



ВСЕРОССИЙСКИЙ КОСМИЧЕСКИЙ ДИКТАНТ — 2021

ДОРОГИ ЖИВЫ ИДУЩИМИ!

National Space Quiz
Cosmonautics and Aviation Centre, VDNH

11 April 2021



FROM THE QUIZ MAKER



Dear Friends,

Today, 11 April 2021, on the eve of the 60th anniversary of the first human flight into space, we are delighted to welcome you to the First All-Russia National Space Quiz!

Our mission is to take you on an exciting journey into the world of the pioneers and conquerors of the cosmos, present the achievements of our predecessors, inspire children to dream of greatness, and reawaken the passion for space within adults. We hope to help you on your quest towards making your dreams reality.

11 April 1961. At 5 a.m., the launch vehicle is brought to the launchpad. The staff responsible for the system are busy making entries in the log – they see that everything is in order – and then, as in the Russian superstition, they spit over their shoulder for good luck. Only one day now remains until Yuri Gagarin will make his historic flight and utter his legendary catchphrase, 'Off we go!'.

So sixty years later to the day, in 2021, we once again wish you good luck and spit over our shoulders!

And... 'Off you go'!

Hero of Russia,
pilot-cosmonaut
of the Russian Federation

A stylized, handwritten signature in white ink, written in Cyrillic script. The signature is fluid and expressive, with long, sweeping strokes. It is positioned between the text on the left and the name on the right.

Fyodor Yurchikhin

I THE FOUNDERS

Name these scientists



No1

He was born in Riga. The night before his birth, a radiant meteor shower was observed overhead. Four days earlier, there had been a solar eclipse, in which the Moon had obscured almost 97% of the Sun. He would remember the stories of these astonishing phenomena until the end of his life. After all, it was because of events like these that he fell in love with space. He dedicated his life to inventing technology that would help humankind escape the confines of the Earth's gravity.

1 – Konstantin Tsiolkovsky

2 – Sergei Korolev

3 – Friedrich Zander

4 – Ary Sternfeld

5 – Nikolay Tikhomirov

I THE FOUNDERS

Name these scientists



No2

He coined the word 'cosmonautics' in his famous monograph, Introduction to Cosmonautics, which was written in French. He was born in Poland, then part of the Russian Empire. He studied in Kraków and Paris, was fascinated by space and exchanged letters with Tsiolkovsky. He was also fortunate enough to witness the first 23 years of the era of space exploration.

- 1 – Nikolai Kibalchich
- 2 – Mikhail Tikhonravov
- 3 – Konstantin Tsiolkovsky
- 4 – Ary Sternfeld
- 5 – Friedrich Zander

I. THE FOUNDERS

Name these scientists

No3

This scientist predicted the first manned space flight more than a hundred years ago. '...Russian scientists and engineers will build a powerful spaceship, and the mighty Russian explorers will sail this ship into outer space, charting the course for all humanity... . What a happy day that will be, what a triumph for our science, when the Russian people will raise a ship towards the stars! This day, and the name of the first cosmonaut, will go down in the history of all humankind. And this will be immortality... .' Who wrote these words?

- 1 – Mikhail Tikhonravov
- 2 – Konstantin Tsiolkovsky
- 3 – Yuri Kondratyuk
- 4 – Valentin Glushko
- 5 – Georgy Langemak



I. THE FOUNDERS

Name these scientists

No4

A chemist by profession, he began his career researching methods of producing sugar, but eventually switched to formulating fuel for rocket torpedoes. His experience with the latter enabled him to establish the Gas Dynamics Laboratory, which pioneered the creation of rocket engines.

- 1 – Alexei Bogomolov
- 2 – Mikhail Tikhonravov
- 3 – Friedrich Zander
- 4 – Konstantin Tsiolkovsky
- 5 – Nikolay Tikhomirov



I. THE FOUNDERS

Name these scientists



No5

From the age of 24, this scientist was forced to live under a false name. Although he had many talents, his contributions to space science are particularly valued. His lunar flight design was even adopted by the American Apollo program. In 1970, Neil Armstrong, the first man to set foot on the Moon, visited his grave in Novosibirsk to pay his respects. What was this scientist's real name?

