



Headquarters Air Cadets Examination

Staff Cadet
35/4 Satellite Comms

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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 To stay alive on a space voyage you must take with you your own

- a ☐ Air
- b ☐ Food
- c ☐ Water
- d ☐ Radio

2 The Moon is a satellite of

- a ☐ The Earth
- b ☐ The Sun
- c ☐ The Atmosphere
- d ☐ The Shuttle

3 If we launch a rocket vertically and then, when clear of the Earth's atmosphere, alter it's trajectory until it is horizontal, this is called

- a ☐ Intention
- b ☐ Retention
- c ☐ Rejection
- d ☐ Injection

4 What is the name of the force which causes an apple to fall to Earth when it becomes detached from a tree?

- a ☐ Centrifugal Force
- b ☐ Injection Force
- c ☐ Atmospheric Pressure
- d ☐ Gravity

5 The further point from Earth of an Earth orbit is called the

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

6 An injection speed of more than 11.3km/sec will overcome the Earth's gravity, and at that speed a satellite's closed orbit would break and become a

- a ☐ Trajectory
- b ☐ Hyperbola
- c ☐ Triangular
- d ☐ Parabola

7 A jet engine will not work in space because

- a ☐ It cannot overcome the Earth's gravity
- b ☐ There is no air pressure for it to react against
- c ☐ It needs nitrogen from the Earth's atmosphere
- d ☐ There is no air in space

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

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

9 When a rocket is in flight, as fuel is used the total weight falls and acceleration is

- a ☐ Doubled
- b ☐ Reduced
- c ☐ Increased
- d ☐ Not affected

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

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

11 The problem of lifting large rockets and their payloads into space is overcome by the use of

- a ☐ Multi-stage Rockets
- b ☐ Thruster nozzles
- c ☐ Liquid Oxygen Fuels
- d ☐ Re-usable Vehicles

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

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

13 What is used to power the Americans Space Shuttle's orbiter vehicle on re-entry

- a ☐ Auxiliary power unit
- b ☐ Nothing
- c ☐ On-board orbital manoeuvring system
- d ☐ On-board boosters

14 In the early days radio communications were limited to line-of-sight by

- a ☐ The atmosphere
- b ☐ The ionosphere
- c ☐ The Moon
- d ☐ The Earth's curvature

15 In October 1957 the first artificial communications satellite was launched by

- a ☐ The European Space Agency
- b ☐ The USA
- c ☐ The Soviet Union
- d ☐ The RAF

16 Satellites used for communications and weather observation are usually put into

- a ☐ An equatorial orbit
- b ☐ A polar orbit
- c ☐ A cylindrical orbit
- d ☐ An elliptical orbit

17 What is the only natural satellite of the Earth

- a ☐ A gas giant
- b ☐ The American Space Shuttle
- c ☐ The Moon
- d ☐ The Sun

18 The first weather satellite, launched in 1960, was named

- a ☐ TIROS
- b ☐ IRAS
- c ☐ ERSI
- d ☐ LANDSAT

19 A main advantage of the HUBBLE space telescope is that it is not affected by

- a ☐ Magnetism
- b ☐ The Earth's atmosphere
- c ☐ Gravity
- d ☐ Ultra-violet radiation

20 GPS means

- a ☐ Global Plotting System
- b ☐ Global Positioning Satellite
- c ☐ Global Positioning System
- d ☐ Global Planning System

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

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

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

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

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

- a ☐ Most of our planets' orbits are circular
- b ☐ Our planets all orbit the Sun
- 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

24 What was the name of the first probe to crash-land (unmanned) on the Moon

- a ☐ VEGA I
- b ☐ LUNA 2
- c ☐ APOLLO I
- d ☐ LUNA I

25 How many planets orbit the sun OUTSIDE the Earth's orbit

- a ☐ 2
- b ☐ 6
- c ☐ 4
- d ☐ 5