FIITJEE Big Bang Edge Test - 2022

for students presently in Class 10 (going to 11) (Paper 1)

Time: 3 Hours (9:00 am – 12:00 pm) **CODE: 1011-1** *Maximum Marks: 246*

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 TEST		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 75	**+3**	**0**
	CHEMISTRY	(PART-B)	76 to 84	**+3**	**0**
	MATHEMATICS	(PART-C)	85 to 94	**+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* ***94*** *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.*

1. In a class, 70% student can speak English, 65% can speak Hindi and 27% can speak neither English nor Hindi. If 124 students can speak both languages then find the no. of students who can speak only Hindi.
   (A) 6   (B) 8   (C) 10   (D) 24

2. Sahir can do a work 3 times faster than Navish. If Sahir takes 20 days less than Navish to complete the work, then how much time Navish will take to do the work ?
   (A) 30   (B) 10   (C) 20   (D) 40

3. In a beaker two liquid A & B are in 3 : 1. Find how much mixture should be taken out that after pouring same amount of liquid B in beaker, the ratio becomes 1 : 1.
   (A) $\dfrac{1}{4}$ (B) $\dfrac{1}{3}$ (C) $\dfrac{3}{4}$ (D) $\dfrac{2}{3}$

4. The incomes of A and B are in the ratio 3 : 2 and their expenditures are in the ratio 5 : 3. If each saves Rs. 1000, then, A's income can be
   (A) Rs. 3000   (B) Rs. 4000   (C) Rs. 6000   (D) Rs. 9000

5. P3C, R5F, T8I, V12L, ?
   (A) X16'O'   (B) Y17'O'   (C) X17M   (D) X17'O'

6. a_b_c_a_bc_b_cb
   (A) acbcab   (B) ccbcca   (C) ccaccb   (D) cacabe

7. If 6th March, 2005 is Monday, what was the day of the week on 6th March, 2004?
   (A) Sunday   (B) Saturday   (C) Tuesday   (D) Wednesday

8. How many leap years do 300 years have?
   (A) 75   (B) 74   (C) 72   (D) 73

Space for Rough Work

9. At what time between 4 and 5 o'clock will the hands of a clock point in opposite directions?
(A) 54 past 4 (B) (53 + 7/11) past 4 (C) (54 + 8/11) past 4 (D) (54 + 6/11) past 4

10. How many triangles and parallelograms are there in the following figure?
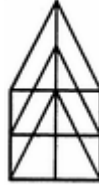
(A) 21, 17 (B) 19, 13 (C) 21, 15 (D) 19, 17

11. The average weight of 8 person's increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?
(A) 76 kg (B) 76.5 kg (C) 85 kg (D) Data inadequate

12. 405 sweets were distributed equally among children in such a way that the number of sweets received by each child is 20% of the total number of children. How many sweets did each child receive?
(A) 15 (B) 45 (C) 9 (D) 18

Directions (Q13 to Q14):
'$P + Q$' means P is father of Q
'$P - Q$' means P is mother of Q
'$P \times Q$' means P is brother of Q
'$P \div Q$' means P is sister of Q

13. Which of the following means 'M is niece of N' ?
(A) $M \times R - N$ (B) $N \div J + M \div D$ (C) $N \div J + M$ (D) $N \times J - M$

14. How is 'M related to K' in the expression '$B + K \div T \times M$' ?
(A) Son (B) Daughter
(C) Son or daughter (D) Data inadequate

15. Aditya moves to his North – West side for 2 km. From there he turned 90° clockwise and moved 2 km. From there he turned 90° clockwise and travelled 2 km then he would be in which direction from the original position?
(A) South East region (B) North East region
(C) South West region (D) Western region

Space for Rough Work

Directions (Question 16 – 17):
Study the following information carefully to answer these questions. A vehicle starts from point P and runs 10 km towards North. It takes a right turn and runs 15 km. It now runs 6 km after talking a left turn. It finally takes a left turn, runs 15 km and stops at point Q.
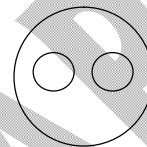
16. How far is point Q with respect to point P?
   (A) 16 km   (B) 25 km
   (C) 4 km   (D) 0 km

