FIITJEE SAMPLE PAPER – 2018

(Big Bang Edge Test / Talent Recognition Exam)

***for* students presently in**

Class 8 (Paper 2)

Time: 3 Hours (1:45 pm – 4:45 pm) | **Code 8008** | ***Maximum Marks: 311***

Instructions:

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

1. This Question paper consists of 3 sections. All questions will be multiple choice single correct out of four choices with marking scheme in table below:

Section – I, II & III (PCMB)	Question no.	Marking Scheme for each question	
		correct answer	wrong answer
PHYSICS	1 to 3, 10 to 11, 66	+3	–1
	4 to 8, 12 to 14, 67, 77	+4	–1
	9, 15, 68, 78	+5	–2
CHEMISTRY	16 to 18, 25 to 26, 69	+3	–1
	19 to 23, 27 to 29, 70 to 71	+4	–1
	24, 30, 72 to 73	+5	–2
MATHEMATICS	31 to 33, 40 to 41, 74	+3	–1
	34 to 38, 42 to 44, 75, 79	+4	–1
	39, 45, 76, 80	+5	–2
BIOLOGY	46 to 49, 60 to 61	+3	–1
	50 to 57, 62 to 64	+4	–1
	58 to 59, 65	+5	–2

2. Answers have to be marked on the OMR sheet. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.
3. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.
4. **Before attempting paper write your OMR Answer Sheet No., Registration Number, Name** and **Test Centre** in the space provided at the bottom of this sheet.
5. **See method of marking of bobbles of the back of cover page for question no. 66 to 80.**

Note: ***Please check this Question Paper contains all 80 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 : _____

For questions **66 to 76**

Numerical based questions single digit answer 0 to 9

Example 1:

If answer is 6.

Correct method:

⓪ ① ② ③ ④ ⑤ ❻ ⑦ ⑧ ⑨

Example 2:

If answer is 2.

Correct method:

⓪ ① ❷ ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

For questions **77 to 80**

Numerical answer type questions with answer XXXXX. XX

Correct bubbles to be darkened below the boxes for your answer.

If answer is 348.4 / 251.37 / 213

Correct Method :

		3	4	8	.	4	0
		2	5	1	.	3	7
		2	1	3	.	0	0

Wrong Method :

	3	4	8		.	4	
3	4	8			.		4
		3	4	8	.		4
	3		4	8	.	4	
	2		5	1	.	3	7
		2	1	3	.		

Section-I

Science & Mathematics

Physics (Part – A)

Straight Objective Type

*Question numbers 1 to 15 are 15 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. Ball bearing is used to reduce
   (A) Electrical force (B) Frictional force
   (C) Magnetic force (D) Gravitational force

2. In which of the following mediums sound travels fastest?
   (A) Water (B) Steel
   (C) Air (D) None of these

3. Which of the following frequencies is associated to ultrasonic sound?
   (A) 10 Hz (B) 10 kHz
   (C) 50 Hz (D) 50 kHz

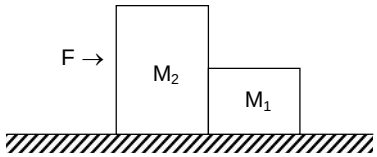
4. A force of 5 N acts on a body of weight 9.8 N. The acceleration produced is
   (A) 40 ms^{-2} (B) 5 ms^{-2}
   (C) 1.46 ms^{-2} (D) 0.51 ms^{-2}

5. A truck of mass 5000 kg rolls down a hill starting from rest. If it covers 200 m in 10 s then force acting on it will be
   (A) 200 N (B) 20000 N
   (C) 2000 N (D) 500 N

6. A machine gun fires a bullet of mass 40 g with a velocity 1200 ms^{-1}. The man holding it can exert a maximum force of 144 N on the gun. How many bullets can he fire per second at the most?
   (A) 1 (B) 4
   (C) 2 (D) 3

Space for Rough Work

7. A single horizontal force F is applied to a block of mass M_2 which is in contact with another block of mass M_1. If the surfaces are frictionless, then the force between the blocks is

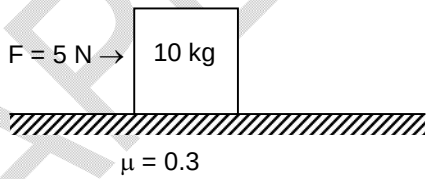


(A) $\frac{M_2F}{M_1+M_2}$ (B) $\frac{M_1M_2g}{M_1+M_2}$

(C) $\frac{M_1F}{M_2}$ (D) $\frac{M_1F}{M_1+M_2}$

8. When a body is stationary,
(A) there is no force acting on it
(B) the force acting on it is not in contact with it
(C) the combination of forces acting on it balance each other
(D) the body is in vacuum

