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IIT-JEE | NEET | FOUNDATIONS

# Genius Junior'18

## Round 1

**Total questions: 40**

**Time: One Hour**

**Total marks: 100**

**Standard: 8th**

**Read the following instructions carefully**

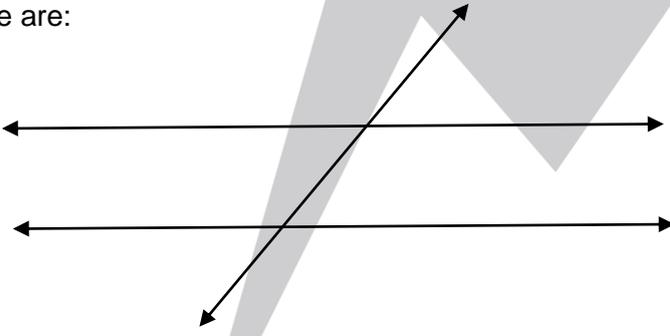
**Paper Code: 080101**

1. Do not open the question paper until you are asked to do so.
2. Carefully see your question paper code and write it properly in your answer sheet.
3. This question paper contains 40 questions divided into 5 sections.  
SECTION I – MATHEMATICS (10 questions)  
SECTION II – SCIENCE (10 questions)  
SECTION III -MENTAL ABILITY (10 questions)  
SECTION IV – LANGUAGE SKILLS (5 questions)  
SECTION V – GENERAL KNOWLEDGE (5 questions)
4. Mathematics and Science questions carry 3 marks each.
5. All other questions carry 2 marks each.
6. There is no negative marking.
7. All questions are multiple choice questions (MCQs) with four alternatives. Only one option is correct for every question.
8. You must fill a bubble against the correct option with black/blue ball pen only. (Incompletely filled bubbles/ more than one bubble entries for a single question will be considered as a wrong answer)
9. Do not make any stray marks on the sheet.
10. You should handover the question paper as well as the answer sheet to the invigilator after the examination.

***All The Best!!!***

## SECTION 1: MATHEMATICS

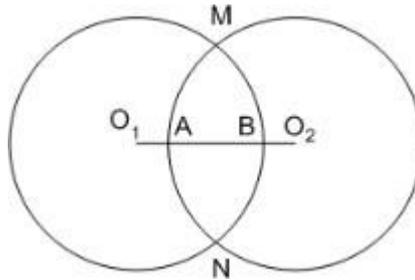
(Each question carries 3 marks)

- 1) *Statement 1:* The square of a real number is always positive  
*Statement 2:* The number "2" is the smallest prime number.  
Are the above mentioned statements true or false?
- A) Both statements are TRUE  
B) Statement 1 is FALSE, statement 2 is TRUE  
C) Statement 1 is TRUE, statement 2 is FALSE.  
D) Both statements are FALSE.
- 2) A book is sold at 10% loss. If the selling price is Rs. 40 more, there will be a profit of 15%.  
The cost price of the article is:
- A) Rs.175                      B) Rs.160                      C) Rs. 140                      D) Rs.120
- 3) What is the half of  $2^{20}$ ?
- A)  $1^{20}$                       B)  $1^{10}$                       C)  $4 \times 2^{17}$                       D) 2
- 4) The number of pairs of alternating angles and corresponding angles in the given figure are:
- 
- A) 2,4                      B) 2,2                      C) 3,6                      D) 4, 4
- 5) A copper wire when bent in the form of a square encloses an area of  $484 \text{ cm}^2$ . If the same wire is bent in the form of a circle. Then the area enclosed by it is
- A)  $615 \text{ cm}^2$                       B)  $616 \text{ cm}^2$                       C)  $626 \text{ cm}^2$                       D)  $818 \text{ cm}^2$
- 6) Out of 50 observations, the mean of 25 observations is 30 and mean of rest 25 observations is 32, then mean of 50 observations is:
- A) 34                      B) 33                      C) 32                      D) 31
- 7) Which of the following is the factorisation of  $x^3 - x$ ?
- A)  $x(x - x^2)$                       B)  $x[(1 + x)(1 - x)]$

C)  $x(x^2-x)$

D)  $x[(x+1)(x-1)]$

- 8) The two circles in the figure below intersect each other at M and N. Both circles have radius of 4 inches.  $AB = 3$  inches where A and B are the points of intersection of segment  $O_1O_2$  of the two circles.



What is the length  $O_1O_2$ ?

