

FIITJEE SAMPLE PAPER – 2018

(Big Bang Edge Test / Talent Recognition Exam)

for students presently in

Class 9 (Paper 2)

Time: 3 Hours (1:45 pm – 4:45 pm)

Code **9009**

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 bubbles 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:

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Example 2:

If answer is 2.

Correct method:

① ② 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

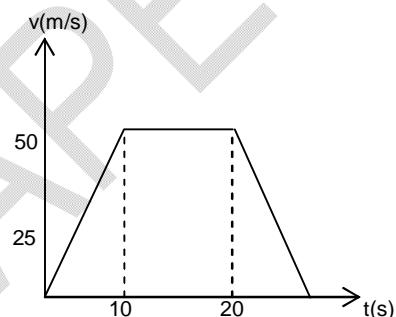
Science & Mathematics

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.



Space for Rough Work

7. On decreasing the height of a satellite, its time period will
(A) decrease (B) increase
(C) remain unchanged (D) none of these
8. When a planet moves around the sun, its
(A) areal velocity is constant (B) linear velocity is constant
(C) angular velocity is constant (D) all the velocities are constant
9. The orbital velocity of an artificial satellite in a circular orbit just above the centre's surface is v .
For a satellite orbiting at an altitude of half of the earth's radius, the orbital velocity is
(A) $3v/2$ (B) $\sqrt{3/2}v$
(C) $\sqrt{2/3} v$ (D) $(2/3)v$
10. A force of 5 N acts on a body of weight 9.8 N. What is the acceleration produced in m/s^2 ?
(A) 0.51 (B) 1.96
(C) 5.00 (D) 49.00
11. Weightlessness experienced while orbiting the earth, in spaceships, is the result of
(A) acceleration (B) inertia
(C) zero gravity (D) centre of gravity
12. 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
13. A body starts from rest and moves with a uniform acceleration then the ratio of distance covered by it during 5th second of its motion to the distance travelled in 5 second of motion is
(A) $\frac{16}{25}$ (B) $\frac{9}{16}$
(C) $\frac{25}{9}$ (D) $\frac{9}{25}$
14. A particle is moving in a straight line with initial velocity u and uniform acceleration f . If the sum of the distance covered in t^{th} and $(t + 1)^{\text{th}}$ second is 100 m, then its velocity after t sec in m/s is
(A) 20 (B) 30
(C) 50 (D) 80
15. A ball is thrown in the vertically upward direction taking air resistance into account if t_1 is the time of ascent and t_2 the time of descent, how are t_1 and t_2 related to each other?
(A) $t_1 = t_2$ (B) $t_1 > t_2$
(C) $t_2 > t_1$ (D) none of these

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.**

Space for Rough Work

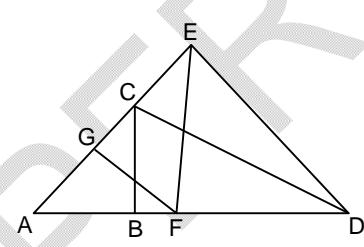
Space for Rough Work

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. Which of the following expressions is a polynomial of degree 2?
 (A) $(x^3)^2 - 5x^2 + 2$ (B) $\sqrt{3}y^2 + \sqrt{2}y + 1$
 (C) $x + \frac{1}{x} - 3$ (D) $\sqrt[3]{x^2} + 9$
32. Find the value of a and b if $\frac{\sqrt{11} - \sqrt{7}}{\sqrt{11} + \sqrt{7}} = a - \sqrt{77}b$
 (A) $a = \frac{9}{2}, b = \frac{1}{2}$ (B) $a = \frac{1}{2}, b = \frac{1}{2}$
 (C) $a = \frac{3}{2}, b = \frac{1}{2}$ (D) $a = 3, b = \frac{9}{2}$
33. The angle which is equal to 5 times its supplement is
 (A) 30° (B) 60°
 (C) 45° (D) 150°
34. ABC is a right triangle such that AB = AC and bisector of angle C intersects the side AB at D.
 Then,
 (A) $AB + AD = CD$ (B) $AB + AD = BD + CD$
 (C) $AC + AD = BC$ (D) $AB + AD = BD$
35. If each side of a triangle is doubled, then the ratio of area of the new triangle thus formed and the given triangle is:
 (A) 2 : 1 (B) 3 : 1
 (C) 1 : 4 (D) 4 : 1
36. The mirror image of point (-2, 3) in y-axis is
 (A) (-2, -3) (B) (-2, 3)
 (C) (2, -3) (D) (2, 3)

