

FIITJEE ADMISSION TEST- 2021

for students of

Class 8

Paper 1

Time: 3 Hours (9:30 am – 12:30 pm)

Code	8000
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Maximum Marks: 216

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, 75 Minutes on Section-II and 45 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	1 to 30	+3	0
SECTION – II	PHYSICS (PART-A)	31 to 39	+2	0
	CHEMISTRY (PART-B)	40 to 48	+2	0
	MATHEMATICS (PART-C)	49 to 57	+2	0
	BIOLOGY (PART-D)	58 to 66	+2	0
SECTION – III	PHYSICS (PART-A)	67 to 75	+1.5	0
	CHEMISTRY (PART-B)	76 to 84	+1.5	0
	MATHEMATICS (PART-C)	85 to 93	+1.5	0
	BIOLOGY (PART-D)	94 to 102	+1.5	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 at the bottom of this sheet.

Note: Please check this Question Paper contains all **102** 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

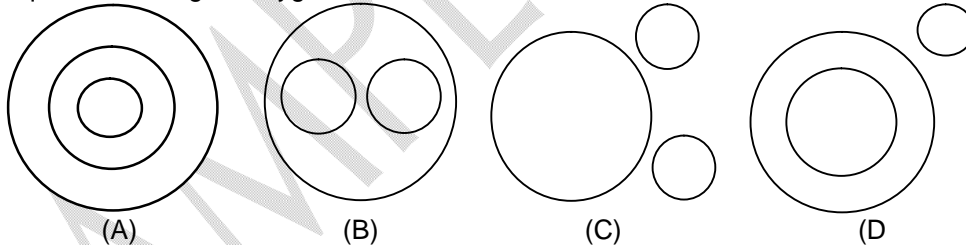
Section – I

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. Kapil walks 15 km in East then he turns to his right and travels 10 km. Now in which direction he is from his starting point?
(A) South (B) South East
(C) West (D) East
2. 'Flower' is related to 'Petal' in the same way as 'Book' is related to ____
(A) Pages (B) Content
(C) Author (D) Library
3. If 'ZEBRA' is written as '2652181', then how can 'COBRA' be written?
(A) 302181 (B) 3152181
(C) 31822151 (D) 1182153
4. The question given below contains three elements. These three elements may or may not have some linkages. These group of the element may fit into one of the diagrams at (A), (B), (C) & (D). You have to indicate group of elements in this question fit into which of the diagrams given below. The letter indicating the diagram is the answer.

Square, Rectangle, Polygon



Space for Rough Work

5. A, B, C, D and E are five friends. A is shorter than B but taller than E. C is the tallest. D is shorter than B and taller than A. Who has two persons taller and two persons shorter than him?
(A) A (B) B
(C) C (D) D
6. In a row of boys, Mr. Chopra is 18th from the right and Shekhar is 18th from the left. If both of them exchange their positions, Shekhar becomes 25th from the left. How many boys are there in the row?
(A) 40 (B) 41
(C) 42 (D) 35
7. If pen is called pencil, pencil is called scale, scale is called bag and bag is called book, which is used to carry the books?
(A) Scale (B) Pen
(C) Book (D) Bag
8. If POLITICS is coded as OPILITSC, then ARTICLES will be coded as :
(A) PAITLCES (B) RAITLCSE
(C) NNUHPM (D) NNVHPN
9. Arrange the given words in the order they occur in dictionary.
1. SIGN 2. SOLID
3. SCENE 4. SIMPLE
(A) 3, 1, 2, 4 (B) 3, 1, 4, 2
(C) 3, 4, 1, 2 (D) 3, 4, 2, 1
10. If E = 5 & SAFE = 31, then PINK = ?
(A) 41 (B) 40
(C) 50 (D) 65

Space for Rough Work

Directions (Questions 11 – 12): Find the missing terms:

11. 1, 4, 5, 8, 9, ___
(A) 11 (B) 13
(C) 12 (D) 10
12. 100, 90, 81, 73, ?
(A) 66 (B) 64
(C) 62 (D) 69
13. If in a certain code 'DINESH' is written as 'HSENI D', then how will 'MIRACLE' be written in the same code?
(A) ELACRIM (B) ACLERIM
(C) ELCARIM (D) CLEARIM

Directions (Question 14 - 15): In the following questions, there is some relationship between the two terms to the left of :: and the same relationship holds between the terms to its right. Also, in each question, one of the four terms is missing. Find out that term.

