FIITJEE **Talent Reward Exam-2014**
for student presently in
Class 8

PAPER–1

Time: 3 Hours

Maximum Marks: 198

Instructions:

Caution: Question Paper CODE as given above MUST be correctly marked in the answer OMR sheet before attempting the paper. Wrong CODE or no CODE will give wrong results.

1. **You are advised to devote 1 Hour on Section-I and 2 Hours on Section-II.**

2. This Question paper consists of 2 sections. All questions will be multiple choice single correct out of four choices with marking scheme in table below:

Section	Subject	Question no.	Marking Scheme for each question	
			correct answer	**wrong answer**
SECTION – I	IQ	Q. 1 to 24	**+3**	**–1**
SECTION – II	Physics	Q. 25 to 36	**+3**	**–1**
	Chemistry	Q. 37 to 48	**+3**	**–1**
	Mathematics	Q. 49 to 60	**+3**	**–1**
	Biology	Q. 61 to 66	**+3**	**–1**

3. Answers have to be marked on the OMR sheet.

4. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.

5. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.

6. **Before attempting paper write your Registration Number, Name, Answer Sheet No.** and **Test Centre** in the space provided at the bottom of this sheet.

Note: *Please check this Question Paper contains all **66** questions in serial order. If not so, exchange with the correct Question Paper.*

Registration Number : _____

Name of the Candidate : _____

Answer Sheet No. : _____

Test Centre : _____

Section-I   **IQ**

Straight Objective Type

*This section contains 24 multiple choice questions numbered 1 to 24. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1.   337, 211, 121, __, 25, 7
        (A) 101   (B) 61
        (C) 64   (D) 27

2.   49, 925, 2549, ?, 121169
        (A) 64121   (B) 100121
        (C) 49121   (D) 4981

3.   1, 7, 8, 15, 23, 38, ?
        (A) 62   (B) 61
        (C) 54   (D) 51

4.   The following question is based on the following alphabet series.
        A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
        Which letter is exactly midway between H and T in the given alphabet?
        (A) L   (B) M
        (C) N   (D) None of these

5.   In the word 'PARADISE', how many pairs of letters are there which have as many letters between them in the word as in the alphabet?
        (A) None   (B) One
        (C) Two   (D) Three

Directions (Q. 6): Two groups of alphabets related to each other in same way, are given. The candidate is required to find out this relationship and choose a group of alphabets which is related in the same way to a third group provided in the question.

6.   AG : IO : : EK : ?
        (A) LR   (B) MS
        (C) PV   (D) SY

7.   Pointing to a photograph, Vipul said, "She is the daughter of my grandfather's only son." How is Vipul related to the girl in the photograph?
        (A) Father   (B) Brother
        (C) Cousin   (D) Uncle

Space for rough work

8. In a certain code, MONKEY is written as XDJMNL. How is TIGER written in that code?
   (A) QDFHS
   (B) SDFHS
   (C) SHFDQ
   (D) UJHFS

9. A tailor had a number of shirt pieces to cut from a roll of fabric. He cut each roll of equal length into 10 pieces. He cut at the rate of 45 cuts a minute. How many rolls would be cut in 24 minutes?
   (A) 32 rolls
   (B) 54 rolls
   (C) 108 rolls
   (D) 120 rolls

Direction (Q. 10 to 11): In the following question, a group of letters is given which are numbered 1, 2, 3, 4, 5 and 6. Below are given four alternatives containing combinations of these numbers. Select that combination of numbers so that letters arranged accordingly, form a meaningful word.

10. C E L S M U
    1 2 3 4 5 6
    (A) 4, 6, 3, 5, 2, 1
    (B) 5, 6, 4, 1, 3, 2
    (C) 4, 6, 5, 2, 3, 1
    (D) 5, 2, 3, 1, 6, 4

11. H N R C A B
    1 2 3 4 5 6
    (A) 4, 1,5, 6, 2, 3
    (B) 6, 3, 5, 2, 4, 1
    (C) 3, 5, 6, 4, 1, 2
    (D) 2, 5, 3, 4, 1, 6

12. Find the missing number.

1	2	3
4	5	6
7	8	9
27	38	?

   (A) 49
   (B) 50
   (C) 51
   (D) 52

Space for rough work

Directions (Q. 13 to 18): Study the following information carefully and answer the questions given below:
M, D, P, K, R, T and W are sitting around a circle facing the centre. D is second to the right of P, who is third to the right of K. T is third to the right of W, who is not an immediate neighbour of D. M is third to the left of R.

