RECRUITMENT TEST

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Name: _____ Branch: _____

Phone: _____ Email: _____

☐ 1st SEM
☐ 3rd SEM
☐ 3rd SEM (Diploma)

SET: 2
Start time:
End time:

INSTRUCTIONS

- This selection test consists of a total of 20 questions. Questions 1-15 are purely aptitude-based and questions 15-20 are technical.
- Question 20 is an option question where either of the choices may be attempted.
- The duration of the test is 45 minutes. Calculators are permitted.
- The results of the Selection Test will be announced by 7 September on www.teamantariksh.in.
- **MAY THE FORCE BE WITH YOU, AND THE ODDS BE EVER IN YOUR FAVOUR !**

APTITUDE QUESTIONS

1. Complete the following sequence:

   1, 1, 8, 27, 125, 512, _____

   Ans. 2197

2. Sita prefers Dragon fruit to Papaya, Watermelon to Pumpkin and Passionfruit to Chikoo. If she prefers Papaya to Kiwi and Pumpkin to Papaya, which is Sita's least preferred eatable?

   Ans. Kiwi

3. Direction (Questions 3.1 to 3.3): There are eight people A, B, C, D, E, F, G and H sitting around a circular table facing centre. D is sitting second to the left of G who is sitting second to the left of F. Only E is sitting between F and C. C is sitting third to the right of B. Only one person is sitting between E and H.

   1. Which of the following is correct?
      a) D is sitting third to the left of H
      b) F is sitting third to the left of G
      c) B is sitting second to the right of D
      d) H is sitting second to the right of C
   2. Based on the given information, which of the following is the correct position?
      a) A and C are sitting next to each other
      b) F and G are sitting next to each other
      c) H and F are sitting next to each other
      d) D is sitting next to H
   3. Which of the following is the correct order of sitting of persons right of A?
      a) G B F E C H D
      b) G D C H B F E
      c) G B H D C F E
      d) C H B E D G F

   Ans. 1) c   2) d   3) a

4. What is the angle made by the minute hand and the hour hand of the clock, if it reads 5:37 pm?

   Ans. 53.5°

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5. Which is the highest power of 2 which can divide (200!)/(100!)?
     Ans. 100

6. In two decks of cards, what is the least number of cards you must take to be "guaranteed" at least one four-of-a-kind?
     Ans. 40

7. Read the information carefully and answer the following question:

     a) M : N means M is the son of N
     b) M/N means M is the father of N
     c) M $ N means M is the wife of N
     d) M + N means M is the mother of N
     e) M % N means M is the sister of N
     f) M # N means M is the husband of N

What should come in the place of the question mark to establish that D is the son-in-law of B in the expression?

<p align="center">"A % B / C ? D / E"</p>

     Ans. $

8. There are 4 big houses standing in a row. They are made from these materials: red marbles, green marbles, white marbles and blue marbles.

    a) Mrs Jennifer's house is somewhere to the left of the green marbles one and the third one along is white marbles.
    b) Mrs Sharon owns a red marbles house and Mr Cruz does not live at either end, but lives somewhere to the right of the blue marbles house.
    c) Mr Danny lives in the fourth house, while the first house is not made from red marbles.

Who lives where, and what is their house made from?
     Ans. #1 - Mrs. Jennifer - Blue Marbles
          #2 - Mrs. Sharon - Red Marbles
          #3 - Mr. Cruz - White Marbles
          #4 - Mr. Danny - Green Marbles

9. What common mathematical symbol, when placed in between the numbers 4 and 5, will result in a number that is less than 6 and greater than 4?
     Ans. Dot (decimal point)

10. The probability that it is Friday and that a student is absent is 0.03. Since there are 5 school days in a week, the probability that it is Friday is 0.2. What is the probability that a student is absent given that today is Friday?
     Ans. 15 %

11. A train X starts from Benagaluru at 4:00 pm and reaches Mandya at 5:00 pm. While another train Y starts from Mandya at 4pm and reaches Bengaluru at 5:30 pm. At what time will the two trains cross each other?
     Ans. 4:36 pm

12. A train is running at a speed of 40 km/hr and it crosses a post in 18 seconds. What is the length of the train?
     Ans. 200 m

13. What is the fourteenth digit to the right of the decimal point, in the decimal expansion of $\left(\frac{1}{5}\right)^{14}$?
     Ans. 4

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14. In a game, you have six empty glasses in a row numbered from 1 to 6. You roll a die and whatever number you get, you are going to fill that glass with water. If you get a number in the die, for which the water already exists in the glass, we will drink that water and make it empty, this process continues till all the glasses are filled. How many times would the die have rolled?