- 1 – Konstantin Tsiolkovsky
- 2 – Nikolai Kibalchich
- 3 – Aleksandr Shargei
- 4 – Mikhail Tikhonravov
- 5 – Mstislav Keldysh

II. THE COUNCIL OF CHIEF DESIGNERS

Name the six prominent rocket scientists that made up the informal body known as the Council of Chief Designers

№6

This talented designer of liquid-propellant rockets was also passionate about music. He took violin classes at a conservatory and was later transferred to the Odessa Academy of Music. He also drew inspiration from Jules Verne's novels and wrote letters to Konstantin Tsiolkovsky between 1923 and 1930, when he was still a schoolboy.

- 1 – Sergei Korolev
- 2 – Valentin Glushko
- 3 – Vladimir Barmin
- 4 – Mstislav Keldysh
- 5 – Mikhail Ryazansky



II. THE COUNCIL OF CHIEF DESIGNERS

Name the six prominent rocket scientists that made up the informal body known as the Council of Chief Designers

No7

In 1935, the engineering design office led by this scientist was entrusted with a mission of national importance: to quickly develop a refrigeration unit to preserve Lenin's sarcophagus at the Mausoleum on Red Square.

1– Nikolay Pilyugin

2 – Mikhail Ryazansky

3 – Sergei Korolev

4 – Konstantin Tsiolkovsky

5 – Vladimir Barmin



II. THE COUNCIL OF CHIEF DESIGNERS

Name the six prominent rocket scientists that made up the informal body known as the Council of Chief Designers

No8

When he was in the sixth grade, he took up radio engineering. This hobby would come to define his whole life. Later on, he would help design radio systems for ballistic missiles, as well as for orbital launch vehicles, satellites and interplanetary stations.

1 – Sergei Korolev

2 – Valentin Glushko

3 – Mikhail Tikhonravov

4 – Mikhail Ryazansky

5 – Vladimir Barmin



II. THE COUNCIL OF CHIEF DESIGNERS

Name the six prominent rocket scientists that made up the informal body known as the Council of Chief Designers

No9

This distinguished scientist designed the Red Star (Krasnaya Zvezda) glider, which was used by a test pilot in Koktebel on 28 October 1930, for the very first loop-the-loop stunt in the history of engine-less flight.

- 1 – Valentin Glushko
- 2 – Mikhail Ryazansky
- 3 – Sergei Korolev
- 4 – Nikolai Kuznetsov
- 5 – Nikolay Tikhomirov



II. THE COUNCIL OF CHIEF DESIGNERS

Name the six prominent rocket scientists that made up the informal body known as the Council of Chief Designers

№10

This designer oversaw the creation of control systems for Korolev's ballistic missiles (R-1, R-2, R-5 and R-7). He was also very passionate about photography and photographic equipment. During the 1950s, he managed to acquire and test every single Soviet camera model. One of these cameras is currently on display at the Cosmonautics and Aviation Centre.

- 1 – Sergei Korolev
- 2 – Friedrich Zander
- 3 – Nikolay Pilyugin
- 4 – Valentin Glushko
- 5 – Vladimir Barmin



II. THE COUNCIL OF CHIEF DESIGNERS

Name the six prominent rocket scientists that made up the informal body known as the Council of Chief Designers

№11

During his studies at the Zhukovsky Academy, the future rocket scientist proved to be a talented engineer: his graduation project was an original model of a 1,500 horsepower aircraft engine, which even attracted the interest of experienced professionals in the field.

- 1 – Alexei Bogomolov
- 2 – Nikolai Kuznetsov
- 3 – Valentin Glushko
- 4 – Mikhail Ryazansky
- 5 – Sergei Korolev



III. PEOPLE, EVENTS, FACTS



№12

The 50th anniversary of the first human flight into space, 30 January 2011, was celebrated with the launch of a microsatellite that broadcast 25 greetings in 15 languages. What was the name of the satellite?

- 1 — Gagarin
- 2 — Vostok (East)
- 3 — Oryol (Eagle)
- 4 — Kedr (Cedar)
- 5 — Cosmos 2011

III. PEOPLE, EVENTS, FACTS



№13

In 1924, Valentin Petrovich Glushko, one of the pioneers of rocket science and space technology, graduated from a vocational college and became an intern at the Electrometall metal reinforcement plant, named after V. I. Lenin. During his internship, he worked as:

- 1 — a design engineer
- 2 — a fitter
- 3 — a metalworker
- 4 — an accountant
- 5 — a sharpener

III. PEOPLE, EVENTS, FACTS



№14

Valeri Vladimirovich Polyakov, cosmonaut and space medicine expert, set the record for the longest space flight, when between 1994 and 1995, he remained aboard the Mir orbital station for 437 days and 18 hours. His record proved that humans are capable of enduring a space flight long enough to travel to a certain celestial body and back again. Which celestial body is it?