14. a : One :: f : ?
(A) Property (B) Fail (C) E (D) Six
15. Psychology : Mind :: Ornithology?
(A) Sanskrit (B) Coin
(C) Mammal (D) Bird
16. Complete the following series.
12, 14, 15, 16, 18, 20, ___
(A) 22 (B) 25
(C) 21 (D) 23

Space for Rough Work

17. In the given question, there is some relationship between the two terms to the left of :: and the same relationship holds between the terms to its right. Also, in this question, one of the four terms is missing. Find out this term.

BDEG : DFGI :: HKMO : ___

- (A) ILNP (B) JMOP
(C) JMOQ (D) JNOQ

18. A student went to a class at quarter to ten. After 15 minutes his professor came who is late to the class by 25 minutes. At what time should the class start?

- (A) 9:25 (B) 9:35
(C) 9:40 (D) 9:45

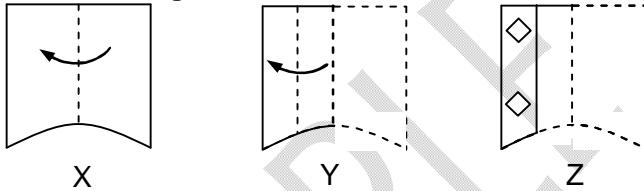
19. In a certain code language '+' means '-', '-' means 'x', 'x' means '÷', '÷' means 'x'. Answer the following questions using the data.

$$14 \times 2 - 6 + 10 + 4 \times 2$$

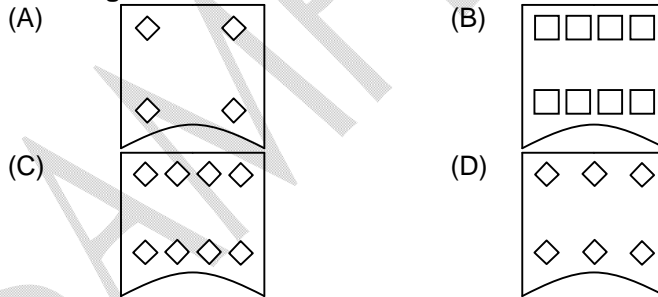
- (A) 30 (B) 40
(C) 1 (D) 25

20. The given question contains set of three figures X, Y and Z showing a sequence of folding of a piece of paper. Figure (Z) shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures (A), (B), (C) and (D) from which you have to choose a figure which would most closely resemble the unfolded form of figure (Z).

Question Figures



Answer Figures



Space for Rough Work

21. What is the next letter in the series?
B, D, G, K, P, ____
(A) S (B) V
(C) W (D) X
22. Find the next number in the series given below:
3, 3, 6, 18, 72, 360, ____
(A) 2160 (B) 2430
(C) 1880 (D) 2040
23. Find the odd one among the following.
(A) Mercury (B) Moon
(C) Jupiter (D) Saturn
24. If the English alphabet are divided into two equal halves – from A to M and N to Z, which letter in the later half would be corresponding to letter J?
(A) Q (B) V
(C) X (D) W
25. Find the next term in the series:
1, 4, 9, 16, 25, 36, ?
(A) 48 (B) 50
(C) 49 (D) 64
26. Hira said, "This girl is the wife of the grandson of my mother". Who is Hira to this girl?
(A) Father (B) Husband
(C) Father in law (D) Grand father

Space for Rough Work

27. In the given question, a matrix of certain characters is given.

These characters follow a certain trend, row – wise or column – wise. Find out this trend and choose the missing character from the given alternatives.

9	36	25
4	16	9
1	9	4
12	43	?

- (A) 5 (B) 30
(C) 11 (D) 15
28. In a certain code language, if the word 'SECTOR' is coded as 'CESROT' then how will you code the word 'OPPOSITION'?
- (A) SOPPONOITI (B) NOITISOPPO
(C) SOPOPNOITI (D) SOPPONOTIT

Directions (Questions 29 – 30): Read the following information to answer the given questions.