Space for Rough Work



Space for Rough Work

43. If $p = \sqrt[3]{5}$, $q = \sqrt[5]{3}$, $r = \sqrt[4]{4}$ then the correct relationship is:

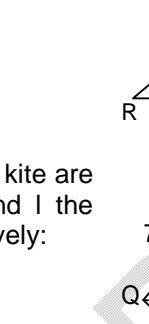
(A) $p > q > r$ (B) $q < r < p$
 (C) $r > p > q$ (D) cannot be determined

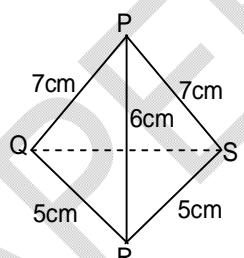
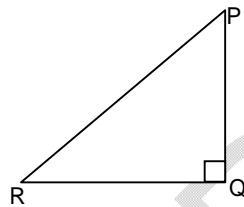
44. In a right angled triangle PQR, $\angle PRQ = 2 \angle RPQ$. Then PQR

(A) $PR = 2QR$
 (B) $PR = 3QR$
 (C) $PR = \frac{5}{2}QR$
 (D) $PR = 4QR$

45. The lengths of four sides and a diagonal of the given kite are indicated in the diagram. If A denotes the area and l the length of the other diagonal, then A and l are respectively:

(A) $12\sqrt{6}, 4\sqrt{6}$
 (B) $12\sqrt{6}, 5\sqrt{6}$
 (C) $6\sqrt{6}, 4\sqrt{6}$
 (D) $6\sqrt{6}, 5\sqrt{6}$





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. Choose the complex fertilizer
(A) Potassium sulphate
(C) Triple super phosphate

(B) Calcium ammonium nitrate
(D) Urea ammonium phosphate

47. Epithelial tissue is a:
(A) Corpuscle
(C) Protective covering

(B) Nerve cell
(D) Reproductive structure

48. Terrestrial Plants get the carbon from:
(A) Soil
(C) Atmosphere

(B) Water
(D) Lithosphere

49. Energy flow in an ecosystem is
(A) Unidirectional
(C) Multidirectional

(B) Bidirectional
(D) None of these

50. Which of the following process includes all other processes?
(A) Osmosis
(C) Diffusion of a solute across a membrane

(B) Facilitated diffusion
(D) Passive transport

51. Cells that store food and water are:
(A) Parenchyma cells
(C) Sclerenchyma cells

(B) Collenchyma cells
(D) Meristematic cells

52. Poultry farming is undertaken to raise following
(i) Egg production
(iii) Chicken meat
(A) (i) & (iii)
(C) (ii) & (iii)

(ii) Feather production
(iv) Milk production
(B) (ii) & (iv)
(D) (iii) and (iv)

53. Assertion (A): Deforestation is one main factor contributing to global warming.
Reason(R): Besides CO₂, two other gases methane & CFCs are also included under green house gases.
(A) If both (A) and (R) are true and (R) is the correct explanation of (A).
(B) If both (A) and (R) are true but (R) is not the correct explanation of (A).
(C) If (A) is true and (R) is false
(D) If (A) and (R) are false

Space for Rough Work

Space for Rough Work

62. Pisciculture is commercial rearing and production of
(A) Fishes (B) Birds
(C) Reptiles (D) Wool yielding animals
63. In nitrogen cycle, which bacteria are responsible for nitrification.
(A) *Clostridium* (B) *Rhizobium*
(C) *Nitrosomonas* (D) *Nitrosomonas & Nitrobacter*
64. Vacuole in a plant cell:
(A) Lacks membrane and contains water and excretory substances
(B) Is membrane-bound and contains storage proteins only
(C) Is membrane-bound and contains water and excretory substances
(D) Lacks membrane and contains air
65. The crop which is affected by red rot disease is
(A) Sugarcane (B) Chick pea
(C) Rice (D) Pigeon pea

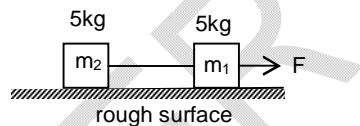
Space for Rough Work

SAMPLE PAPER

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. In the given figure if $F = 30 \text{ N}$, the acceleration of both the blocks is 1 m/s^2 . The frictional force between m_1 and ground is K times of 10 N . Find ' K '.