- 1 — Mercury
- 2 — Mars
- 3 — The Asteroid Belt
- 4 — Jupiter
- 5 — Saturn

III. PEOPLE, EVENTS, FACTS

№15

The pressure of the atmosphere near the surface of Venus exceeds that of Earth by (choose the closest approximation):

- 1 — 2 times
- 2 — 10 times
- 3 — 25 times
- 4 — 100 times
- 5 — 1,000 times



III. PEOPLE, EVENTS, FACTS



№16

On 28 April 2001, the Russian spacecraft Soyuz-32 travelled into space with two cosmonauts, Talgat Musabayev and Yuri Baturin, and the world's first space tourist, Dennis Tito, an American billionaire on board. The craft docked at the International Space Station on 30 April. The Soyuz crew spent six days on the ISS. On 6 May, Russian cosmonauts brought Dennis back to Earth. Which organization helped Dennis train and prepare for his spaceflight?

- 1 — NASA
- 2 — Rosaviacosmos
- 3 — European Space Agency
- 4 — Glavkosmos
- 5 — Space X

III. PEOPLE, EVENTS, FACTS



№17

What is the purpose of the Sokol KV-2 space suit?

- 1 — To provide the Soyuz spacecraft crew with extra protection during take-off, landing and docking/undocking
- 2 — To ensure the crew's safety while working and living in outer space
- 3 — To reduce the negative impact of zero gravity during long space flights, plus rehabilitating patients with musculoskeletal dysfunction
- 4 — To train cosmonauts at water immersion facilities
- 5 — To aid space crews exploring the surface of the Moon

III. PEOPLE, EVENTS, FACTS



№18

What hobby, or hobbies, does space pilot Vladimir Aleksandrovich Dzhanibekov practice in his free time? Pick one or several options that you think are correct..

- 1 — Photography
- 2 — Painting
- 3 — Music
- 4 — Archery
- 5 — Needlepoint

III. PEOPLE, EVENTS, FACTS



№19

What does the Orlan MKS space suit use to regulate the wearer's body temperature as well as the temperature inside the suit during spacewalks?

- 1 — Gas cooling
- 2 — Electric cooling
- 3 — Water cooling
- 4 — Ablative cooling
- 5 — Transpiration cooling

III. PEOPLE, EVENTS, FACTS

№20

In early 1961, two months before Yuri Gagarin's space flight, the world's first automated space station was sent to another planet. What was the planet?