- (i) Mannu, Balu, Vipin, Nitish, Kuldeep and Vinay are sitting in a circle facing centre.
(ii) Mannu is in between Balu and Kuldeep.
(iii) Vipin is in between Nitish and Vinay.
(iv) Kuldeep is to the immediate right of Nitish.
29. What is Vinay's position in relation to Kuldeep?
- (A) immediate left (B) second to the right
(C) third to the right (D) second to the left
30. Who is between Kuldeep and Vipin?
- (A) Nitish (B) Balu
(C) Mannu (D) Cannot be determined

Space for Rough Work

Recommended Time: 75 Minutes for Section – II

Section – II

PHYSICS – (PART – A)

This part contains **9 Multiple Choice Questions** number **31 to 39**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

31. Which of the following is used as SI (scientific) unit of temperature?
(A) °C (Degree Celsius) (B) °F (Degree Fahrenheit)
(C) K (Kelvin) (D) None of these
32. The instrument used to measure wind speed is called
(A) Anemometer (B) Barometer
(C) Ammeter (D) Thermometer
33. Change 37°C into °F
(A) 98.6°F (B) 42.7°F
(C) 108°F (D) 86.6°F
34. Change 54 km/h into m/s
(A) 15 m/s (B) 27 m/s
(C) 9 m/s (D) 20 m/s
35. Which of the following is used as SI unit of velocity?
(A) ms^{-1} (B) cms^{-1}
(C) Foot/sec. (D) kmh^{-1}
36. 27°C = _____ K (fill the correct option in the blank).
(A) 273 (B) 300
(C) 310 (D) 293
37. The constant temperature at which a solid substance changes into liquid state is called
(A) melting point of substance (B) boiling point of substance
(C) saturation temperature (D) evaporation temperature
38. The area under a speed-time graph is represented by the unit
(A) m^{-1} (B) m
(C) m^2 (D) m^3
39. Air moves from
(A) high pressure to low pressure (B) low pressure to high pressure
(C) high pressure to high pressure (D) low pressure to low pressure

Space for Rough Work

CHEMISTRY – (PART – B)

This part contains **9 Multiple Choice Questions** number **40 to 48**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

40. The word acid was derived from
(A) sour (B) acēre
(C) acrid (D) acetone
41. What is the nature of common salt solution?
(A) Acidic (B) Basic
(C) Neutral (D) Difficult to identify
42. Which one of the following is acidic in nature?
(A) Lime water (B) Soap
(C) Coffee (D) Antacid
43. Which portion of sheep provides wool?
(A) Skin (B) Fleece
(C) Muscles (D) Cocoon
44. What is the nature of wool providing animals?
(A) Herbivores (B) Carnivores
(C) Omnivores (D) Either A or B
45. Which category of microorganism causes sorter's disease in wool industry?
(A) Protozoa (B) Fungus
(C) Virus (D) Bacterium
46. Dissolving sugar in water is
(A) a physical change (B) a chemical change
(C) a permanent change (D) Both (B) and (C)
47. The colour of light produced on burning sulphur is
(A) blue (B) white
(C) yellow (D) green
48. Lime water turns milky on passing carbon dioxide due to formation of
(A) calcium oxide (B) calcium hydroxide
(C) calcium carbonate (D) calcium bicarbonate

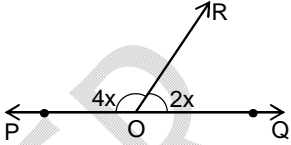
Space for Rough Work

MATHEMATICS – (PART – C)

This part contains **9 Multiple Choice Questions** number **49 to 57**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

49. Find the reciprocal of $2\frac{1}{3}$ is
- (A) $\frac{7}{3}$ (B) $-\frac{7}{3}$
(C) $-\frac{3}{7}$ (D) $\frac{3}{7}$
50. The mean of 10 observation is 25. If one observation, namely 25, is deleted, the new mean is
- (A) 25 (B) 20
(C) 28 (D) 22
51. Find the value of $(-1) \times (-1) \times (-1) \dots\dots 1001$ times
- (A) 1 (B) 0
(C) -1 (D) none of these
52. If each score is increased by 5 then which of the following statement is true?
- (A) Mean remains the same (B) Mean increases by 5
(C) Mean decreases by 5 (D) None of these
53. Milk is sold at Rs. $16\frac{3}{4}$ per litre. Find the cost of $6\frac{2}{5}$ litres of milk.
- (A) Rs. $107\frac{1}{5}$ (B) Rs. $102\frac{1}{5}$
(C) Rs. $103\frac{1}{5}$ (D) None of these