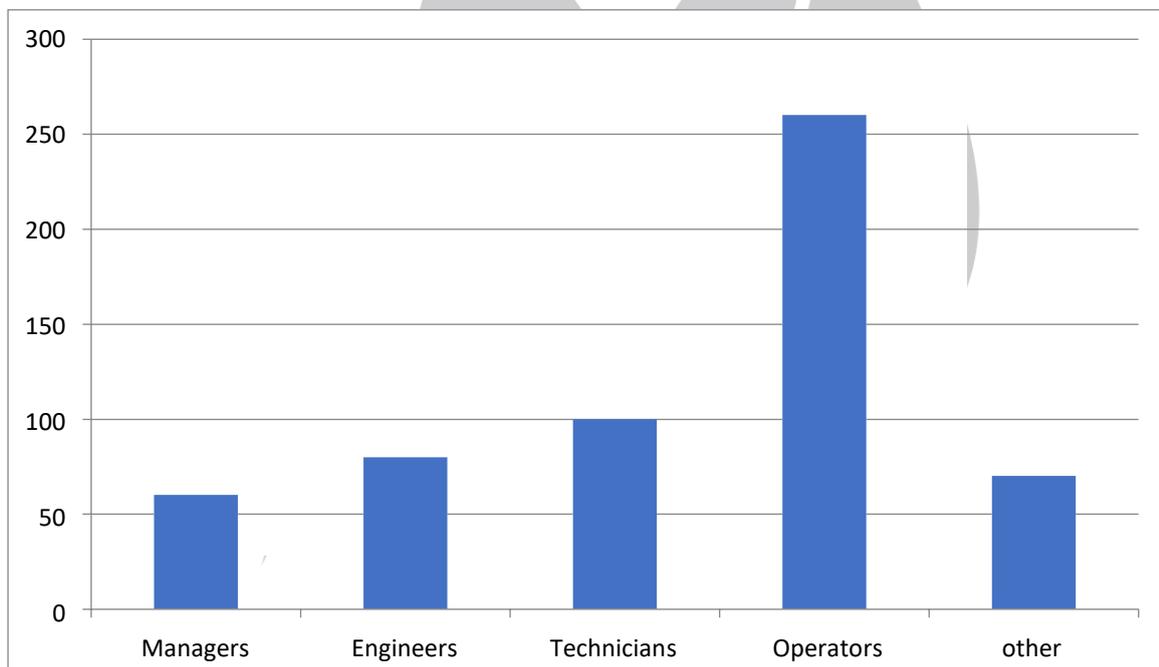
A) 2 inches

B) 3 inches

C) 4 inches

D) 5 inches

- 9) What is the approximate percentage of all employees of a company that are operators?



A) 12%

B) 29%

C) 33%

D) 44%

- 10) One year ago, the ratio of Reema's age and Seema's age was 6:7. Four years hence, their ratio would become 7:8. How many years old is Seema?

A) 32 years

B) 40 years

C) 31 years

D) 36 years

## SECTION 2: SCIENCE

(Each question carries 3 marks)

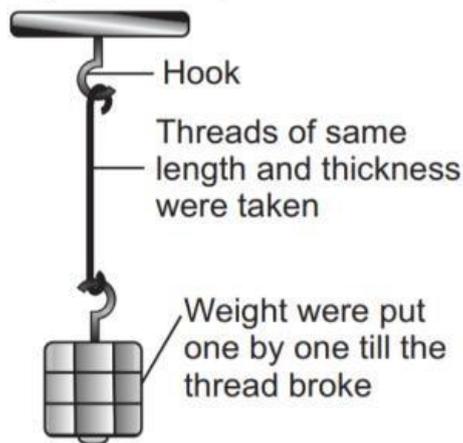
11) The type of aquatic animals that can survive in particular water is determined by analyzing its

- A) pH      B) temperature      C) volume      D) turbidity

12) Tina's dad is suffering from high cholesterol levels and heart problems. He also seems to be struggling with his vision. What kind of deficiency might be causing these problems? Also, what food must Tina advise her father to consume in order to overcome deficiencies?

- A) Vitamin C deficiency, plant oils.      B) Vitamin A deficiency, spinach.  
C) Vitamin D deficiency, almonds.      D) Vitamin C deficiency, oranges.