9. A horizontal force of 5N act on a block of mass 10 kg kept on a rough horizontal surface. The coefficient of friction between the block and the rough surface is 0.3. Find the magnitude of frictional force acting between them, ($g = 10\ m/s^2$)



(A) 30 N (B) 5N
(C) 29.4 N (D) 100 N

10. The minimum distance to hear an echo is (taking the velocity of sound in air to be 330 m/s)

(A) 20 m (B) $\frac{1}{20}$m

(C) 16.5 m (D) cannot be determined

11. Which of the following is a unit of force?
(A) Newton (B) Joule
(C) Erg (D) Both (A) & (B)

Space for Rough Work

12. An elevator is moving vertically up with an acceleration 'a'. The force exerted on the floor by a passenger of mass m is
(A) ma (B) mg
(C) mg – ma (D) mg + ma

13. A child burn a cracker while standing some distance away from a wall. He hears the echo of the sound of cracker from the wall after 4 seconds of hearing its original sound. How far is the wall from the child? (Consider that velocity of sound in air is 344 m/s)
(A) 1032 m (B) 544 m
(C) 720 m (D) 688 m

14. Which of the following force is not electromagnetic in nature?
(A) Elastic force in spring (B) Force of friction
(C) Weight of a body (D) Tension force in a string

15. A wooden raft of density 600 kg/m^3 and mass 120 kg floats in water. How much weight in kg can be put on it to make its volume sink and top surface coincide with water surface?
(A) 40 kg (B) 80 kg
(C) 100 kg (D) 120 kg

Space for Rough Work

Chemistry (Part – B)

Straight Objective Type

*Question numbers 16 to 30 are 15 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

16. Which of the following is flame resistant plastic:
(A) Teflon (B) Nylon
(C) Starch (D) Melamine

17. Which metal other than mercury is liquid at room temperature?
(A) Lead (B) Silver
(C) Gallium (D) Copper

18. The amount of LPG in a domestic gas cylinder is about:
(A) 14.2 kg (B) 13.2 kg
(C) 12.2 kg (D) 11.2 kg

19. Which of the following metal can be cut with a knife?
(A) Copper (B) Nickel
(C) Sodium (D) Hydrogen

20. Ammonical liquor is:
(A) Ammonia absorbed in water (B) Ammonium hydroxide
(C) Aqueous solution of ammonia (D) All of these

21. Canopy in the fighter jet plane is made up of:
(A) Poly vinyl chloride (B) Teflon
(C) Acrylic (D) High density polyethylene

22. Sulphur is readily soluble in:
(A) Alcohol (B) Ether
(C) Water (D) Carbon disulphide

23. What are the constituents of solder?
(A) Iron & carbon (B) Silver & mercury
(C) Tin & lead (D) Gold & copper

24. Artificial wool is the other name of
(A) Cotton (B) Acrylic
(C) Rayon (D) Polyester

Space for Rough Work

25. The substance added to detect the leakage of LPG is
(A) Ethanol (B) Ethyl mercaptan
(C) Both (A) & (B) (D) Ethyl butane

26. Which of the following plastic has monomer unit of $CF_2 = CF_2$?
(A) Polythene (B) Bakelite
(C) Teflon (D) PVC

27. Which one of the following is NOT a petroleum product?
(A) Kerosene (B) Gasoline
(C) Asphalt (D) Bees wax

28. Which of the following is an unsaturated hydrocarbon?
(A) C_5H_{12} (B) C_7H_{16}
(C) C_4H_{10} (D) C_3H_4

29. Which of the following process is related with the removal of sulphur from sulphide ore by heating in the air?
(A) Smelting (B) Calcination
(C) Roasting (D) Annealing

30. Which of the following is chief ore of mercury:
(A) Galena (B) Cinnabar
(C) Rock salt (D) Horn silver

Space for Rough Work

Mathematics (Part – C)

Straight Objective Type

*Question numbers 31 to 45 are 15 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

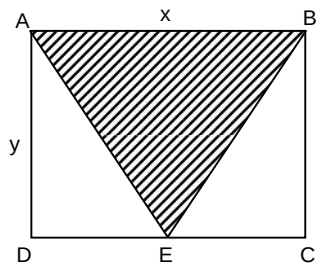
31. If $3\sqrt{5}+\sqrt{125}=17.88$, then what will be the value of $\sqrt{80}+6\sqrt{5}$?
(A) 13.41 (B) 20.46
(C) 21.66 (D) 22.35