Space for Rough Work

54. The denominator of a fraction exceeds the numerator by 5. If 3 be added to both, the fraction becomes $\frac{3}{4}$. Find the fraction.
- (A) $\frac{12}{17}$ (B) $\frac{12}{15}$
(C) $\frac{12}{13}$ (D) $\frac{12}{11}$
55. In the given figure, POQ is a straight line, $\angle POR = 4x$ and $\angle QOR = 2x$. Find the value of x (in degree).
- (A) 10° (B) 20°
(C) 30° (D) 40°
- 
56. Find the sum of first 10 natural numbers.
- (A) 56 (B) 55
(C) 54 (D) 53
57. In $\triangle ABC$, $BC = 3.8$ cm, $\angle B = 40^\circ$ and $\angle C = 55^\circ$. In $\triangle PQR$, $QR = 3.8$ cm, $\angle Q = 40^\circ$ and $\angle R = 55^\circ$. By which congruency they are congruent?
- (A) ASA (B) SAS
(C) SAS (D) RHS

Space for Rough Work

BIOLOGY – (PART – D)

This part contains **9 Multiple Choice Questions** number **58 to 66**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

58. The largest gland in human body is
(A) Liver (B) Salivary gland
(C) Pancreas (D) Thyroid
59. Intestinal villi are mainly concerned with
(A) Ultrafiltration (B) Secretion
(C) Assimilation (D) Absorption
60. Long inactivity and metabolic depression of animals during summer is known as:
(A) Aestivation (B) Migration
(C) Evolution (D) Hibernation
61. In photosynthesis, light energy is used for activation of
(A) chlorophyll molecule (B) ATP
(C) CO₂ (D) All of these
62. Birds are adapted to fly because of _____.
(A) Streamlined body (B) Light bones
(C) Feathers and wings (D) All of these
63. In earthworm, the exchange of gases occurs through _____.
(A) Lungs (B) Gills
(C) Moist skin (D) Tracheae
64. Human beings have 3 pairs of salivary glands that secrete saliva containing enzyme ____
(A) Pepsin (B) Rennin
(C) Ptyalin (D) Lipase
65. Indicate the type of climate of Kerala & North-East India.
(A) Hot & dry (B) Hot & wet
(C) Cool & wet (D) Cool & dry
66. Grasshopper have several openings called spiracles on lateral sides of their bodies which lead to air tubes called
(A) Tracheae (B) Oesophagus
(C) Lungs (D) Gills

Space for Rough Work

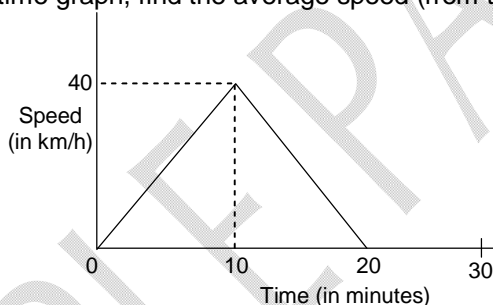
Recommended Time: 45 Minutes for Section – III**Section – III****PHYSICS – (PART – A)**

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 car running between two points P and Q on a straight path. If it travels half of distance between P and Q with velocity 40 km/h and other half with 60 km/h and return in the same manner. The average speed of the car is
(A) 50 km/h (B) 52 km/h
(C) 100 km/h (D) 48 km/h
68. The temperature of a metal raised from 30°C to 90°C. What is the change in temperature of metal on Fahrenheit scale.
(A) 60°F (B) 54°F
(C) 108°F (D) 81°F
69. Two cars A and B moving with uniform velocity of 60 km/h and 80 km/h respectively in opposite directions. If car A moves from point X and car B moves from point Y on a straight road which are 420 km apart; and they meet at a point P between X and Y. Find the ratio of the distances XP and PY.
(A) 7 : 5 (B) 3 : 4
(C) 6 : 7 (D) 7 : 6
70. A particle is moving in a circle of diameter 5 cm. The distance covered when it completes 3 revolutions is (in cm)
(A) 10π (B) 15π
(C) 5π (D) 30π

Space for Rough Work

71. How much heat is released when 30 g of water at 96°C cools to 25°C ? The specific heat of water is $1 \text{ cal g}^{-1}\text{C}^{-1}$.
 (A) 2130 cal (B) 1065 cal
 (C) 213 cal (D) 106 cal
72. A car moves from A to B with speed 20 km/h and back to A with speed 30 km/h. The average speed during the whole journey is
 (A) 25 km/h (B) 24 km/h
 (C) 50 km/h (D) 35 km/h
73. Mercury is used as a thermometric substance because:
 (A) it is a good conductor of heat
 (B) it does not stick to walls of the glass tube
 (C) it has uniform expansion over large range of temperature
 (D) all the above
74. In fluids, heat transfer takes place primarily due to
 (A) conduction (B) convection
 (C) radiation (D) none of these
75. From the given speed-time graph, find the average speed (from $t = 0$ to $t = 20$ minutes).



