

# AEPSM Study Guide

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## Chapter One

1. Aerospace is considered to be everything above the Earth's surface including the space beyond the atmosphere. True or False
2. What chief historical event made the distribution of books and other written documents about flight possible?\_\_\_\_\_
3. The first scientific experiments in the field of aviation were made by\_\_\_\_\_
4. Who's wings melted because he flew too close to the sun?\_\_\_\_\_
5. A founder of the Inca civilization who had wings and flew like a bird was\_\_\_\_\_
6. The Chinese are credited with inventing the\_\_\_\_\_
7. Leonardo DaVinci made the first known designs of the parachute and the \_\_\_\_\_
8. Hydrogen gas was replaced by helium gas to lift balloons because hydrogen was \_\_\_\_\_
9. What did the United States military first use the balloon for?\_\_\_\_\_
10. Who built the first U.S. Army heavier-than-air aircraft?\_\_\_\_\_
11. Who flew the first powered airplane in Europe?\_\_\_\_\_
12. How did the Wright brothers turn their airplane?\_\_\_\_\_
13. The three basic problems of flight early aircraft designers had to overcome were developing lift, sustaining lift and controlling the aircraft in flight. True or False
14. Who developed the cambered wing design?\_\_\_\_\_
15. The first person to identify the forces of lift, drag and thrust was\_\_\_\_\_
16. Alberto Santos-Dumont flew the first powered airplane in \_\_\_\_\_
17. What pilot made the first successful "blind takeoff and landing?" \_\_\_\_\_
18. Who made the first airplane crossing of the U.S.?\_\_\_\_\_
19. Who made the first powered flight across the English Channel?\_\_\_\_\_
20. Flying from ships began in \_\_\_\_\_

21. Military aviation played a "primary-weapon-of-war" role at the beginning of World War I. True or False
22. Mitchell viewed the airplane mainly as what type of weapon? \_\_\_\_\_
23. The American "Ace of Aces" during WWI was \_\_\_\_\_
24. Frank Luke won the \_\_\_\_\_ in World War I.
25. The first International air meet was held in \_\_\_\_\_
26. The men in the original Lafayette Escadrille were \_\_\_\_\_
27. After World War I, military aviation was \_\_\_\_\_
28. The first non-stop transatlantic crossing was made by \_\_\_\_\_
29. The barnstormers kept aviation in the public eye by \_\_\_\_\_
30. At the end of 1911, the U.S. ranked first in the world in the number of pilots.  
True or False
31. Lindbergh's transatlantic flight earned him such great fame that he was able to promote civil aviation in the U.S. with a lot of success.  
True or False
32. What natural barrier were the Navy NC-1 and NC-4 trying to overcome on May 8, 1919?  
\_\_\_\_\_
33. Who made the first non-stop flight across the United States? \_\_\_\_\_
34. The XB-17, which set the direction military aviation took during the 1930's was a  
\_\_\_\_\_
35. What gave the Germans almost total control of the air for nearly a year in World War I?  
\_\_\_\_\_
36. What was the goal of the Vickers-Vimy flight made by Alcock and Brown in July, 1919?  
\_\_\_\_\_
37. The first U.S. Pulitzer Trophy Race served principally to \_\_\_\_\_
38. Mitchell's primary objective in sinking the Ostfriesland was to \_\_\_\_\_  
\_\_\_\_\_

39. The U.S. Army Air Force strategy in the first strategic bombing raids on Germany called for\_\_\_\_\_
40. The two battles that stopped the Japanese advance in the Pacific, which were fought entirely by naval air power, were the battles of\_\_\_\_\_
41. Air races provided the incentive for manufacturers to build better and faster aircraft?  
True or False
42. The first "modern" two-engine airliner built in 1932 was the \_\_\_\_\_
43. Which country stressed night-blanket bombing operations?\_\_\_\_\_
44. What did the Kelly Act of 1925 authorize the Post Office Department to do?\_\_\_\_\_
45. Who researched, built and launched the world's first liquid fuel rocket?\_\_\_\_\_
46. The National Air Race which was open to women from its start was the \_\_\_\_\_
47. The Allied nation which best understood the important lessons of air power and found itself completely unprepared for World War II in the area of air power was\_\_\_\_\_
48. In the final analysis, the Allied Powers won World War II with their superior technological and wartime production capabilities. True or False
49. The United States Army Air Force used precision daytime bombing, the Royal Air Force (RAF) used\_\_\_\_\_
50. What was Hitler's first step in attempting to conquer England?\_\_\_\_\_
51. The first helicopter with complete controllability was built in\_\_\_\_\_
52. The U. S. was prevented from serious attempts to build up its Air Force until 1940 by the American Attitude of \_\_\_\_\_
53. Blitzkrieg was a lightning attack closely coordinated between the German \_\_\_\_\_
54. What was the first step of Japan's military tactics in flight the Pacific Campaign?  
\_\_\_\_\_
55. Where did the Japanese get the combat experience that prepared them for World War II?  
\_\_\_\_\_
56. Most of the bombing of the Pacific Islands invaded by the Americans was tactical in nature.True or False