13) Anuj has performed an experiment to compare the strength of different fibers. He arranged the set-up as shown in figure:



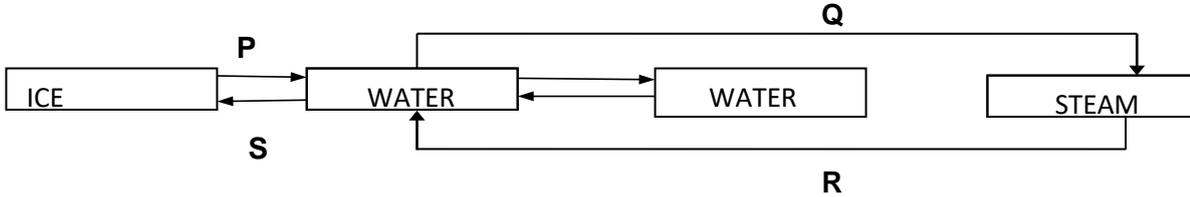
Arrange the threads in order of their increasing strength.

- A) Nylon < Silk < Cotton      B) Silk < Cotton < Nylon  
C) Cotton < Nylon < Silk      D) Cotton < Silk < Nylon

14) When a glass rod is rubbed with a piece of silk cloth,

- A) Both cloth and the rod acquire positive charge.  
B) Rod becomes positively charged while the cloth acquires a negative charge.  
C) Rod becomes negatively charged while the cloth acquires a positive charge.  
D) Both cloth and the rod acquire negative charge.

15) Observe the given diagram carefully and match the letters with the correct phenomenon.



	P	Q	R	S	T
A)	Freezing	Boiling	condensation	melting	Evaporation
B)	Freezing	Evaporation	Boiling	melting	Condensation
C)	Melting	Boiling	condensation	Freezing	Evaporation
D)	Melting	Evaporation	condensation	Freezing	Boiling

16) Which of the following statements is/are correct?

- i) All green plants can prepare their own food.
- ii) Most animals are autotrophs.
- iii) Carbon dioxide is not required for photosynthesis.
- iv) Oxygen is liberated during photosynthesis.

Choose the correct answer from the options below:

- A) (i) and (iv)      B) (ii) only      C) (ii) and (iii)      D) (i) and (ii)

17) Which of the following is not true?

- A) A sharp knife can easily cut due to its small cutting force.
- B) It is easier to walk on sand than on the road.
- C) Boric powder is sprayed on carrom board to decrease friction.
- D) Pressure exerted by needle is more than foot of an elephant for same value of applied force.

18) On what factors does the radiation of heat depend?

- i) Temperature of the substance
- ii) Colour of the substance
- iii) Medium to transfer the energy

- A) (i) and (ii)      B) (ii) and (iii)      C) (iii) and (i)      D) (i), (ii) and (iii)

19) Abhi fell from a tricycle and got minor injuries on his body. He noticed that the blood coming out from the injury had stopped after some time and a dark red clot was formed. The clot formed is due to the presence of:

- A) Red blood cells      B) Plasma      C) White blood cells      D) Platelets

20) A set of three statements is given below. State whether each of the statements is TRUE or FALSE. Choose the correct option. E.g. In case statement 1 is FALSE, statement 2 is TRUE and statement 3 is FALSE, the correct option is FTF.

- 1) In lemon juice, blue litmus turns red.
- 2) In shampoo, red litmus turns blue.
- 3) In salt water, red litmus turns blue.

A) TTF                      B) TTT                      C) FTF                      D) TFT

### SECTION 3: MENTAL ABILITY

(Each question carries 2 marks)

21) Cube is related to Square the same way as Square is related to :

A) Plane                      B) Triangle                      C) Line                      D) Point

22) Find the odd one out:

A) 7924                      B) 4682                      C) 3973                      D) 3199

23) Find the numbers in place of ? in the following series.

20 , 20 , 19 , 16 , 17 , 13 , 14 , 11 , ? , ?

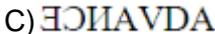
- A) 10, 10
- B) 10, 11
- C) 13, 14
- D) 13, 16

24) If in a certain code GENIUS is IGPKWU and JUNIOR is LWPKQT, what is the code for COEP?

A) AMCN                      B) FQGS                      C) EQGR                      D) FRBM

25) Choose the alternative which is closely resembles the water image of the given combination/figure.

#### ADVANCE

A)                       B)                       C)                       D) None

26) Flight to Mumbai leaves every 5 hours. At the information counter, I learnt that the flight took off 25 minutes before. If the time now is 10:45 a.m., what is the time for the next flight?