17. Towards which direction was the vehicle moving before it stopped at point Q?
   (A) North   (B) East
   (C) South   (D) West

18. Which of the following diagram represents the relationship between Capsules, Antibiotics and Injections?
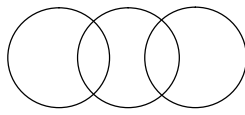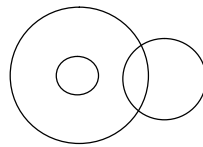
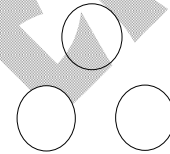   (A)   (B)   (C)   (D)

19. When the time is 10:30, if the minute hand points towards south, the hour hand will point towards
   (A) North east   (B) North west
   (C) South east   (D) South west

20. At what rate percent per annum will the simple interest on a sum of money be $\frac{2}{5}$ of the amount in 10 years?

   (A) 4%   (B) $5\frac{2}{3}\%$ (C) 6%   (D) $6\frac{2}{3}\%$

21. Find the last two-digits of $15 \times 37 \times 63 \times 51 \times 97 \times 17$
   (A) 35   (B) 45   (C) 55   (D) 85

22. What is the remainder when 4^{1000} is divisible by 7?
   (A) 1   (B) 2   (C) 4   (D) None of these

Space for Rough Work

Directions (23-27): Study the information and answer the given questions:

Eight persons A, B, C, D E, F, G and H sit on the line and all of them face north direction but not necessarily in same order. All of them stay in different floors viz. 16th, 19th, 21st, 37th, 49th, 51st, 53rd and 59th of a multi-storey building but not necessarily in same order.

A sits third to right of one who lives on 37th floor. There is only one person sits between the one who lives on 37th and 59th floor. H sits fourth to right of one who lives on 59th floor. There is only one person sits between H and one who lives on 53rd floor. B sits second to right of G. Neither B nor G is an immediate neighbor of A or H. C sits second to right of D. D sits second to left of one who lives on 51st floor. More than four persons sit between D and F. The one who lives on 16th floor sits immediate left of one who lives on 19th floor. A lives neither 16th nor 19th floor. The one who lives on 21st floor does not sit any of the extreme end of the line.

23.   E lives on which floor?
       (A) 37   (B) 16   (C) 21   (D) 19

24.   How many persons sit between D and E?
       (A) two   (B) One   (C) three   (D) four

25.   F lives on which floor?
       (A) 37   (B) 16   (C) 21   (D) 53

26.   Who among following sits immediate left of the person one who lives on 37th floor?
       (A) A   (B) F   (C) D   (D) C

27.   Who among following sits third to right of C?
       (A) H   (B) A   (C) F   (D) G

Direction (Q28): In each of the questions below are given four statements followed by four conclusions numbered I, II, III & IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

28.   **Statements:**
       All papers are clips.
       Some clips are boards.
       Some boards are lanes.
       All lanes are roads.
       Conclusions:
       I. Some roads are boards.
       II. Some lanes are clips.
       III. Some boards are papers.
       IV. Some roads are clips.
       (A) Only I and II follow   (B) Only I and III follow
       (C) Only I, II and III follow   (D) None of these

Space for Rough Work

Directions (29-30): Study the given information and answer the questions:

A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of an input and rearrangement.

      Input: Block 16 alarm 256 bottle 64 tea 121 laptop 4

      Step 1: Laptop 256 Block 16 alarm bottle 64 tea 121 4

      Step2: Laptop 256 alarm 121 Block 16 bottle 64 tea 4

      Step 3: Laptop 256 alarm 121 Block 64 16 bottle tea 4

      Step 4: Laptop 256 alarm 121 Block 64 bottle 16 tea 4

And step 4 is the last step of the above input. As per the rules followed in the above step, find out the appropriate step for the given output.