32. $\frac{1}{3\times7}+\frac{1}{7\times11}+\frac{1}{11\times15}+.....\frac{1}{47\times51}$
(A) $\frac{16}{51}$ (B) $\frac{8}{51}$
(C) $\frac{4}{51}$ (D) $\frac{2}{51}$

33. Find the value of $\sqrt{10+\sqrt{27+\sqrt{65+\sqrt{256}}}}$
(A) 9 (B) 8
(C) 6 (D) 4

34. The age of Ram is 4 times of his daughter. The age of Ram was 9 times of her daughter five years ago. Find present age of Ram.
(A) 30 years (B) 32 years
(C) 34 years (D) 36 years

35. ABCD is a rectangle and E is any point on DC. Then area of shaded portion is
(A) xy (B) $\frac{xy}{4}$
(C) $\frac{xy}{2}$ (D) 2xy



Space for Rough Work

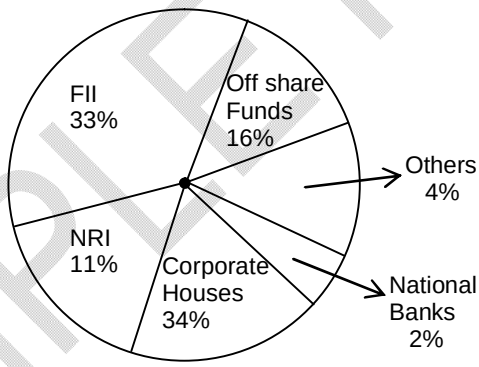
36. The area of a trapezium is 105 cm^2 and its height is 7 cm. If one of the parallel sides is longer than the other by 6 cm. The smaller side of trapezium is:
(A) 12 cm (B) 14 cm
(C) 16 cm (D) 18 cm

37. Which of the following is rational number?
(A) $\sqrt{4}-2$ (B) $\sqrt{2}-2\sqrt{3}$
(C) $3\sqrt{2}-5\sqrt{3}$ (D) None of these

38. A basket contains 4 white, 3 black and 2 white marbles. A marble is drawn at random what is the probability that it is not black.
(A) $\frac{4}{9}$ (B) $\frac{3}{9}$
(C) $\frac{2}{9}$ (D) $\frac{6}{9}$

39. If the ratio of an external angle and an internal angle of a regular polygon is 1 : 17, the number of sides of regular polygon is,
(A) 12 (B) 36
(C) 20 (D) 18

(40 – 41)
The following pie chart show the amount of subscriptions generated for India Bonds from different categories of investors



40. In the corporate houses, approximately how many degrees should be there in the central angle?
(A) 120 (B) 121
(C) 122 (D) 123

Space for Rough Work

41. If the investment by NRI's are Rs. 4000 crore then the investments by corporate houses and FII's together is (approx)
(A) 24,000 crore (B) 24363 crore
(C) 25423 crore (D) 25643 crore

42. If $a = 2b$ and $b = 4c$ then $\sqrt[3]{\frac{a^6 \times b^5 \times c^3}{16 \times a^4 \times c^4 \times b^6}}$
(A) 1 (B) 2
(C) 3 (D) 4

43. A bag contain 1 Rs., 50 P, 25 P coins and the ratio of number of coins is 5 : 7 : 9. If the total value of all coins is 430 Rs. Then find the number of 50 P coins.
(A) 40 (B) 250
(C) 280 (D) 300

44. Which of the point lie on x axis?
(A) (3, 4) (B) (5, –6)
(C) (0, 2) (D) (2, 0)

45. A square whose side is 2m has its corners cut away so as to form an octagon with all sides equal. Then the length of each side of the octagon in meters is
(A) $\frac{\sqrt{2}}{\sqrt{2}+1}$ (B) $\frac{2}{\sqrt{2}+1}$
(C) $\frac{2}{\sqrt{2}-1}$ (D) $\frac{\sqrt{2}}{\sqrt{2}-1}$

Space for Rough Work

Biology (Part – D)

Straight Objective Type

*Question numbers 46 to 65 are 20 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

46. The element which is required in largest quantity by plants is
(A) Sulphur (B) Calcium
(C) Phosphorus (D) Nitrogen

47. Which one is a micronutrient for the crop plants?
(A) Calcium (B) Iron
(C) Magnesium (D) Potassium

48. An example of bacterial food poisoning is
(A) Botulism (B) Salmonellosis
(C) Clostridial food poisoning (D) All of these

