



Headquarters Air Cadets Examination

Staff Cadet
35/4 Satellite Comms
Generated 15-Jul-02

Serial: 492

1. Use black or dark blue pen, NOT pencil.
2. Mark one answer per question with a cross.
3. If you wish to change an answer, cancel the original mark and mark another single answer.

☒ A selected answer.

☒ A cancelled answer.

Mark:

Name and Initials _____

Date of Exam _____

Date of Birth _____

Squadron/Unit _____

Wing _____

1 Men first set foot on the moon in

- a ☐ 1996
- b ☐ 1969
- c ☐ 1869
- d ☐ 1066

2 The further away from the Earth's surface that you travel, the air gets progressively

- a ☐ Thinner
- b ☐ More dense
- c ☐ More blue
- d ☐ Warmer

3 Which of the following lists contains what we know as the gas giants

- a ☐ The Moon, Saturn, Uranus, The Sun
- b ☐ Jupiter, Saturn, Uranus, Neptune
- c ☐ The Moon, The Sun, Pluto, Neptune
- d ☐ The Sun, Pluto, Mars, Jupiter

4 As you get further away from the Earth the Earth's gravitational pull

- a ☐ Expands
- b ☐ Remains constant
- c ☐ Increases
- d ☐ Decreases

5 The closest point to Earth of an elliptical orbit is called the

- a ☐ Apex
- b ☐ Perigee
- c ☐ Apogee
- d ☐ Base

6 For a satellite to break its closed orbit and become a space probe it must achieve the Earth's

- a ☐ Escape Velocity
- b ☐ Gravity
- c ☐ Elliptical Orbit
- d ☐ Injection Speed

7 Rockets are used in space rather than jet engines because they carry their own fuel and do not need

- a ☐ The assistance of gravity
- b ☐ Atmospheric Nitrogen
- c ☐ The assistance of centrifugal force
- d ☐ Atmospheric Oxygen

8 A rocket works perfectly well in the vacuum of space - and in fact benefits from the absence of

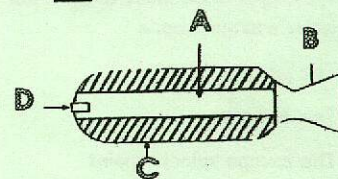
- a ☐ Magnetism
- b ☐ Oxygen
- c ☐ Centrifugal force
- d ☐ Air resistance

9 Kerosene rocket fuel is pumped round the exhaust nozzles of the engine to

- a ☐ Cool the fuel and heat the nozzle
- b ☐ Heat the fuel and the nozzle
- c ☐ Cool the nozzle and the fuel
- d ☐ Cool the nozzle and heat the fuel

10 On the diagram of a solid-fuel rocket which arrow represents the igniter?

- a ☐ B
- b ☐ D
- c ☐ A
- d ☐ C



11 In a rocket engine what does the term Specific Impulse quantify

- a ☐ Efficiency
- b ☐ Acceleration
- c ☐ Power
- d ☐ Energy

12 The fuel combination used in the Soviet Vostok craft is

- a ☐ UDMH and RFNA
- b ☐ Liquid Oxygen and Liquid Hydrogen
- c ☐ Liquid Oxygen and Kerosene
- d ☐ Liquid Hydrogen and Liquid Fluorine

13 What is the name of the American re-usable launch vehicle

- a ☐ Atlas
- b ☐ Apollo
- c ☐ Space Shuttle
- d ☐ Space Shuttle

14 The Russian Shuttle Buran has how many integral engines of its own

- a ☐ 0
- b ☐ 4
- c ☐ 2
- d ☐ 1

15 A satellite which remains in the same position over the Earth is said to be

- a ☐ Geodetic
- b ☐ Geometry
- c ☐ Geostationary
- d ☐ Geometric

16 In 1960 the USA launched a satellite for radio communications experiments, it was called

- a ☐ Sputnik I
- b ☐ Intelsat I
- c ☐ Echo I
- d ☐ Apollo II

17 At which point of its orbit will a satellite experience most drag from the Earth's atmosphere

- a ☐ The perigee
- b ☐ The Apogee
- c ☐ The escape velocity point
- d ☐ The injection point

18 The United States series of satellites designed to chart and record the world's resources is called

- a ☐ SANDSAT
- b ☐ LANDSAT
- c ☐ TIROS
- d ☐ SAT LAND

19 A big advantage of the HUBBLE space telescope is that it is

- a ☐ Above the Earth's gravity
- b ☐ Above the Earth's atmosphere
- c ☐ In an equatorial orbit
- d ☐ In a polar orbit

20 In the Global Positioning System, how many satellites are visible to a user on earth at any one time

- a ☐ 5
- b ☐ 6
- c ☐ 21
- d ☐ 24

21 What is a light-year

- a ☐ The distance traveled by the Sun in one year
- b ☐ The time it takes for light to reach the Earth from the Sun
- c ☐ The distance traveled by light in one year
- d ☐ 364 days

22 Einstein concluded, from his special theory of relativity, that

- a ☐ Super-light speeds are capable by anything with mass
- b ☐ Anything with mass is limited to sub-sonic speeds
- c ☐ Nothing with mass is limited to sub-light speeds
- d ☐ Anything with mass is limited to sub-light speeds

23 Solar cells are used to power space craft. What is their exact function

- a ☐ They convert sunlight into electricity
- b ☐ They store electricity
- c ☐ They convert electricity into light
- d ☐ They trap electricity from space

24 It is relatively simple to launch a probe into a Sun orbit which will eventually intersect the orbit of a destination planet because

- a ☐ Our planets all orbit the Sun
- b ☐ Most of our planets' orbits are circular
- c ☐ Pluto's orbit is not in the same plane as the Sun's
- d ☐ Most of our planets' orbits lie in the same plane

25 Who was the first man to walk on the Moon

- a ☐ Werner von Braun
- b ☐ Patrick Moore
- c ☐ Neil Armstrong
- d ☐ Yuri Gagarin