67. A car initially at rest starts moving on straight line with constant acceleration and attains speed of 8 m/s in time interval $t \text{ sec}$. Average speed (m/s) of car in time interval $t \text{ sec}$ is _____.
68. Two identical spheres of radii r each are placed touching each other. The gravitational force between them is F_G . It is found that $F \propto r^n$, where ' n ' is _____.

Space for Rough Work

SAMPLE

Chemistry

(Part - B)

Numerical Based Questions

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

69. The normal boiling point of a liquid is 140°C . What will be the vapour pressure of the liquid at 140°C , in atm unit?
70. Washing powder, baking powder, glucose, carbon dioxide, dry ice, coal, carbon, sulphur dioxide. How many pure substances are there in the above list?
71. An ideal gas exert 2 atm pressure in a 2 L container at 100 K. The gas is then transferred to a one litre container and the container was heated to 200 K. What will be the final pressure of the gas in atm unit?
72. A sample of air contains 3 g sulphur dioxide, 5 g carbon dioxide and 42 g nitrogen. What is the percentage weight of sulphur dioxide present in the sample?
73. The concentration of a CuSO_4 solution in mass percentage unit is 40%. 20 g of this solution was crystallized. How many gram of CuSO_4 crystal is obtained?

Space for Rough Work

SAMPLE

Mathematics

(Part - C)

Numerical Based Questions

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

74. Two sides of a triangle are 13 cm and 14 cm and its semi-perimeter is 18 cm. Then third side of the triangle is _____
75. If $x + y + z = 0$ and $x^2 + y^2 + z^2 = 12$, then the value of $|xy + yz + zx|$ is _____
76. If $a^2 + b^2 + c^2 + d^2 = 1$, then the maximum value of $16abcd$ is _____

Space for Rough Work

SAMPLE PAPER

Section-III

Physics, Chemistry & Mathematics

Physics

(Part - A)

Numerical Answer Type

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

77. The value of g at the earth's surface is 10 ms^{-2} , the value of g at a height of $3 R_E$ from the surface of earth is $\frac{n}{10}$. Find the value of 'n'.
78. A stone is dropped from the top of a tower of height h . After 1 second another stone is dropped from the balcony 20 m below the top. Both reach the bottom simultaneously. What is the value of h ? (Take $g = 10 \text{ m/s}^{-2}$)

Space for Rough Work

SAMPLE PAPER

Mathematics

(Part - B)

Numerical Answer Type

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

79. If $(x^2 - 4)$ is a factor of $(mx^3 - x^2 - 2x + n)$, then find the value of $(2m + n)$.
80. An equilateral triangle BPC is drawn inside a square ABCD. What is the value of the angle APD in degrees?

Space for Rough Work

SAMPLE PAPER

FIITJEE SAMPLE PAPER – 2018
(Big Bang Edge Test / Talent Recognition Exam)
for students presently in
Class 9

ANSWERS
Paper 2

1.	D	2.	B	3.	C	4.	D
5.	A	6.	B	7.	A	8.	A
9.	C	10.	C	11.	A	12.	A
13.	D	14.	C	15.	C	16.	A
17.	B	18.	C	19.	C	20.	C
21.	D	22.	B	23.	C	24.	C
25.	A	26.	D	27.	C	28.	B
29.	B	30.	C	31.	B	32.	A
33.	D	34.	C	35.	D	36.	D
37.	D	38.	C	39.	A	40.	B
41.	B	42.	A	43.	B	44.	A
45.	A	46.	D	47.	C	48.	C
49.	A	50.	C	51.	A	52.	A
53.	B	54.	B	55.	A	56.	C
57.	B	58.	A	59.	B	60.	C
61.	B	62.	A	63.	D	64.	C
65.	A	66.	1	67.	4	68.	4
69.	1	70.	5	71.	8	72.	6
73.	8	74.	9	75.	6	76.	1
77.	00006.25	78.	00031.25	79.	00005.00	80.	00150.00