      Input: Bag 9 mouse 3 ball 225 pray 180 cup 200

29.   What is the penultimate step of this input?

      (A) Step 3   (B) Step 2   (C) Step 4   (D) Step 6

30.   What is the position of 'bag' from left side in Step 2?

      (A) 7th (B) 3rd (C) 2nd (D) 5th
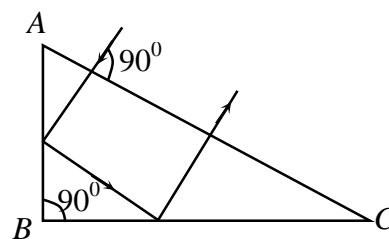
Space for Rough Work

Recommended Time: 60 Minutes for Section – II
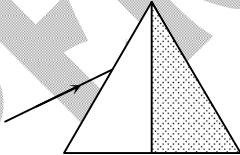
Section – II

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. The minimum distance between the object and its real image for concave mirror is
    (A) *f*   (B) *2f*
    (C) *4f*   (D) Zero

32. For a concave mirror of focal length 20 cm, if the object is at a distance of 30 cm from the pole, then the nature of the image and its magnification will be
    (A) real and –2   (B) virtual and –2
    (C) real and +2   (D) virtual and +2

33. A plano convex lens is made of glass of refractive index 1.5. The radius of curvature of its convex surface is *R*. Its focal length is
    (A) *R*/ 2   (B) *R*
    (C) 2*R*   (D) 1.5 *R*

34. A ray of light falls on a prism *ABC* (*AB* = *BC*) and travels as shown in figure. The refractive index of the prism material should be greater than
    (A) 4/3
    (B) $\sqrt{2}$
    (C) 1.5
    (D) $\sqrt{3}$

35. Image is formed for the short-sighted person at
    (A) Retina   (B) Before retina
    (C) Behind the retina   (D) Image is not formed at all

Space for Rough Work

36. A lens of power +2 diopters is placed in contact with a lens of power –1 diopter. The combination will behave like
(A) A convergent lens of focal length 50 cm
(B) A divergent lens of focal length 100 cm
(C) A convergent lens of focal length 100 cm
(D) A convergent lens of focal length 200 cm

37. The refractive index of water is 4/3 and that of glass is 5/3. Then the critical angle for a ray of light entering in water from glass will be
(A) $\sin^{-1}\left(\dfrac{4}{5}\right)$

(B) $\sin^{-1}\left(\dfrac{5}{4}\right)$

(C) $\sin^{-1}\left(\dfrac{20}{9}\right)$

(D) $\sin^{-1}\left(\dfrac{9}{20}\right)$

38. A light ray is incident upon a prism in minimum deviation position and suffers a deviation of 34°. If the shaded half of the prism is knocked off, the ray will
(A) Suffer a deviation of 34°
(B) Suffer a deviation of 68°
(C) Suffer a deviation of 17°
(D) Not come out of the prism

39. A man can see upto 100 *cm* of the distant object. The power of the lens required to see far objects will be
(A) + 0.5 *D*
(B) + 1.0 *D*
(C) + 2.0 *D*
(D) – 1.0 *D*

40. A person is suffering from myopic defect. He is able to see clear objects placed at 15 *cm*. What type and of what focal length of lens he should use to see clearly the object placed 60 *cm* away
(A) Concave lens of 20 *cm* focal length
(B) Convex lens of 20 *cm* focal length
(C) Concave lens of 12 *cm* focal length
(D) Convex lens of 12 *cm* focal length

41. A ray of light is incidenting normally on a plane mirror. The angle of reflection will be
(A) 0°
(B) 90°
(C) Will not be reflected
(D) None of these

42. An object is at a distance of 0.5 *m* in front of a plane mirror. Distance between the object and image is
(A) 0.5 *m*
(B) 1 *m*
(C) 0.25 *m*
(D) 1.5 *m*

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. What happens when dilute hydrochloric acid is added to iron fillings? Find the correct answer.
(A) Hydrogen gas and Iron chloride are formed (B) Chlorine gas and iron chloride are formed.
(C) No reaction takes place. (D) Iron salts and water are produced.