- (A) 20 km/h (B) 30 km/h
 (C) 25 km/h (D) none of these

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 metal is used in galvanization?
 (A) Copper (B) Lead
 (C) Calcium (D) Zinc
77. Which is **NOT** a constituent element of stainless steel?
 (A) Iron (B) Copper
 (C) Nickel (D) Chromium
78. The gas produced when manganese dioxide reacts with hydrochloric acid is
 (A) oxygen (B) hydrogen
 (C) chlorine (D) manganese chloride
79. Silk route refers to the route for
 (A) tourists (B) industries
 (C) traders (D) producers
80. Match the words in column – I with column-II.
- | Column – I | | Column – II | |
|------------|----------|-------------|---------|
| (A) | Scouring | (P) | Reeling |
| (B) | Cocoon | (Q) | Wool |
| (C) | Mulberry | (R) | Animal |
| (D) | Yak | (S) | Leaves |
- (A) A – S, B – R, C – Q, D – P (B) A – Q, B – P, C – S, D – R
 (C) A – P, B – S, C – R, D – Q (D) A – R, B – Q, C – S, D – P
81. The staple fibre among the following is
 (A) silk (B) wool
 (C) nylon (D) all the three
82. Which acid does our stomach contain?
 (A) Hydrochloric acid (B) Acetic acid
 (C) Formic acid (D) Carbonic acid
83. Acid-base indicators are the substances that
 (A) change colour in acids (B) change colour in bases
 (C) both A & B (D) depends upon nature of indicators
84. The common name for hydrated zinc sulphate is
 (A) blue vitriol (B) green vitriol
 (C) white vitriol (D) none of these

Space for Rough Work

MATHEMATICS – (PART – C)

This part contains **9 Multiple Choice Questions** number **85 to 93**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

85. The equation for the statement: 'half of number added to 10 is 15' is:

(A) $\frac{x}{2} + 10 = 5$

(B) $\frac{x}{2} + 10 = 15$

(C) $\frac{x}{2} + 15 = 10$

(D) $\frac{x}{2} = 10 + 15$

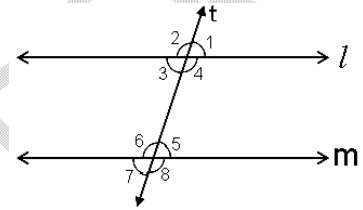
86. In the given figure if $\angle 2 = 2\angle 1$ and $l \parallel m$, t is a transversal line, then the value of $\angle 7$ is

(A) 50°

(B) 60°

(C) 70°

(D) 80°



87. If thrice of A's age 6 years ago be subtracted from twice his present age, the result would be equal to his present age. Find A's present age.

(A) 9

(B) 10

(C) 11

(D) 12

88. The difference between the greatest number and the least number of $\frac{5}{9}, \frac{1}{9}, \frac{11}{9}$ is

(A) $\frac{2}{9}$

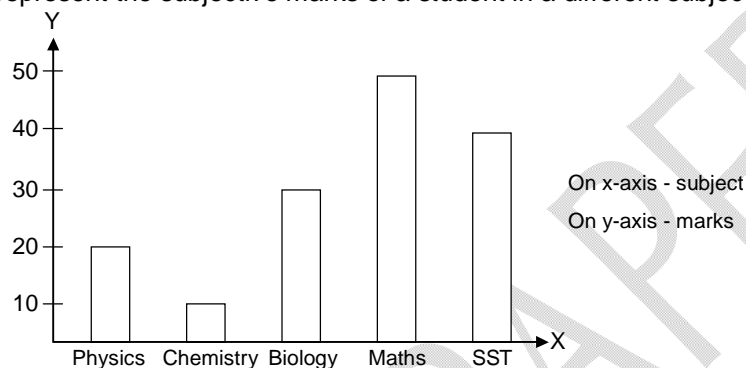
(B) $\frac{4}{9}$

(C) $\frac{10}{9}$

(D) $\frac{2}{3}$

Space for Rough Work

89. Find the perimeter of a rectangle whose one side measure 20 m and the diagonal 29 m is
 (A) 82 m (B) 78 m
 (C) 98 m (D) 88 m
90. In a triangle, the second angle is 5° more than the first angle and the third angle is three times of the first angle. Find the smallest angle at triangle.
 (A) 25° (B) 35°
 (C) 45° (D) 60°
91. A bar graph represent the subjective marks of a student in a different subjects.



