) 12240
(C) 12420 (D) 12680

21. 13, 14, 22, 49, 113, ___, 454
(A) 248 (B) 224
(C) 256 (D) 238

Comprehension for Q. No. 22 to 24

One hundred and twenty – five cubes of the same size are arranged in the form of cube on a table. Then a column of five cubes is removed from each of the four corners. All the exposed faces of the rest of the solid (except the face touching the table) are coloured red. Now, answer these questions based on the above statement:

22. How many small cubes are there in the solid after the removal of the columns?
(A) 120 (B) 110
(C) 105 (D) 100

23. How many cubes do not have any coloured face?
(A) 12 (B) 24
(C) 36 (D) 48

24. How many cubes have more than two coloured faces each?
(A) 8 (B) 20
(C) 36 (D) 44

Comprehension for Q. No. 25 to 27

These questions are based on the following information.

Five boys – Kittu, Bittu, Chintu, Dattu and Mittu went to a movie and they are sitting in a row of five chairs facing the screen. Some information regarding the order in which these five boys entered the theatre and seated in the theater is given below.

(i) No two boys among them went into the theatre at the same time.
(ii) The first and the last boy to enter the theatre are not sitting at any of the extreme ends of the row.
(iii) Chintu was sitting to the immediate left to Dattu.
(iv) Between Bittu and Mittu exactly one boy is sitting.
(v) The boy who came second is sitting at the extreme left of the row.
(vi) Bittu entered fifth and Kittu entered just before Dattu.

25. Who entered first?
(A) Kittu (B) Chintu
(C) Dattu (D) Mittu

26. Who is sitting at the middle of the row?
(A) Kittu (B) Bittu
(C) Chintu (D) Dattu

27. Who is sitting at the extreme left of the row?
(A) Mittu (B) Bittu
(C) Chintu (D) Kittu

Comprehension for Q. No. 28 to 30

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.

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

29. 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

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

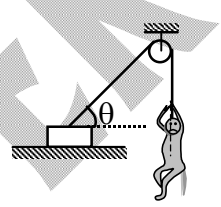
Section – II

Time: 75 Minutes

PHYSICS (PART – A)

*This part contains **3 Multiple Choice Questions** number **31 to 33.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

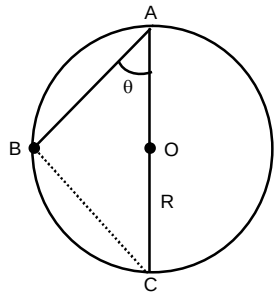
31. A block of mass m rests on a rough horizontal surface with a rope tied to it. The co-efficient of friction between the surface and the block is μ. A monkey of the same mass climbs at the free end of the rope. The maximum acceleration with which the monkey can climb without moving the block is



(A) $\frac{\mu g}{\mu \sin\theta + \cos\theta} - g$ (B) $\frac{\mu g}{\mu \sin\theta - \cos\theta} + g$

(C) $\frac{\mu g}{\tan\theta - \mu\cos\theta} + g$ (D) $\frac{\mu g}{\tan\theta + \mu\sec\theta} - g$

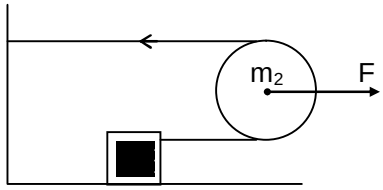
32. A frictionless wire AB fixed on a sphere of radius R. A very small spherical ball slips on this wire. The time taken by this ball to slip from A to B is



(A) $\frac{2\sqrt{gR}}{g\cos\theta}$ (B) $2\sqrt{gR}\frac{\cos\theta}{g}$

(C) $2\sqrt{\frac{R}{g}}$ (D) $\frac{gR}{\sqrt{g}\cos\theta}$

33. A horizontal force F is applied to a frictionless pulley of mass m_2. The horizontal surface is smooth. The acceleration of the block of mass m_1 is n times the acceleration of the pulley. The value of n is



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

CHEMISTRY (PART – B)

*This part contains **3 Multiple Choice Questions** number **34 to 36.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

34. How many maximum no. of electrons of an atom will have n + l = 5?
(A) 8 (B) 12
(C) 10 (D) 18

35. Consider a period of the periodic table?

P Q R S T U V W

The period contains non-transition elements. Which of the following is/are isoelectronic species?