44. Which of the following is a decomposition reaction?
(A) $2HgO \xrightarrow{\text{Heat}} 2Hg + O_2$ (B) $CaCO_3 \xrightarrow{\text{heat}} CaO + CO_2$
(C) $2H_2O \xrightarrow{\text{Electrolysis}} H_2 + O_2$ (D) All of these

45. When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction is $SO_2 + 2H_2S \rightarrow 2H_2O + 3S$. Here hydrogen sulphide is acting as
(A) an oxidising agent (B) a reducing agent
(C) a dehydrating agent (D) a catalyst

46. The correct order of increasing chemical reactivity of following metals is-
(A) $Zn < Fe < Mg < K$ (B) $Fe < Mg < Zn < K$
(C) $Fe < Mg < K < Zn$ (D) $Fe < Zn < Mg < K$

47. Acid contained in the sting of an ant is _____.
(A) Acetic acid (B) Formic acid
(C) lactic acid (D) Ascorbic acid

48. The colour of pH paper when put in distilled water changed to green. Now some common salt is added to water and pH paper is tested in this solution. The colour of pH paper in this case is likely to be:
(A) Green (B) Yellow
(C) Red (D) Blue

49. Consider the following statements:
(a) Washing soda on strong heating gives sodium oxide and carbon dioxide.
(b) Plaster of Paris is obtained by heating gypsum at 373 K.
(c) Bleaching powder is used for disinfecting drinking water.
Which of these statement(s) is/are correct?
(A) a and b (B) b and c
(C) a and c (D) All are correct.

Space for Rough Work

50. When electricity is passed through an aqueous solution of sodium chloride (called brine):
What is X, Y & where it will produced.
(A) $X = O_2$ at cathode $Y = Cl_2$ at anode
(B) $X = O_2$ at anode $Y = Cl_2$ at cathode
(C) $X = H_2$ at cathode $Y = Cl_2$ at anode
(D) $X = H_2$ at anode $Y = Cl_2$ at cathode

51. Consider the following statements:
(a) On mixing aqueous solution of silver nitrate and sodium bromide no precipitate is formed.
(b) Oxidation reaction always occurs in company of a reduction reaction.
(c) Rancidity of oils and fats is because of their oxidation.
Which of these statements(s) is/are correct?
(A) (a) and (b)
(B) (a) and (c)
(C) (b) and (c)
(D) All are correct

52. Which of the following cannot show acidic nature?
(A) H_2CO_3
(B) $CaCO_3$
(C) HCl
(D) HSO_4^-

53. The pH of 0.001 M sodium hydroxide solution at 25^oC is
(A) 3
(B) 4
(C) 11
(D) 12

54. 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

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. Evaluate tan 15⁰ tan 75⁰

    (A) $\sqrt{3}$ (B) $\dfrac{1}{\sqrt{3}}$ (C) 1   (D) $\dfrac{\sqrt{3}-1}{\sqrt{3}+1}$

56. If u, v, w are real numbers such that $u^3 - 8v^3 - 27w^3 = 18uvw$, which one of the following is correct?

    (A) $u - v + w = 0$ (B) $u = -v = -w$ (C) $u - 2v = 3w$ (D) $u + 2v = -3w$

57. If $\tan x - \tan^2 x = 1$, then the value of $\tan^4 x - 2\tan^3 x - \tan^2 x + 2\tan x + 1$ is

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

58. A vertical pole consists of two parts, the lower part being one third of the whole. At a point in the horizontal plane through the base of the pole and distance 20 metres from it, the upper part of the pole subtends an angle whose tangent is 1/2. The possible heights of the pole are :

    (A) 20 m and $20\sqrt{3}$ m   (B) 20m and 60 m   (C) 16 m and 48 m   (D) None of these