49. The plants and animal species that are confined to a particular region and not found anywhere are
(A) Epidemic (B) Endemic
(C) Restricted (D) Extinct

50. Chipko Movement was started with the aim of
(A) Stopping felling of trees (B) Controlling pollution
(C) Monitoring the environment (D) Afforestation

51. Choose the wrong statement:
(A) Malaria is a protozoan disease (B) HIV is caused by a virus
(C) Cholera is a bacterial disease (D) Rabies is caused by a bacteria

52. Credit for bringing Green Revolution in India goes to
(A) B. P. Pal (B) Norman Borlaug
(C) M. S. Swaminathan (D) K. C. Mehta

53. One of the ex-situ conservation methods for endangered species is
(A) Wildlife sanctuaries (B) Biosphere reserves
(C) Cryopreservation (D) None of these

54. Identify the odd combination of the habitat and the particular animal concerned:
(A) Dachigam – Snow Leopard (B) Sunderban – Bengal Tiger
(C) Periyar – Elephant (D) Rann of Kutch – Wild Ass

Space for Rough Work

55. The latest in plant disease control is
(A) Chemical control (B) Biological control
(C) Use of fertilizers (D) Use of disease resistant varieties

56. Which of the following National Park is home to the famous deer Hangul?
(A) Dachigam National Park, J & K (B) Keibul Lamjao National Park, Manipur
(C) Bandhavgarh National Park, M.P (D) Eaglenest Wildlife Sanctuary, A.P

57. Which transgenic crop was the first to be approved for commercial cultivation in India?
(A) Bt Cotton (B) Bt Jute
(C) Bt Rice (D) Bt Wheat

58. Which of the following crops seedlings need to be transplanted?
(A) Wheat (B) Potato
(C) Mustard (D) Rice

59. Green manure is prepared by
(A) Applying green fertilizer (B) Colouring the manure into green
(C) Ploughing and mulching sunn hemp (D) None of these

60. Food is stored in cold storage because
(A) Insects cannot cause infection
(B) Plasmolysis of cells occur at low temperature
(C) Bacterial multiplication is greatly reduced
(D) Bacterial multiplication start

61. In which of the following method of irrigation rotating nozzles are used?
(A) Moat (B) Drip system
(C) Chain pump (D) Sprinkler system

62. The most important character which suggests that viruses are living is that
(A) Viruses multiply only in living host (B) Their crystals have a definite shape
(C) Viruses grow in size (D) Viruses may be crystallized

63. Match the names of the scientists given in Column A with the discovery made by them I Column B.

	Column A		Column B
A	Louis Pasteur	I	Penicillin
B	Robert Koch	II	Anthrax Bacterium
C	Edward Jenner	III	Fermentation
D	Alexander Flemming	IV	Small pox
		V	Typhoid

(A) A – III, B – II, C – IV, D - I (B) A – III, B – IV, C – II, D - I
(C) A – IV, B – II, C – III, D - I (D) A – II, B – I, C – III , D – IV

Space for Rough Work

64. Match the column.

	Column A		Column B
A	Khurpa	I	For weeding
B	Spade	II	Breaking crumbs
C	Wooden Plough	III	For digging
D	Soil plank	IV	For tillage

(A) A – II, B – I, C – III, D - IV
(B) A – III, B – II, C – I, D - IV
(C) A – II, B – IV, C – II, D - III
(D) A – I, B – III, C – IV , D – II

65. The three top most major crops of the world in the order of total production are
(A) wheat > rice > maize
(B) rice > wheat > maize
(C) wheat > maize > rice
(D) rice > maize > wheat

Space for Rough Work

Section-II Physics, Chemistry & Mathematics

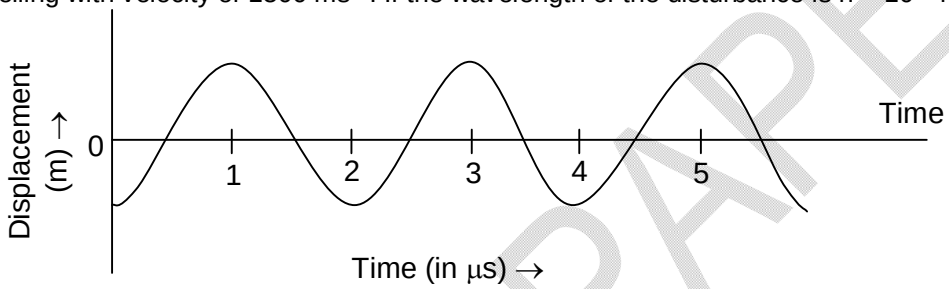
Physics (Part – A)

Numerical Based Questions

Question numbers 66 to 68 are 3 numerical based questions single digit answer 0 to 9.