(A) R^-, S, U^{2+}, T^+ (B) Q^-, R^{2-}, S, T^{2+}

(C) P^{2-}, Q, R^+, S^{2+} (D) R^{2-}, T, S^+, U^+

36. What is the equivalent mass of $(NH_4)_2Cr_2O_7$ (Molecular mass = M) in the following reaction?

$$(NH_4)_2 Cr_2O_7 \longrightarrow Cr_2O_3 + N_2 + 4H_2O$$

(A) $\frac{M}{2}$ (B) $\frac{M}{4}$

(C) $\frac{M}{6}$ (D) $\frac{M}{3}$

MATHEMATICS (PART – C)

*This part contains **3 Multiple Choice Questions** number **37 to 39.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

37. $\lim\limits_{x\to\frac{\pi}{4}} \frac{1-\cot^3 x}{2-\cot x-\cot^3 x}$ is

(A) $\frac{11}{4}$ (B) $\frac{3}{4}$

(C) $\frac{1}{2}$ (D) none of these

38. If three points (h, 0), (a, b) and (0, k) lie on a line then

(A) $ah+bk=1$ (B) $\frac{a}{h}+\frac{b}{k}=1$

(C) $ak+bh=1$ (D) $\frac{a}{k}+\frac{b}{h}=1$

39. If $\cos\theta_1 + 2\cos\theta_2 + 3\cos\theta_3 = 6$ then $\tan\theta_1 + \tan\theta_2 + \tan\theta_3$ equals to

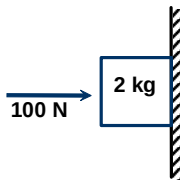
(A) 1/2 (B) 6

(C) 0 (D) 3

PHYSICS (PART – D)

*This part contains **2 Multiple Choice Multi Correct Type Questions** number **40 to 41.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONE OR MORE THAN ONE** is/are correct.*

40. A block of mass 2 kg is pressed against a rigid vertical wall by a horizontal force of 100 N. If co-efficient of static and kinetic friction are each equal to 0.3, then



(A) the magnitude of friction is 20 N

(B) direction of frictional force on the block is vertically upward

(C) the magnitude of friction is 40 N

(D) direction of frictional force on the block is vertically downward

41. Velocity of a particle moving in a curvilinear path varies with time as $\vec{V} = \left(2t\hat{i} + t^2\hat{j}\right) m/s$. Where t is in sec.
At t = 1 sec
(A) acceleration of particle is $8 m/s^2$
(B) tangential acceleration of particle is $\frac{6}{\sqrt{5}} m/s^2$
(C) Radial acceleration of particle is $\frac{2}{\sqrt{5}} m/s^2$
(D) Radius of curvature to the paths is $\frac{5\sqrt{5}}{2} m$

CHEMISTRY (PART – E)

*This part contains **2 Multiple Choice Multi Correct Type Questions** number **42 to 43.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONE OR MORE THAN ONE** is/are correct.*

42. Which of the following statement/s is/are correct?
(A) The electronic configuration of Cr is $[Ar]3d^5 4s^1$
(B) The magnetic quantum number may have a negative value
(C) In Ag atom, 23 electrons have a spin of one type and 24 of the opposite type.
(D) The oxidation state of N is NH_3 is –3.

43. Reduction of the metal centre in aq. permanganate ion involves
(A) 3 electrons in neutral medium
(B) 5 electrons in neutral medium
(C) 3 electrons in alkaline medium
(D) 5 electrons in acidic medium

MATHEMATICS (PART – F)

*This part contains **2 Multiple Choice Multi Correct Type Questions** number **44 to 45.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONE OR MORE THAN ONE** is/are correct.*

44. If α & β be the solutions of $a.\cos\theta + b\sin\theta$ = c then
(A) $\sin\alpha + \sin\beta = \frac{2bc}{a^2+b^2}$
(B) $\sin\alpha.\sin\beta = \frac{c^2-a^2}{a^2+b^2}$
(C) $\cos\alpha + \cos\beta = \frac{2ac}{a^2+b^2}$
(D) $\cos\alpha.\cos\beta = \frac{c^2-b^2}{a^2+b^2}$