Find the percentage increase in the marks of mathematics with respect to the marks of the chemistry.

- (A) 200% (B) 300%
 (C) 400% (D) 500%
92. If $2x - 3 = \frac{3}{10}(5x - 12)$, then what is the value of x?
 (A) $-\frac{6}{5}$ (B) $\frac{4}{5}$
 (C) $\frac{8}{9}$ (D) $-\frac{16}{9}$
93. If one angle of a triangle is equal to the sum of the other two angles, the triangle must be:
 (A) Scalene (B) Right angled
 (C) Obtuse angles (D) Acute angled

Space for Rough Work

BIOLOGY – (PART – D)

This part contains **9 Multiple Choice Questions** number **94 to 102**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

94. During expiration or exhalation
(A) Lung's volume decreases, diaphragm becomes dome shape
(B) Lung's volume increases, diaphragm flattens
(C) Lung's volume decreases, diaphragm flattens
(D) None of these
95. The root cells of plants also need oxygen to generate energy. They take oxygen from
(A) air spaces present between the soil particles
(B) water in soil
(C) the leaves
(D) All of the above
96. Dark reaction in photosynthesis is called so because
(A) it does not require light energy
(B) it cannot occur during daytime
(C) it occur more rapidly at night
(D) it only occurs in darkness
97. When we breathe out, exhaled air turns lime water _____ due to presence of _____.
(A) Orange, Oxygen
(B) Milky, Oxygen
(C) Milky, Carbon dioxide
(D) Milky, Carbon monoxide
98. A type of teeth present in adult human being, but absent in child.
(A) Incisor
(B) Molar
(C) Canines
(D) Premolar
99. Plants that have mutualistic relation with nitrogen fixing bacteria, the bacteria fixes nitrogen for the plant and in turn plant provide the bacteria with
(A) Enzymes
(B) Nitrogen
(C) Food and shelter
(D) Oxygen
100. The tropical rain forest is also called:
(A) Yellow forest
(B) Monsoon forest
(C) Evergreen forest
(D) All of these
101. What types of equipment would a meteorologist use to measure weather?
(A) Weather stations
(B) Weather balloons
(C) Satellites
(D) All of these
102. Weather does not include which factor?
(A) Temperature
(B) Wind speed
(C) Amount of sunlight
(D) All are factors of weather

Space for Rough Work

FIITJEE ADMISSION TEST

CLASS – VIII (PAPER – 1) ANSWERS

- | | | | |
|--------|--------|-------|--------|
| 1. B | 2. A | 3. B | 4. A |
| 5. D | 6. C | 7. C | 8. B |
| 9. B | 10. C | 11. C | 12. A |
| 13. C | 14. D | 15. D | 16. C |
| 17. C | 18. B | 19. A | 20. C |
| 21. B | 22. A | 23. B | 24. D |
| 25. C | 26. C | 27. B | 28. A |
| 29. C | 30. A | 31. C | 32. A |
| 33. A | 34. A | 35. A | 36. B |
| 37. A | 38. B | 39. A | 40. B |
| 41. C | 42. C | 43. B | 44. A |
| 45. D | 46. A | 47. A | 48. C |
| 49. D | 50. A | 51. C | 52. B |
| 53. A | 54. A | 55. C | 56. B |
| 57. A | 58. A | 59. D | 60. A |
| 61. A | 62. D | 63. C | 64. C |
| 65. B | 66. A | 67. D | 68. C |
| 69. B | 70. B | 71. A | 72. B |
| 73. D | 74. B | 75. A | 76. D |
| 77. B | 78. C | 79. C | 80. B |
| 81. B | 82. A | 83. D | 84. C |
| 85. B | 86. B | 87. A | 88. C |
| 89. A | 90. B | 91. C | 92. A |
| 93. B | 94. A | 95. A | 96. A |
| 97. C | 98. D | 99. C | 100. C |
| 101. D | 102. C | | |