A) 2:20 a.m.                      B) 3:30 a.m.                      C) 3:55 p.m.                      D) 3:20 p.m.

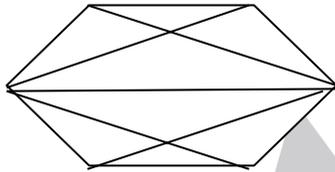
27) If Amit's father is Billoo's father's only son and Billoo has neither a brother nor a daughter. What is the relationship between Amit and Billoo?

- A) Uncle—Nephew  
B) Father—Daughter  
C) Father—Son  
D) Grandfather—Grandson

28) Sam ranked 9th from the top and 38th from the bottom in a class. How many students are there in the class?

- A) 45  
B) 47  
C) 46  
D) 48

29) Find the number of triangles in the given figure.



- A) 12  
B) 13  
C) 16  
D) 10

30) There are five books A, B, C, D and E placed on a table. If A is placed below E, C is placed above D, B is placed below A and D is placed above E, then which of the following book touches the surface of the table?

- A) C  
B) B  
C) A  
D) E

## SECTION 4: ENGLISH

(Each question carries 2 marks)

31) Choose the correct spelling:

- A) Souvenir  
B) Suvenir  
C) Suvener  
D) Souvener

32) "When I saw her, she was crossing the road." Change the voice.

- A) When she seen by me, she was crossing the road.  
B) When she was being seen by me, she was crossing the road.  
C) When she was seen by me, she was crossing the road.  
D) When she saw by me, she was crossing the road.

33) The bank clerk tried to \_\_\_\_\_ money from his friends account.

- A) empower  
B) embroil  
C) embellish  
D) embezzle

Read the following passage carefully and answer questions (34) and (35) based on the it:

## The Nest

What do you call 36 kilometers of crisscrossing steel beams wound in the shape of a giant basket? Officially it's the Beijing National Stadium. Unofficially it's the Bird's Nest. And what a nest! Seven tiers of seating will hold 91,000 fans for the Games opening and closing ceremonies, and the major track and field events.

Swiss architects Jacques Herzog and Pierre de Meuron, and Chinese Artist Ai Weewei drew directly upon Chinese symbolism for the stadium's award-winning design. Specifically, they looked to the bird's nest – regarded in china as an object of harmony in the natural world- for inspiration.

Mirroring the way a bird stuffs grass and leaves between the twigs when building its nest, the architects have placed an inflatable plastic film called ETFE between the steel "twigs" of the stadium to make the Nest one of the most ingeniously designed "Green" buildings in the world.

(Passage is an excerpt from Beijing's Makeover by Gary Sledge from Reader's Digest Issue of July 2008)

34) The architects' main source of inspiration for the design of the stadium was .....

- A) Traditional Chinese buildings
- B) Ancient Chinese art
- C) Chinese symbolism
- D) Environmentally friendly ideas

35) The inflatable plastic film called ETFE between the steel "twigs" of the stadium represents:

- A) An ingeniously designed "Green" building
- B) The Chinese symbolism of harmony
- C) The theme of the Olympic games.
- D) The way a bird fills grass and leaves between twigs when building its nest

## **SECTION 5: GENERAL KNOWLEDGE**

(Each question carries 2 marks)

36) Recently inaugurated, India's longest river bridge is built over which of the following rivers?

- A) Ganga
- B) Indus
- C) Brahmaputra
- D) Godavari

37) Where is the International court of Justice located?

- A) Hague, Netherlands
- B) Zurich, Switzerland
- C) Networks
- D) Istanbul, Turkey

38) The table given below enlists the Nobel Prize winners, their countries and the categories in which they have received the prize. According to you, which is the correct option?

NAME	COUNTRY	CATEGORY
Einstein	France	Physics
Martin Luther King	South Africa	Peace
Alexander Fleming	Germany	Chemistry
Aung Sang Suu Kyi	India	Peace

- A) Einstein, France, Physics                      B) Martin Luther King Jr., South Africa, Peace  
C) Alexander Fleming, Germany, Chemistry   D) Aung Sang Suu, India, peace

39) Sundar Pichai is the CEO of the company \_\_\_\_\_ which is now overseen by \_\_\_\_\_ as the parent company that will oversee all its various initiatives.

- A) Google, The Alphabet                      B) Hotmail, Google  
C) Hotmail, The Alphabet                      D) Google, Youtube

40) BHIM is like which of the following listed below?

- A) Indian railways                      B) Paytm                      C) Amazon                      D) Hotstar