13. Who is second to the right of T?
    (A) D   (B) K
    (C) M   (D) Data inadequate

14. In which of the following pairs is the second person sitting to the immediate right of first person?
    (A) DT   (B) TP
    (C) PR   (D) KW

15. Who is on the immediate left of R?
    (A) W   (B) P
    (C) K   (D) T

16. Who is on the immediate left of M?
    (A) K   (B) W
    (C) D   (D) T

17. Who is third to the left of D?
    (A) W   (B) P
    (C) K   (D) None of these

18. Who is 4th left of W?
    (A) D   (B) T
    (C) P   (D) R

Space for rough work

Directions (Q. No. 19 - 21): Read the following information

The sum of the incomes of A and B is more that of C and D taken together. The sum of the income of A and C is the same as that of B and D taken together. More over, A earns half as much as the sum of the incomes of B and D.

19. Whose income is the highest?
(A) A   (B) B
(C) C   (D) D

20. Which of the following statement is not correct?
(A) A earns more than B   (B) B earns more than D
(C) C earns more than D   (D) B earns more than C.

21. If A's income be Rs 80,000 per annum and the difference between the incomes of B and D be the same as A's income, B's income is
(A) Rs 40,000   (B) Rs 60,000
(C) Rs 80,000   (D) Rs 1,20,000
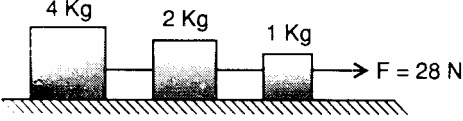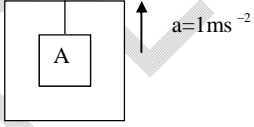
Directions (Q. No. 22 - 24):

Six students A,B,C,D,E and F are sitting in the field. A and B are from Nehru house while the rest belong to Gandhi House. D and F are tall while the others are short. A,C and D are wearing glasses while the others are not.

22. Which two students, who are not wearing glasses, are short?
(A) A and F   (B) C and E
(C) B and E   (D) E and F

23. Which short student of Gandhi house is not wearing glasses
(A) F   (B) E
(C) B   (D) A

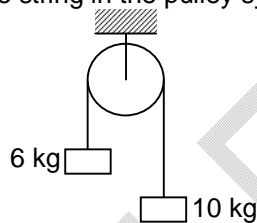24. Which tall student of Gandhi House is not wearing glasses?
(A) B   (B) C
(C) E   (D) F

Space for rough work

Section-II   **Science and Mathematics**

Physics

Straight Objective Type

*Physics contains 12 multiple choice questions numbered 25 to 36. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

25.   Electroplating is a
(A) Heating effect of current   (B) Magnetic effect of current
(C) Chemical effect of current   (D) None of these

26.   In the arrangement shown in the figure given below, the strings are light and inextensible. The surface over which blocks are placed is smooth. What is the acceleration of each block?

(A) 8 m/s^2 (B) 4 m/s^2
(C) 2 m/s^2 (D) 14 m/s^2

27.   Force required to move a mass of 1 kg at rest on a horizontal rough plane (μ = 0.1 & g = 9.8 m/s^2) is:
(A) 0.98 N   (B) 0.49 N
(C) 9.8 N   (D) 4.9 N

28.   The time rate of change of momentum is measured in
(A) kg ms^{-2} (B) kg ms^{-1}
(C) kg m   (D) kg

29.   If the elevator in the shown figure is moving upwards with constant acceleration 1ms^{-2}, the tension in the string connected to block A of mass 5 kg would be (take g = 10 m/s^2)

(A) 30 N   (B) 55 N
(C) 20 N   (D) 85 N

Space for rough work

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30. A body of mass m moves with the velocity v on a surface whose friction co-efficient is μ. If the body covers distance s before coming to rest, then v will be
   (A) $\sqrt{2\mu gs}$
   (B) $\sqrt{\mu gs}$
   (C) $\sqrt{\dfrac{\mu gs}{2}}$
   (D) $\sqrt{3\mu gs}$

31. The loudness of sound depends upon
   (A) Amplitude
   (B) Pitch
   (C) Velocity
   (D) Wavelength

32. It is difficult to walk on ice because of
   (A) less friction
   (B) Absence of inertia
   (C) More inertia
   (D) More friction

33. A liquid which conducts electricity and at the same time undergoes a chemical reaction is called
   (A) Conducting liquid
   (B) Chemically conducting liquid
   (C) Electrolyte
   (D) None of the above

34. Which of the following is not a property of Normal force :
   (A) It is a contact force
   (B) It is a self adjustable force
   (C) It works perpendicular to the contact surface
   (D) It can work even it two bodies are not in touch

35. The tension in the string in the pulley system shown in the figure is (take g = 10 m/s²)

   (A) 5.7 N
   (B) 7.5 N
   (C) 7 N
   (D) 75 N

36. A body travels from A to B with a velocity V_1 and return back from B to A with a velocity V_2. The average speed of the body during the whole journey is
   (A) 0
   (B) $\dfrac{V_1 + V_2}{2}$
   (C) $\dfrac{V_1 - V_2}{2}$
   (D) $\dfrac{2V_1V_2}{V_1 + V_2}$