66. When a body is immersed in water it displaces 4 kg of water. If the buoyant force acting on the body is K × 10 N. Then find K. ($g = 10\ m/s^2$)

67. The given graph (see figure) shows the displacement versus time relation for a disturbance travelling with velocity of 1500 ms^{-1}. If the wavelength of the disturbance is $n \times 10^{-3}$ m then find n.



68. A body floats in water with 40% of its volume outside water. When this body is kept in oil, it floats with 60% of its volume remains outside the oil. The relative density of oil is $\frac{K}{2}$. Find value of K.

Space for Rough Work

Chemistry (Part – B)

Numerical Based Questions

Question numbers 69 to 73 are 5 numerical based questions single digit answer 0 to 9.

69. How many of the following is/are thermosetting plastic(s)?
Polythene, Bakelite, PVC, Teflon, Melamine, Urea Formaldehyde resin, PAN.

70. How many of the following elements is/are evolved H_2 gas when react with dilute hydrochloric acid:
Al, Fe, S, P, Si, Cu, Mg

71. How many carbon atom(s) is/are present in "Iso butane"?

72. How many of the following is/are homopolymer?
Polythene, PVC, Nylon, Terrylene, Polystyrene, Bakelite, Melamine – formaldehyde, Teflon.

73. In copper pyrites, $CuFeS_x$, what is the value of x?

Space for Rough Work

Mathematics (Part – C)

Numerical Based Questions

Question numbers 74 to 76 are 3 numerical based questions single digit answer 0 to 9.

74. In a square ABCD if $AB = 5x + \frac{3}{2}$ and $BC = x + \frac{19}{2}$ find x

75. Find the smallest number that must be subtracted from 6868 to make it a perfect cube.

76. $\frac{\sqrt{80} - \sqrt{112}}{\sqrt{45} - \sqrt{63}} = \frac{a}{b}$ find a + b = ?

Space for Rough Work

Section-III

Physics & Mathematics

Physics (Part – A)

Numerical Answer Type

*Question numbers 77 to 78 are 2 numerical answer type questions with answer **XXXXX.XX.***

77. A body is vibrating 6000 times in 1 minute. If the velocity of sound in air is 360 m/s, find wavelength of sound in metre.

78. A body floats with $\frac{2}{5}$th of its volume above the surface of water. Calculate the density of the material of the body in gcm^{-3}.

Space for Rough Work

Mathematics (Part – B)

Numerical Answer Type

*Question numbers 79 to 80 are 2 numerical answer type questions with answer **XXXXX.XX.***

79. $\sqrt[3]{(x+1)(y+2)(2+3)} = 7$ then find $x \times y \times z$

80. The parallel sides of a trapezium are 60 cm and 75 cm and other sides are 25 cm and 20 cm. Its area is

Space for Rough Work

FIITJEE SAMPLE PAPER – 2018

(Big Bang Edge Test / Talent Recognition Exam)

for **students presently in**

Class 8

ANSWERS
Paper 2

1.	**B**	2.	**B**	3.	**D**	4.	**B**
5.	**B**	6.	**D**	7.	**D**	8.	**C**
9.	**B**	10.	**C**	11.	**A**	12.	**D**
13.	**D**	14.	**C**	15.	**B**	16.	**D**
17.	**C**	18.	**A**	19.	**C**	20.	**D**
21.	**C**	22.	**D**	23.	**C**	24.	**B**
25.	**B**	26.	**C**	27.	**D**	28.	**D**
29.	**C**	30.	**B**	31.	**D**	32.	**C**
33.	**D**	34.	**B**	35.	**C**	36.	**A**
37.	**A**	38.	**D**	39.	**B**	40.	**C**
41.	**B**	42.	**A**	43.	**C**	44.	**D**
45.	**A**	46.	**D**	47.	**B**	48.	**D**
49.	**B**	50.	**A**	51.	**D**	52.	**C**
53.	**C**	54.	**A**	55.	**D**	56.	**A**
57.	**A**	58.	**D**	59.	**C**	60.	**C**
61.	**D**	62.	**A**	63.	**A**	64.	**D**
65.	**C**	66.	**4**	67.	**3**	68.	**3**
69.	**3**	70.	**3**	71.	**4**	72.	**4**
73.	**2**	74.	**2**	75.	**9**	76.	**7**
77.	**00003.60**	78.	**00000.60**	79.	**00120.00**	80.	**01350.00**