59. In $\triangle ABC$, AD $\perp$ BC at D. BE $\perp$ AC at E. AD and BE meet at F.
    It BF = AC, find $\angle ABC$

    (A) 40⁰   (B) 45⁰   (C) 50⁰   (D) 60⁰

60. If 'α' is an acute angle such that $1 + \cot\alpha - \csc\alpha = \sqrt{3} - 1$, then the value of $1 + \tan\alpha + \sec\alpha$ is

    (A) $\sqrt{3}-1$ (B) $\sqrt{3}+1$ (C) 2   (D) $\dfrac{1}{2}$

61. The value of the expression $\sqrt{3}\csc 20° - \sec 20°$ is equal to :

    (A) 2   (B) $\dfrac{2\sin 20}{\sin 40}$ (C) 4   (D) $\dfrac{4\sin 20}{\sin 40}$

62. The product of two no. is 15120 & their H.C.F. is 6 find how many such pair exist.

    (A) 2   (B) 16   (C) 32   (D) 8

Space for Rough Work

63. If D, E , F are the mid-points of the sides BC, CA and AB respectively of $\triangle ABC$ and if $\angle A = 33°$, $\angle B = 89°$ and $\angle C = 58°$ then values of $\angle D$, $\angle E$ and $\angle F$ of $\triangle DEF$ are :
    (A) 89°, 33°, 58°   (B) 89°, 58°, 33°   (C) 33°, 89°, 58°   (D) 33°, 58°, 89°

64. If $\alpha + \beta = 90°$ and $\alpha = 2\beta$, then $\cos^2 \alpha + \sin^2 \beta$ equals :

    (A) 1   (B) $\dfrac{1}{2}$ (C) 0   (D) 2

65. If f and g are two polynomials of degree 3 and 4 respectively, then what is the degree of f – g.
    (A) 1   (B) 3
    (C) 4   (D) Cannot be determined

66. What is the unit's digit of $142^{111} \times 169^{178} - 273^{141}$?
    (A) 6   (B) 7   (C) 4   (D) 5

Space for Rough Work

# Recommended Time: 60 Minutes for Section – III

Section – III

PHYSICS – (PART – A)

*This part contains **9 Multiple Choice Questions** number **67 to 75**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

67. A concave mirror of focal length *f* produces an image *n* times the size of the object. If the image is real then the distance of the object from the mirror is

(A) $(n-1)f$ (B) $\dfrac{(n-1)}{n}f$ (C) $\dfrac{(n+1)}{n}f$ (D) $(n+1)f$

68. An object of mass *m* is moving with velocity $\vec{u}$ towards a plane mirror kept on a stand as shown in the figure. The mass of the mirror and stand system is *m*. A head-on elastic collision takes place between the object and the mirror stand, the velocity of image before and after the collision is
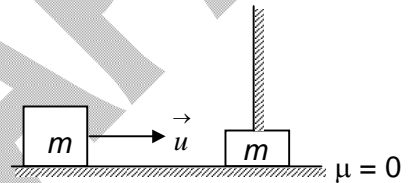
(A) $\vec{u}, 2\vec{u}$

(B) $-\vec{u}, -2\vec{u}$

(C) $-\vec{u}, 2\vec{u}$

(D) $\vec{u}, -2\vec{u}$

69. A ray of light passes through four transparent media with refractive indices μ_1, μ_2, μ_3 and μ_4 as shown in the figure. The surface of all media are parallel. If the emergent ray *CD* is parallel to the incident ray *AB*, then
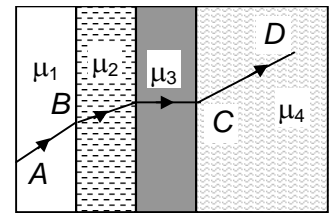
(A) $\mu_1 = \mu_2$ (B) $\mu_2 = \mu_3$

(C) $\mu_3 = \mu_4$ (D) $\mu_4 = \mu_1$

Space for Rough Work

70. Two plane mirrors *A* and *B* are aligned parallel to each other as shown in figure. A light ray is incident at an angle of 30° at a point just inside one end of *A*. The plane of incidence coincides with the plane of the figure. The maximum number of times the ray undergoes reflections (including the first one) before it emerges out is