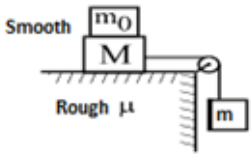
45. If $A(-3,-2)$ and $B(2,1)$ are two points in the Cartesian plane, which of the following lines divides A and B externally
(A) $6x-3y=2$
(B) $3y-3x-9=0$
(C) $x+y+13=0$
(D) $2x+y=18$

PHYSICS (PART – G)

*This part contains **TWO (02)** comprehensions. Based on **1st comprehension**, there are **THREE (03)** questions of **Multiple Choice Questions** and **2nd comprehension;** there are **TWO (02)** questions of **Multiple Choice Questions.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

Comprehension for Q. No. 46 to 48

A smooth block of mass M is placed on a rough horizontal surface and it is tied with an inextensible string to a block of mass m, as shown in figure. A block of mass m_0 is also placed on M



46. The minimum value of μ for which the block m remains stationary is

(A) $\frac{m}{M}$ (B) $\frac{m}{M+m_0}$

(C) $\frac{M+m_0}{M}$ (D) $\frac{M}{M+m_0}$

47. If $\mu < \mu_{min}$ (where μ_{min} is the minimum co-efficient of friction required to keep the block m stationary), then the downward acceleration of m is

(A) $\left[\frac{m-\mu M}{m+M}\right]g$ (B) $\left[\frac{m-\mu(m_0+M)}{m+m_0+M}\right]g$

(C) $\left[\frac{m-\mu(m_0+M)}{m+M}\right]g$ (D) $\left[\frac{m-\mu M}{m+m_0+M}\right]g$

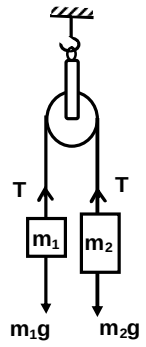
48. In previous problem, the tension in the string will be

(A) $\frac{mM}{m+M}g$ (B) $\frac{m(m_0+M)}{m+m_0+M}g$

(C) $\left[\frac{m+\mu(m_0+M)}{m+M}\right]Mg$ (D) $\left[\frac{mM+\mu m(m_0+M)}{m+M}\right]g$

Comprehension for Q. No. 49 to 50

Consider the case of two bodies of masses m_1 and m_2 which are connected by light inextensible string passing over a light smooth pulley as shown in the figure. The expression for acceleration of the system and tension of the string are expressed below under different situations:



(i) when $m_1 > m_2$. In this case

$$a=\left(\frac{m_1-m_2}{m_1+m_2}\right)g \text{ and } T=\left(\frac{2m_1m_2}{m_1+m_2}\right)g$$

(ii) when $m_2 > m_1$. In this case

$$a=\left(\frac{m_2-m_1}{m_1+m_2}\right)g \text{ and } T=\left(\frac{2m_1m_2}{m_1+m_2}\right)g$$

(iii) When $m_1 = m_2 = m$. In this case a = 0, T = mg

Answer the following questions:

49. If $m_1 = 10$ kg, $m_2 = 6$ kg and $g = 10$ m/s^2 then what is the acceleration of masses?
(A) 2.5 m/s^2 (B) 5 m/s^2
(C) 20 m/s^2 (D) 40 m/s^2

50. What is the tension in the string?
(A) 60 N (B) 75 N
(C) 100 N (D) 600 N

CHEMISTRY (PART – H)

*This part contains **TWO (02)** comprehensions. Based on **1st comprehension**, there are **THREE (03)** questions of **Multiple Choice Questions** and **2nd comprehension;** there are **TWO (02)** questions of **Multiple Choice Questions.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

Comprehension for Q. No. 51 to 53

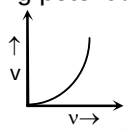
According to Einstein for Photoelectric effect:

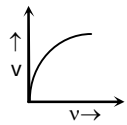
$K.E._{\max}$ = Energy absorbed – work function

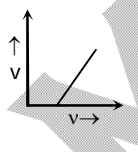
$$\frac{1}{2}mv_{\max}^2 = h\nu - h\nu_0 = hc\left(\frac{1}{\lambda} - \frac{1}{\lambda_0}\right)$$

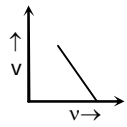
ν_0 and λ_0 are threshold frequency and threshold wavelength respectively. Stopping potential is the minimum potential at which the photoelectric current becomes zero.