Ans. 83

15. There are three boxes. One contains only apples, one contains only oranges, one contains both apples and oranges. The boxes have been incorrectly labelled such that no label identifies the actual contents of its box. Opening just one box and without looking into the box, you take one fruit. By looking at that fruit, is it possible to label all boxes correctly. If it is possible, How?

Ans. a) Box with Apples and Oranges should be opened first.
b) If it's an Apple, then move the Apple label to this box; and vice versa.

TECHNICAL QUESTIONS

16. India possess an indigenous constellation of satellites that can be used for navigation, which is somewhat similar to the American GPS satellites. Various other countries have their own satellite constellations. Expand the acronym, wherever involved.

a) What is the name of the Indian navigation satellite constellation?
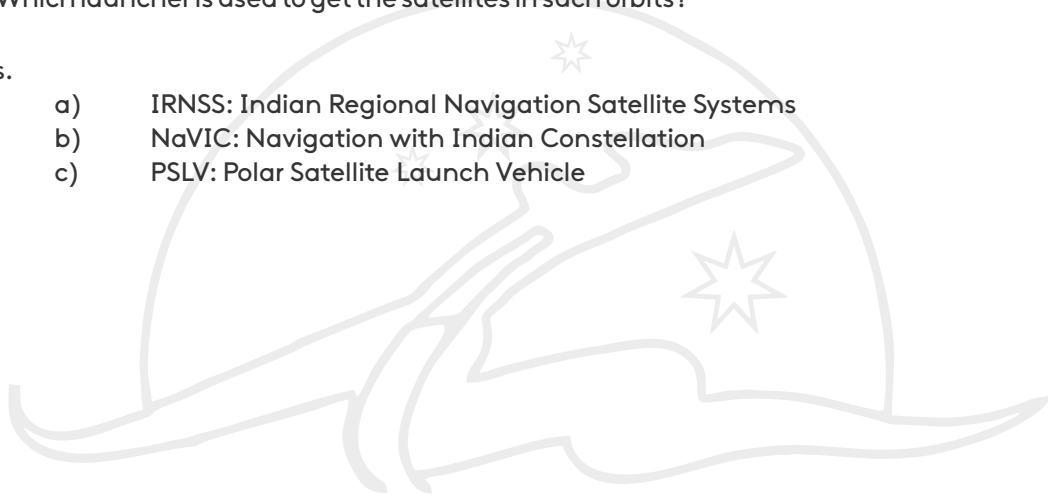b) What is its operational name?
c) Which launcher is used to get the satellites in such orbits?

Ans.

a) IRNSS: Indian Regional Navigation Satellite Systems
b) NaVIC: Navigation with Indian Constellation
c) PSLV: Polar Satellite Launch Vehicle

17. What are geostationary and geosynchronous satellites?
a) Draw out the various points of differences and similarities.
b) They are mostly used for communication purposes. Why?

Ans.
a)
Differences:
Geostationary Satellites: Orbits at an inclination of 0 degrees with respect to earth's equatorial plane, used for tracking a certain part of the land constantly, always above a certain piece of land.
Geosynchronous Satellite: Orbits at varying inclination wrt to Earth's Equatorial plane, used for maintaining the communication of certain place, appears at the same time at the same place once in a sidereal day.
Similarities: Both orbits are at 35,000 km from the mean sea level.
b) The ground antenna can be aimed at the satellite without having to track the satellite's motion

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18. What are Van Allen Radiation Belts?
    a) Describe its shape.
    b) Enumerate the constituents of the different layers of the belt.

Ans.
They are radiation belts held composed of charged particles held by the magnetic field of the planet.
a) Donut-shaped
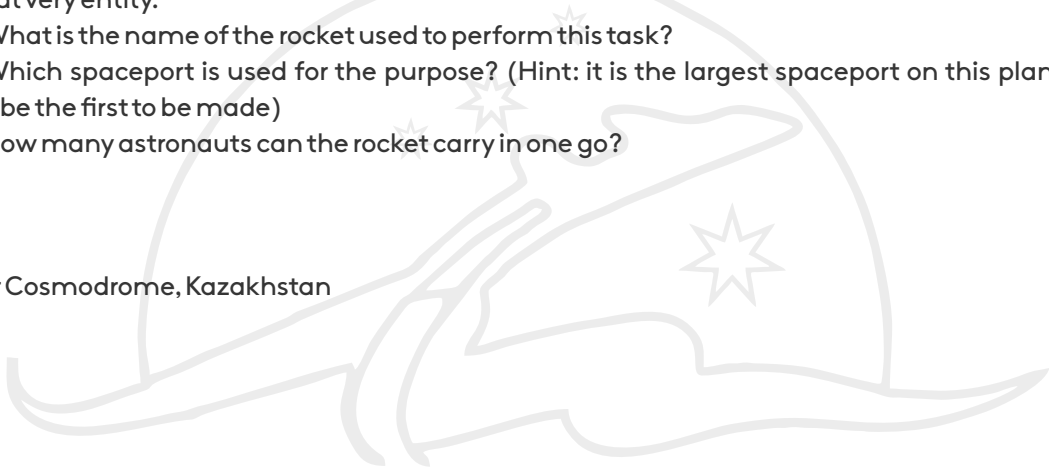b) Outer and inner layers: Outer layer mostly contain electrons; inner layer has protons and electrons