(A) 28   (B) 30
(C) 32   (D) 34
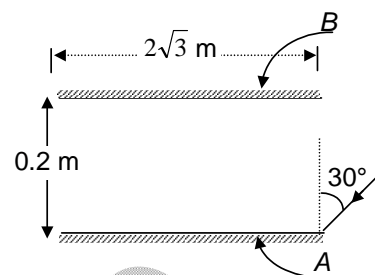
71. Two thin lenses, one of focal length + 60 *cm* and the other of focal length – 20 *cm* are put in contact. The combined focal length is

(A) + 15 *cm*   (B) – 15 *cm*
(C) + 30 *cm*   (D) –30 *cm*

72. Radius of curvature of concave mirror is $40cm$ and the size of virtual image is twice as that of object, then the object distance from mirror is

(A) $60cm$ (B) $20cm$
(C) $40cm$ (D) $30cm$

73. A man can see the object between 15 *cm* and 30 *cm*. He uses the lens to see the far objects. Then due to the lens used, the near point will be at
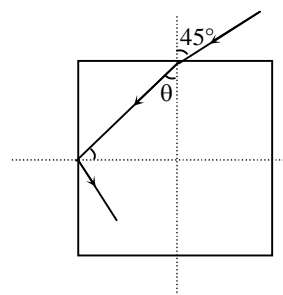
(A) $\dfrac{10}{3}$ *cm*   (B) 30 *cm*

(C) 15 *cm*   (D) $\dfrac{100}{3}$ *cm*

74. The refractive indices of glass and water *w.r.t.* air are 3/2 and 4/3 respectively. The refractive index of glass *w.r.t.* water will be

(A) 8/9   (B) 9/8
(C) 7/6   (D) None of these

75. A light ray falls on a square slab at an angle 45°. What must be the minimum index of refraction of glass, if total internal reflection takes place at the vertical face?

(A) $\dfrac{\sqrt{3}}{2}$ (B) $\sqrt{\dfrac{3}{2}}$

(C) $\dfrac{3}{2}$ (D) $\dfrac{3}{\sqrt{2}}$

Space for Rough Work

CHEMISTRY – (PART – B)

This part contains **9 Multiple Choice Questions** number **76 to 84**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

76. Which one of the following salts does not contain water of crystallisation?
    (A) Blue vitriol
    (B) Baking soda
    (C) Washing soda
    (D) Gypsum

77. Plaster of Paris hardens by:
    (A) giving of CO_2
    (B) changing into $CaCO_3$
    (C) combining with water
    (D) giving out water

78. 'Alum' is an example of-
    (A) single salt
    (B) double salt
    (C) acids
    (D) none of these

79. Which of the following pairs will give displacement reactions?
    (A) $ZnSO_4$ solution and copper metal
    (B) $MgCl_2$ solution and Aluminium metal
    (C) $FeSO_4$ solution and silver metal
    (D) $AgNO_3$ solution and copper metal.

80. Brine is an
    (A) aqueous solution of sodium hydroxide
    (B) aqueous solution of sodium carbonate
    (C) aqueous solution of sodium chloride
    (D) aqueous solution of sodium bicarbonate

81. Which of the following metals forms amphoteric oxide when it reacts with oxygen?
    (A) sodium
    (B) magnesium
    (C) aluminium
    (D) potassium

82. Metals like Gold, Platinum which do not easily react are called:
    (A) active metals
    (B) dull metals
    (C) noble metals
    (D) bright metals.