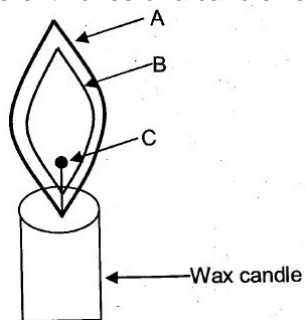*Space for rough work*

Chemistry

Straight Objective Type

*Chemistry contains 12 multiple choice questions numbered 37 to 48. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

37. The main function of roasting is
    (A) To remove the volatile impurities   (B) Oxidation
    (C) Reduction   (D) To make slag

38. Which of the following is an ore of aluminium?
    (A) Cryolite   (B) feldspar
    (C) Bauxite   (D) All of these

39. The fractional distillation of coal tar yields
    (A) carbon disulphide   (B) carbon tetrachloride
    (C) kerosene oil   (D) benzene

40. In thermite process, the reducing agent is
    (A) Al   (B) Zn
    (C) C   (D) Na

41. Which of the following gas is known as illuminating gas?
    (A) Ethane   (B) Ethene
    (C) Ethyne   (D) Propane

42. Which of the following metal is not manufactured by electrolysis?
    (A) Na   (B) Mg
    (C) Al   (D) Fe

Space for rough work

43.   Which of the following is a linear polymer?
       (A) Nylon   (B) Bakelite
       (C) Glycogen   (D) Melamine- formaldehyde polymer.

44.   Which of the following is a branched polymer?
       (A) Low density polythene   (B) Polyester
       (C) Nylon   (D) PVC.

45.   Terylene is the polyester of:
       (A) Hexamethylenediamine and adipic acid   (B) Vinyl chloride and formaldehyde
       (C) Melamine and formaldehyde   (D) Ethylene glycol and terephthalic acid.

46.   Nylon is a:
       (A) Vinyl polymer   (B) Polyamide
       (C) Polyester   (D) Polysaccharide.

47.   Chloroprene is the repeating unit in
       (A) Polystyrene   (B) Neoprene
       (C) PVC   (D) Polythlene

48.   The different zones of a candle flame are marked by the letters A,B and C.

       Which of the following is correct?
       (A) B is the hottest part of the flame.
       (B) C is moderately hot.
       (C) A is the hottest part of the flame.
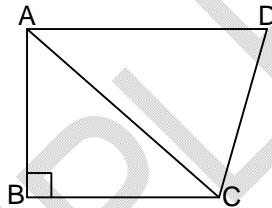   (D) A is moderately hot whereas C is the coldest part.

Space for rough work

Mathematics

Straight Objective Type

*Mathematics contains 12 multiple choice questions numbered 49 to 60. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*
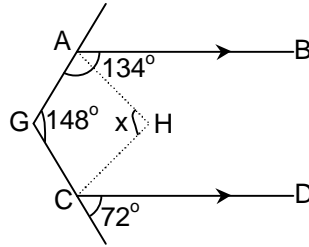
49. If $x = \dfrac{1}{4 - \sqrt{15}}, y = \dfrac{1}{4 + \sqrt{15}}$, then value of $x^3 + y^3$ is

    (A) 486 (B) 439
    (C) 488 (D) 476

50. The value of the expression $\sqrt{6 + \sqrt{6 + \sqrt{6 + \ldots\ldots\text{upto } \infty}}}$ is

    (A) 2 (B) 3
    (C) 30 (D) 5

51. Raj bought a cycle for Rs 1500 and spend Rs 100 for transport and sold it to Jai at gain of 10%. Jai spend Rs 180 on it and sold it to Rama at 15% gain. The cost of cycle for Rama will be
    (A) Rs 2200 (B) Rs 2210
    (C) Rs 2221 (D) Rs 2231

52. If $x^2 + y^2 + z^2 - xy - yz - zx = 0$

    then the value of $\dfrac{x + y}{z}$ is

    (A) 2 (B) 1
    (C) xy (D) yz

53. In the quadrilateral ABCD $\angle B = 90^\circ$ and $AD^2 = AB^2 + BC^2 + CD^2$. Then $\angle ACD$ is

    (A) 80° (B) 100°
    (C) 90° (D) 120°

Space for rough work

54. In the adjoining figure AB ∥ CD, AH and CH are the bisectors of ∠A and ∠C respectively. Find the measure of ∠x.

(A) 90° (B) 91°
(C) 100° (D) 75°

55. If $x = 3 + 2\sqrt{2}$, then find the value of $x^{\frac{1}{2}} - x^{-\frac{1}{2}}$

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

56. If $y = 5 - \sqrt[3]{25} - \sqrt[3]{5}$, then find the value of $y^3 - 15y^2 + 60y + 40$

(A) 60 (B) 50
(C) 40 (D) 10

57. A discount of 16% on the marked price of a book enables a man to buy a pen which costs Rs 80. How much did he pay for the book?