19. Read the extract below and answer the questions:

As of now, that is 3rd September, 2018; there exists only one way of getting a human to space. In other words, if we want to send a human to space, that is the only way out. So, all the manned missions to the ISS, are carried out from that very entity.
        a) What is the name of the rocket used to perform this task?
        b) Which spaceport is used for the purpose? (Hint: it is the largest spaceport on this planet, and also happens to be the first to be made)
        c) How many astronauts can the rocket carry in one go?

Ans.
 a) Suyoz
b) Baikonur Cosmodrome, Kazakhstan
c) Three

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20(A). Read the passage below and answer the questions:

Spaceport is a place from which the spacecrafts are launched. They are strategically located, across the globe and are used by the countries to launch spacecrafts of various capabilities to space. They are a very important asset for a nation as it makes a country capable of sending its own spacecrafts and in turn their satellites or probes without depending on other country for its launch. Example of a popular spaceport is Kennedy Space Center located in Florida, United States. Launchpad 39A, located in its premises, was the very spaceport used for the famous Apollo missions to the Moon.

     a) Where does the spaceport of India lie?
     b) Why do most of the spaceports across the globe
        i) lie near a water body?
        ii) lie near the equator?

OR

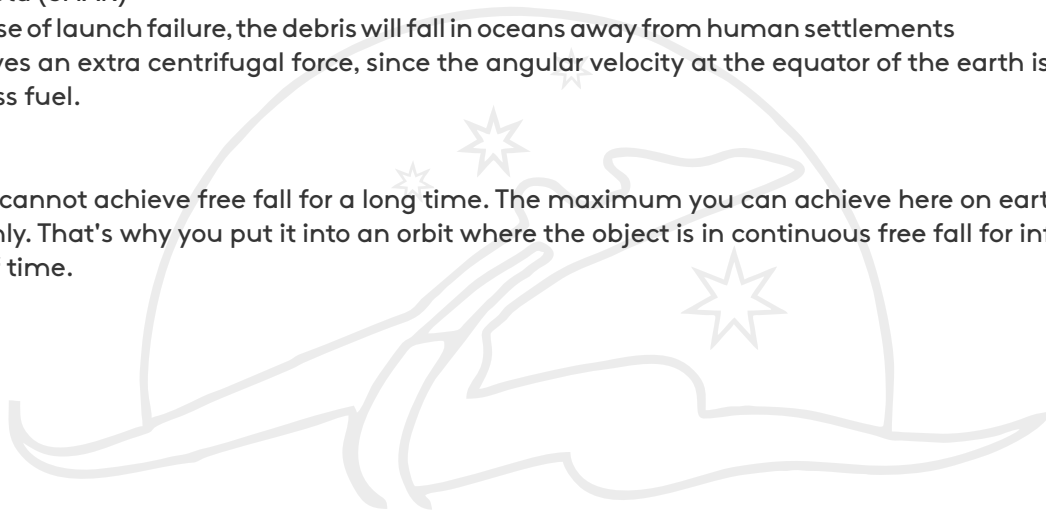20(B). "Free fall is an efficient way to simulate micro-gravity on earth but it has one major setback". What is the setback?

Ans.

20(A)
a) Sriharikota (SHAR)
b) (i) In case of launch failure, the debris will fall in oceans away from human settlements
   (ii) it gives an extra centrifugal force, since the angular velocity at the equator of the earth is high. This requires less fuel.

20(B) You cannot achieve free fall for a long time. The maximum you can achieve here on earth is for 3 seconds only. That's why you put it into an orbit where the object is in continuous free fall for infinite amount of time.

RECHECK YOUR ANSWERS, YOU MUST
If you were unable to answer any questions, it is absolutely fine.
The need of the hour is that you Google search all your unresolved doubts,
or simply mail your doubts to **publicrelations@teamantariksh.in**