51. Which of the following is the graph between the frequency (ν) of the inclined radiation and the stopping potential (v)?

(A) 

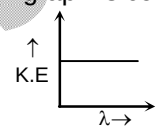
(B) 

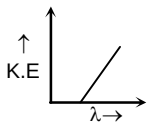
(C) 

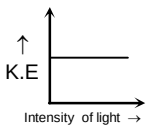
(D) 

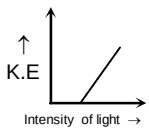
52. In the photoelectric effect, the slope of straight line graph between stopping potential (v_0) and the frequency of the incident light ν gives
(A) charge on electron
(B) work function of emitter
(C) Planck's constant
(D) ratio of Planck's constant to charge on electron

53. Which graph is correct?

(A) 

(B) 

(C) 

(D) 

Comprehension for Q. No. 54 to 55

Sigma bonds are formed by the overlap of orbitals along the internuclear axis and pi bond by the lateral overlap. The shape of the molecule/ion is decided by the orientation of the sigma bonds. The shape is also responsible for the dipole moment which arises due to orientation of polar bonds (resulting due to electronegativity difference)

54. π orbital overlap involves
(A) "end-on" bonding with s-orbitals
(B) overlap of an s and p orbital
(C) 'sideway' approach of pairs of p orbitals
(D) production of a bonding but not an antibonding orbital

55. Zero dipole moment belongs to
(A) SO_2 (B) NH_3
(C) F_2O (D) XeF_2

MATHEMATICS (PART – I)

*This part contains **TWO (02)** comprehensions. Based on **1st comprehension**, there are **THREE (03)** questions of **Multiple Choice Questions** and **2nd comprehension;** there are **TWO (02)** questions of **Multiple Choice Questions.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

Comprehension for Q. No. 56 to 58

A (1,3) and $C(-2/5,-2/5)$ are the vertices of a triangle ABC and the equation of the internal angle bisector of $\angle ABC$ is $x+y=2$.

56. Equation of side BC is
(A) $7x+3y-4=0$ (B) $7x+3y+4=0$
(C) $7x-3y+4=0$ (D) $7x-3y-4=0$

57. Coordinates of vertex B are
(A) $(3/10,17/10)$ (B) $(17/10,3/10)$
(C) $(-5/2,9/2)$ (D) $(1,1)$

58. Equation of side AB is
(A) $3x+7y=24$ (B) $3x+7y+24=0$
(C) $13x+7y+8=0$ (D) $13x-7y+8=0$

Comprehension for Q. No. 59 to 60

If $P_n=\sin^n\theta+\cos^n\theta$ where $n\in W$ (whole number) and $\theta\in R$ (real number)

59. If $P_1=m$, then the value of $4(1-P_6)$ is
(A) $3(m-1)^2$ (B) $3(m^2-1)^2$
(C) $3(m+1)^2$ (D) $3(m^2+1)^2$

60. The value of $2P_6-3P_4+10$ is
(A) 0 (B) 6
(C) 9 (D) 15

BIG BANG
EDGE TEST

SAMPLE PAPER

For Students presently in Class XI

Paper 2

JEE Advanced

Paper Code: 1112-2

ANSWER KEYS

1.	**D**	2.	**D**	3.	**C**	4.	**D**
5.	**C**	6.	**B**	7.	**A**	8.	**A**
9.	**B**	10.	**C**	11.	**A**	12.	**D**
13.	**C**	14.	**A**	15.	**A**	16.	**D**
17.	**C**	18.	**D**	19.	**C**	20.	**B**
21.	**D**	22.	**C**	23.	**C**	24.	**A**
25.	**B**	26.	**B**	27.	**A**	28.	**B**
29.	**C**	30.	**D**	31.	**A**	32.	**C**
33.	**B**	34.	**D**	35.	**A**	36.	**C**
37.	**B**	38.	**B**	39.	**C**	40.	**A, B**
41.	**B, C, D**	42.	**A, B, C, D**	43.	**A, D**	44.	**A, B, C, D**
45.	**B, C, D**	46.	**B**	47.	**C**	48.	**D**
49.	**A**	50.	**B**	51.	**C**	52.	**D**
53.	**C**	54.	**C**	55.	**D**	56.	**B**
57.	**C**	58.	**A**	59.	**B**	60.	**C**