- 1 — Mars
- 2 — Mercury
- 3 — Jupiter
- 4 — Venus
- 5 — Saturn



IV. QUESTIONS FOR THOSE TRULY IN THE KNOW

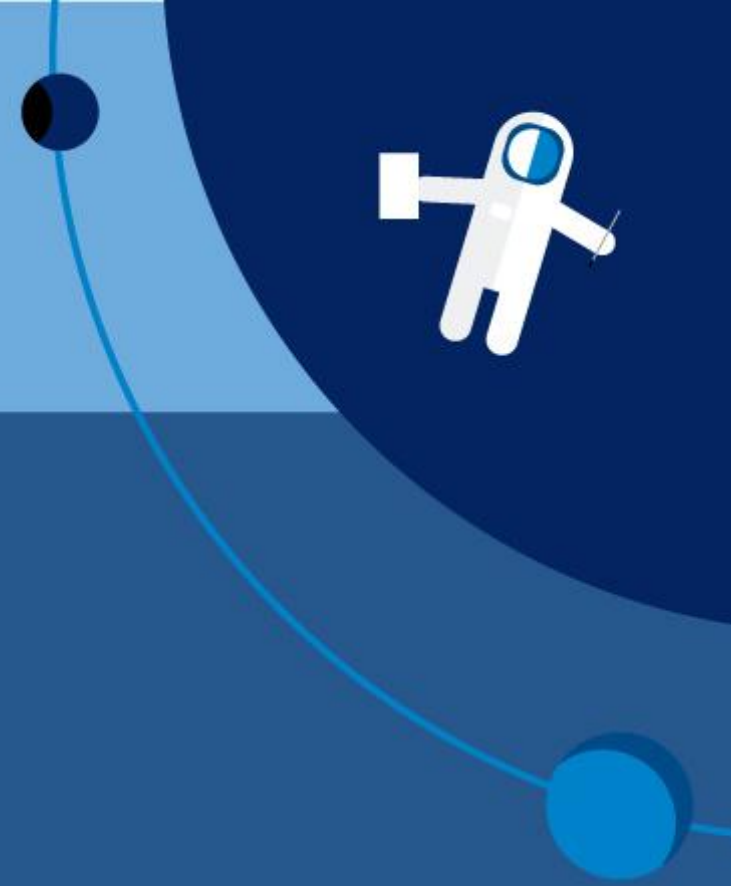


№21

Last year marked the anniversary of the famous flight of Belka and Strelka. This year, we will be honouring the anniversary of the first suborbital flight manned by two dogs. What were the names of the dogs that took part in the flight? From which spaceport did they depart and when?

- 1 — Mishka and Chizhik, Baikonur, 15 January 1951.
- 2 — Dezik and Lisa, Kapustin Yar, 29 July 1951.
- 3 — Smely and Ryzhik, Baikonur, 17 May 1951.
- 4 — Dezik and Tsygan, Kapustin Yar, 22 July 1951.
- 5 — Neputyovy and ZIB, Kapustin Yar, 3 September 1951.

IV. QUESTIONS FOR THOSE TRULY IN THE KNOW



No22

Many space rovers, such as Lunokhod 1, use special mirrors called corner reflectors to help measure the distance from Earth. What is this measurement technique called?

- 1 — Altimetry
- 2 — Triangulation
- 3 — Laser location
- 4 — Radio direction finding
- 5 — Spectroscopy

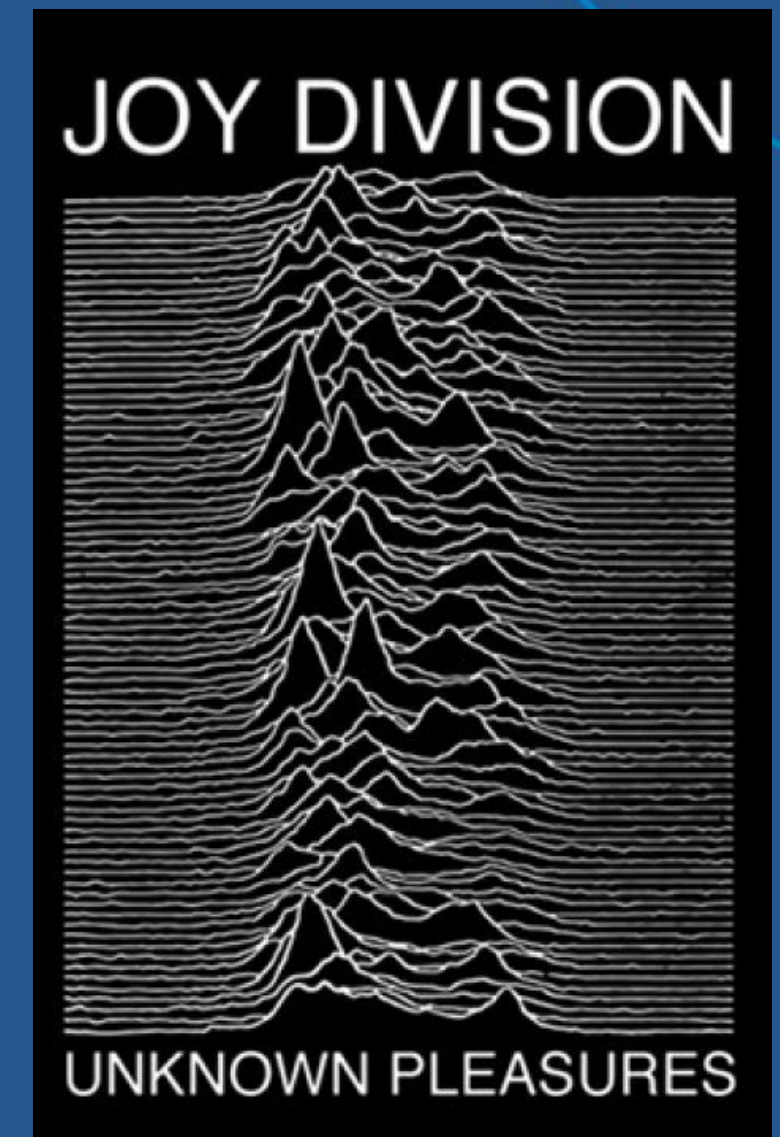
IV. QUESTIONS FOR THOSE TRULY IN THE KNOW



No23

The album *Unknown Pleasures* by Joy Division has one of the most iconic covers in music history. This minimalist image is not just a pretty combination of lines. Rather, it was borrowed from astronomy and represents a certain cosmic phenomenon. What is it?