83. Math the following:

Column-I		Column-II	
(A)	Acetic acid	(p)	Tomato
(B)	Citric acid	(q)	Tamarind
(C)	Tartaric acid	(r)	Orange
(D)	Oxalic acid	(s)	Vinegar
(E)	Lactic acid	(t)	Milk

    (A) A-s; B-r; C-q; D-p; E-t
    (B) A-r; B-s; C-q; D-p; E-t
    (C) A-s; B-r; C-p; D-p; E-t
    (D) A-s; B-q; C-r; D-p; E-t

84. Consider the following statements:
    (a) Solution of sodium hydrogen carbonate is alkaline in nature.
    (b) Sodium hydrogen carbonate is used in fire extinguisher.
    Which of these statement(s) is/are correct?
    (A) (a) only
    (B) (b) only
    (C) Both (a) and (b)
    (D) Neither (a) nor (b)

Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **10 Multiple Choice Questions** number **85 to 94**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

85. If $\cot 15° = m$ then $\dfrac{\cot 165° + \cot 345°}{\tan 15° - \cot 105°}$ is
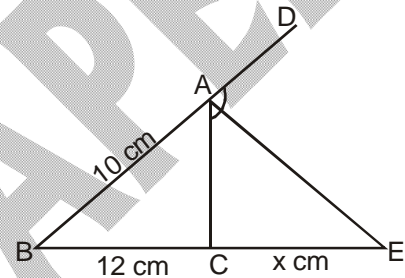
    (A) m^2 (B) $-m^2$ (C) m (D) $-m$

86. If maximum value of $5\cos\theta + 12\sin\theta$ is p then $\dfrac{65}{p}$ is equal to

    (A) 5   (B) 4   (C) 6   (D) 3

87. In CAD meeting BC produced☐the given figure AE is the bisector of the exterior in E. If AB = 10 cm, AC = 6 cm and BC = 12 cm. Find CE.
    (A) 12 cm
    (B) 16 cm
    (C) 20 cm
    (D) 18 cm

88. Number of values of θ in $[0, 2\pi]$ that satisfy $\sin\theta + \cos\theta = 1$
    (A) 0   (B) 1   (C) 2   (D) More than 2

89. Find value of $\sin 10° \sin 20° \sin 30° \sin 40° \sin 50° \sin 60° \sin 70° \sin 80° \sin 90°$

    (A) $\dfrac{3}{2^8}$ (B) $\dfrac{3}{2^9}$ (C) $\dfrac{9}{2^8}$ (D) $\dfrac{9}{2^9}$

90. Find remainder when x^{100} is divided by $x^2 - 3x + 2$?
    (A) $\left(2^{100} - 1\right)x + \left(2^{100} - 2\right)$ (B) $\left(2^{100} - 1\right)x + \left(2 - 2^{100}\right)$
    (C) $2^{100}x + \left(2^{100} - 1\right)$ (D) $\left(2^{100} - 2\right)x + \left(2^{100} - 1\right)$

Space for Rough Work

91. If $\cos^2 x = \dfrac{3}{4}$, find $\sin^4 x + \cos^4 x$?

(A) $\dfrac{11}{32}$ 　　　　(B) $\dfrac{9}{16}$ 　　　　(C) $\dfrac{5}{8}$ 　　　　(D) $\dfrac{23}{32}$

92. Which of the following is equal to $\sqrt{2} \times \sqrt{\left(3 + \sqrt{2} + \sqrt{3} + \sqrt{6}\right)} - \left(1 + \sqrt{2} + \sqrt{3}\right)$

(A) $\sqrt{2}$ 　　　　(B) $\sqrt{3}$ 　　　　(C) $\sqrt{6}$ 　　　　(D) 0

93. The coordinates of the vertices of a triangle are (3, 1), (2, 3) and (-2, 2). Find the coordinates of the centroid of the triangle ABC:
(A) (1, 2) 　　　　(B) (2, 3) 　　　　(C) (4, 5) 　　　　(D) (5, 6)

94. If $(x + 2)(x + 4)(x + 6)(x + 8) = 945$ and x is an integer, then find x.
(A) -1 or -11 　　　　(B) 1 or -11 　　　　(C) -1 or 11 　　　　(D) 1 or 11

Space for Rough Work

FIITJEE Big Bang Edge Test - 2022
for students presently in Class 10 (going to 11) (Paper 1)
SAMPLE PAPER ANSWER KEY

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