(A) 400 (B) 410
(C) 420 (D) 350

58. If $3^{2x^2 - 9x} = (81)^{-1}$, then x is

(A) $4, \dfrac{1}{2}$ (B) $2, \dfrac{1}{4}$
(C) 2, 1 (D) Both (a) and (b)

59. If $A = \sqrt{7} - \sqrt{6}$ and $B = \sqrt{6} - \sqrt{5}$, then

(A) A > B (B) A = B
(C) A < B (D) A ≥ B

60. If $y + \dfrac{1}{y} = 12$, then $y^3 + \dfrac{1}{y^3}$ is equal to

(A) 1680 (B) 1686
(C) 1692 (D) None of these

Space for rough work

Biology

Straight Objective Type

*Biology contains 6 multiple choice questions numbered 61 to 66. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

61. Who among the following one discovered the cell?
    (A) Darwin　　　　　　　　　　　(B) Hooke
    (C) Pasteur　　　　　　　　　　　(D) Morgan

62. The following paragraph is related to photosynthesis. Complete the following paragraph by selecting the correct option.
    Photosynthesis means synthesis of ………….. from ………… and water in the presence of …………. and light energy. This process occurs in minute bodies bounded by double membrane called ………….. where closely packed flattened sacs are found called Grana. Unit of grana is ……….. Each grana is attached to another grana through………...
    (A) Glucose, CO_2, Chlorophyll, Chloroplast, Stroma, Thylakoids
    (B) Sugars, Chlorophyll, CO_2, Chloroplast, Grana, Thylakoids
    (C) Glucose, CO_2, Chlorophyll, Chloroplast, Thylakoids, Frets
    (D) Sugars, Chlorophyll, CO_2, Chloroplast, Frets, Thylakoids

63. Which of these is the correct order of agricultural practices?
    (A) Ploughing, sowing, levelling, harvesting, manuring and irrigation.
    (B) Ploughing, levelling, irrigation, sowing, manuring and harvesting.
    (C) Ploughing, irrigation, sowing, manuring, harvesting and levelling.
    (D) Ploughing, levelling, manuring, sowing, irrigation and harvesting.

64. Match the following :
    (a) Khurpa　　　　　　　(i) For weeding
    (b) Spade　　　　　　　　(ii) For breaking crumbs
    (c) Wooden plough　　　(iii) For digging
    (d) Soil plank　　　　　(iv) For tillage
    (A) (a) - (i) (b) - (ii) (c) - (iii) (d) - (iv)　　　(B) (a) - (i) (b) - (iii) (c) - (iv) (d) - (ii)
    (C) (a) - (i) (b) - (iv) (c) - (ii) (d) - (iii)　　　(D) (a) - (ii) (b) - (i) (c) - (iii) (d) - (iv)

65. Which of the following are characteristics of both bacteria and fungi?
    (A) Cell wall, unicellularity and mitochondria
    (B) Cell wall, DNA and plasmalemma
    (C) Nucleus, organelles and unicellularity
    (D) Plasma membrane, Golgi apparatus, mitochondria

66. Match the following and choose the correct answer:

Column –I		Column –II	
I	Gir National Park	A	IUCN
II	Bandipur	B	Project Tiger
III	Kanha National Park	C	Karnataka
IV	Red Data Book	D	Gujarat

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

Space for rough work

FIITJEE Talent Reward Exam-2014
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Class 8

PAPER–1

ANSWER KEYS

SECTION – I (IQ)		SECTION – II (SCIENCE & MATHEMATICS)			
Q. No	Answer	Q. No	Answer	Q. No	Answer
1.	B	25.	C	49.	C
2.	C	26.	B	50.	B
3.	B	27.	A	51.	D
4.	C	28.	A	52.	A
5.	D	29.	B	53.	C
6.	B	30.	A	54.	B
7.	B	31.	A	55.	C
8.	A	32.	A	56.	A
9.	D	33.	C	57.	C
10.	B	34.	D	58.	A
11.	B	35.	D	59.	C
12.	C	36.	D	60.	C
13.	C	37.	B	61.	B
14.	D	38.	D	62.	C
15.	A	39.	D	63.	D
16.	C	40.	A	64.	B
17.	D	41.	C	65.	B
18.	B	42.	D	66.	C
19.	B	43.	A		
20.	A	44.	A		
21.	D	45.	D		
22.	C	46.	B		
23.	B	47.	B		
24.	D	48.	C		