- 1 — The cosmic microwave background (CMB) spectrum
- 2 — All solar flares between 1900 and 1978
- 3 — The distribution of matter in Saturn's rings
- 4 — The radio emissions of the pulsar PSR B1919+21
- 5 — A rough sketch of the terrain of Valles Marineris on Mars



IV. QUESTIONS FOR THOSE TRULY IN THE KNOW

No24

What chemical process was used for distance measurement during the first rocket launches?

- 1 — Oxidation
- 2 — Redox
- 3 — Thermolysis
- 4 — Electrolysis
- 5 — Photolysis



IV. QUESTIONS FOR THOSE TRULY IN THE KNOW



No25

You may have come across websites that promise you a chance to name any star you like, for a price. This is a scam: the International Astronomical Union is the only body authorised to name celestial objects! The process follows specific rules and conventions. Do you know what object can be named after the person that discovered it (or several people, if they made the discovery independently of one another)?

- 1 — An asteroid
- 2 — A comet
- 3 — An exoplanet
- 4 — A supernova
- 5 — A quasar

V. QUESTIONS FROM THE SPACE CREW



№26

Question from ISS

crewmembers Sergey Ryzhikov and Sergey Kud-Sverchkov

When working in outer space, cosmonauts wear the Orlan MKS space suit.

What is the meaning of the Russian acronym (MKS) in the space suit's name?

- 1 — International space station
- 2 — Modernised computer space suit
- 3 — Modernised synthetic space suit
- 4 — Modernised computerised synthetic space suit
- 5 — Modernised space suit

V. QUESTIONS FROM THE SPACE CREW



№27

Question from Anton Shkaplerov

On the way from the assembly and test building to the craft, each crew member carries a small suitcase. What is it for?

- 1 — On-board documentation and star maps
- 2 — The on-board first aid kit
- 3 — Adjusting the temperature and airflow in the spacesuit
- 4 — Food supplies and the on-board first aid kit
- 5 — Powering up, controlling and taking telemetry measurements from the spacesuit systems

V. QUESTIONS FROM THE SPACE CREW



№28

Question from Gennady Padalka

Pluto is one of the best-known celestial bodies in the Kuiper belt, orbiting the Sun beyond Neptune. It is so far away that it was not discovered until 1930, by the astronomer Clyde Tombaugh. You'd think that as Pluto is so remote from the Sun that it would be plunged into eternal night, but is this really so? In his book, *Astronomy for Entertainment*, Yakov Perelman compares—and pay close attention here—the strength of the sunlight on Pluto and the strength of the light of the full moon on Earth. According to Perelman, the sunlight on Pluto is:

- 1 — 275 times weaker
- 2 — 275 times stronger
- 3 — equal
- 4 — 475 times weaker
- 5 — 475 times stronger

V. QUESTIONS FROM THE SPACE CREW



№29

Question from Roman Romanenko

On 16 January 1969, Evgeny Khrunov and Alexei Yeliseyev took a spacewalk between two spacecraft, Soyuz-5 and Soyuz-4. They carried several objects from one craft to the other. What nickname were they given after the event?

- 1 — Couriers
- 2 — Rescuers
- 3 — Delivery boys
- 4 — Postmen
- 5 — Messengers

V. QUESTIONS FROM THE SPACE CREW



№30

Question from Fyodor Yurchikhin

When Sergei Pavlovich Korolev invited the very first group of cosmonaut trainees at his facility to inspect the future Vostok craft, Yuri Gagarin volunteered first. What did the future space pilot do before entering the craft?

- 1 — Put on a mask and gloves
- 2 — Covered his uniform with a white robe
- 3 — Took off his jacket
- 4 — Took off his shoes
- 5 — Put on protective overshoes



Dear friends,

Thank you for joining us today. Look for the results of the Space Dictation on the website of the Aerospace and Aviation Centre at VDNH.

Looking forward to see you within the walls of the Aerospace and Aviation Centre at VDNH.

Until we meet again!

Respectfully,

President of the Aerospace and Aviation Centre at VDNH,

pilot-cosmonaut of the Russian Federation,

Hero of Russia

Fyodor Yurchikhin