Headquarters Air Cadets Examination

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35/4 Satell ite Comm
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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 Initals _____ Date of Exam _____

Date of Birth _____ Squadron/Unit _____ Wing _____

1 All of the planets have been explored by unmanned probes except

a ☐ Pluto
b ☐ Mars
c ☐ The Moon
d ☐ Jupiter

2 The air that we breath at ground level, compared with that at height, is quite

a ☐ Blue
b ☐ Dense
c ☐ Thin
d ☐ Cold

3 One of the earliest steps in the human race's efforts to conquer space was to send which of the following into Earth orbit

a ☐ Plants
b ☐ Recorders
c ☐ Astronauts
d ☐ Animals

4 When in orbit, the American space shuttle can be described as

a ☐ An artificial satellite of the Earth
b ☐ A heavenly satellite of the Earth
c ☐ A natural satellite of the Earth
d ☐ An artificial satellite of the Moon

5 The point of which the velocity and height of a satellite is such that it will orbit the Earth without further help from the rocket is known as

a ☐ Injection
b ☐ Rejection
c ☐ Escape velocity
d ☐ Transition

6 If a satellite circles the Earth at 200km with a speed of about 7.9km/sec the centrifugal force on the satellite is exactly balanced by

a ☐ Its weight
b ☐ The satellite's gravity
c ☐ Earth's gravity
d ☐ Its injection speed

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

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

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

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

9 A jet engine draws in air and uses the oxygen in the air to burn with fuel, in space a jet engine

a ☐ Works at reduced efficiency
b ☐ Will not work
c ☐ Works with increased efficiency
d ☐ Works at its most efficient

10 In terms of Newton's Laws, the action produced by a rocket engine is caused by its

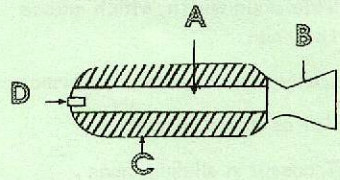
a ☐ Reaction against the atmosphere
b ☐ Ability to operate without atmospheric oxygen
c ☐ Fast exhaust flow
d ☐ Reaction against the pull of gravity

11 Newton's second law states that

a ☐ Force = weight x acceleration
b ☐ Force = mass x acceleration
c ☐ Force = mass x energy
d ☐ Mass = force x acceleration

12 On the diagram of a solid-fuel rocket which arrow represents the solid propellant charge

a ☐ A
b ☐ D
c ☐ C
d ☐ B



13 If a fuel has an SI of 200 secs, for how long would 1kg of fuel provide 200kg of thrust?

a ☐ 10 secs
b ☐ 2 secs
c ☐ 100 secs
d ☐ 1 sec

14 The fuel combination used in the Soviet Vostok craft is

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

15 In a multi-stage rocket, which stage does the largest portion of the lifting work

a ☐ Second and Third
b ☐ First
c ☐ Third
d ☐ Second

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

a ☐ 2
b ☐ 1
c ☐ 0
d ☐ 4

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

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

18 Satellites can reflect signals that have extremely high frequencies, and thus wide band width, which means that they can

a ☐ Carry vast amounts of information
b ☐ Act as active relays
c ☐ Transmit in all directions
d ☐ Act as passive relay

19 A satellite in an orbit whose inclination is somewhere between equatorial and polar is in

a ☐ An Accentric orbit
b ☐ A Geostationary orbit
c ☐ A Concentric orbit
d ☐ An Eccentric orbit

20 The United States LANDSAT series of satellites have been used to chart and record

a ☐ Satellite landing areas
b ☐ Sunshine
c ☐ Rainfall
d ☐ World resources

21 GPS means

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

22 How far away from our solar system is the closest star - PROXIMA CENTAURI

a ☐ 43 million miles
b ☐ 43 light years
c ☐ 4.3 Earth radio
d ☐ 4.3 light years

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

24 Who was the first man to walk on the Moon

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

25 Which planet is furthest from the Sun

a ☐ VENUS
b ☐ EARTH
c ☐ URANUS
d ☐ PLUTO