57. The primary purpose of the Japanese attack on Pearl Harbor was to \_\_\_\_\_  
\_\_\_\_\_
58. The first two-engine aircraft built as a result of the McNary-Watres Act was the \_\_\_\_\_
59. According to German Leaders, the war in Europe had been won by \_\_\_\_\_
60. The weapon that caused the final defeat of Japan was delivered by a \_\_\_\_\_
61. Germany built the first helicopter with \_\_\_\_\_
62. Crippling the American Fleet was the primary purpose for the \_\_\_\_\_
63. The Women's Auxiliary Ferrying Squadron personnel were \_\_\_\_\_
64. The advance of the Japanese in the Pacific was stopped in the spring and summer of 1942 by the battles of \_\_\_\_\_
65. Air power as a major contributor to the defeat of the Axis Powers in World War II.  
True or False
66. The first practical helicopter, the VS-300, was built in 1939 by \_\_\_\_\_
67. How did pre-World War II Germany avoid the World War I Treaty of Versailles prohibition against building military aircraft? \_\_\_\_\_
68. The V-1 vengeance weapon was powered by a \_\_\_\_\_
69. What organization during World War II was made up of Civil Service employees?  
\_\_\_\_\_
70. Which nation used the helicopter to any extent during World War II? \_\_\_\_\_
71. Where did the German Air Force test its new pilots and aircraft in preparation for World War II? \_\_\_\_\_
72. What was the first step of Japan's military tactics in fighting the Pacific campaign?  
\_\_\_\_\_
73. What city was blockaded in June 1948 when the Soviet Union decided to test the will of the West? \_\_\_\_\_
74. The United Nations landing at Inchon during the Korean \_\_\_\_\_  
\_\_\_\_\_
75. Stearman, Cessna and Beech were instrumental in promoting the light aircraft field.

True or False

76. The revolutionary new wing design on the Mustang (P-51), called the laminar flow wing, was a result of team effort by the Ames Research Center, North American Aviation and \_\_\_\_\_.
77. The "G-Suit" was a result of \_\_\_\_\_.
78. The Berlin Airlift came about when \_\_\_\_\_  
\_\_\_\_\_.
79. Which country produced the turboprop and turbojet airlines? \_\_\_\_\_.
80. The first eight flights of the X-15 were piloted by North American Aviation's test pilot \_\_\_\_\_.
81. To fill the demand for general aviation aircraft after World War II, Cessna first brought out its \_\_\_\_\_.
82. What was the name of the first aircraft to fly faster than the speed of sound? \_\_\_\_\_
83. The Army's first battlefield missile was the \_\_\_\_\_.
84. What type of wing is designed to delay the point at which it reaches supersonic speeds, thus delaying increased drag? \_\_\_\_\_.
85. The first jumbo jet was \_\_\_\_\_.
86. The first woman to fly faster than the speed of sound was \_\_\_\_\_.
87. The X-15 project was a joint Air Force, Navy and National Advisory Committee for Aeronautics (NACA) project aimed at building an airplane that could fly \_\_\_\_\_.
88. The United States manned space programs began with project \_\_\_\_\_.
89. The U.S. manned space program is headed by a civilian agency. True or False
90. What initial advantage did the Russians have as they began their manned space program?  
\_\_\_\_\_.
91. The Strategic Air Command's B-36 was replaced by the \_\_\_\_\_.
92. Most people believe the Korean War had been won in September 1950 when \_\_\_\_\_.
93. Britain was the first country to develop \_\_\_\_\_.

94. The super critical wing is designed to \_\_\_\_\_  
\_\_\_\_\_.
95. Which legislation empowered President Johnson to, "Take all necessary measures to repel an armed attack against the forces of the United States, and to prevent further aggression."  
\_\_\_\_\_.
96. The closest aircraft the public could get to a "fighter" airplane in 1947 was the  
\_\_\_\_\_.
97. The primary mission of the newly created USAF was assigned to \_\_\_\_\_.
98. Which nation was the first to land on the moon? \_\_\_\_\_
99. What was the name of the pilot who made the first successful "blind takeoff and landing"?  
\_\_\_\_\_.
100. The Berlin Airlift was lifted because the Russians conceded they could not isolate Berlin.  
True or False
101. Air Power in Korea was \_\_\_\_\_.
102. Which president did the Tonkin Gulf Resolution empower to, "Take all necessary measures to repel an armed attack against the forces of the United States, and to prevent further aggression". \_\_\_\_\_.
103. The X-15 was developed by the \_\_\_\_\_  
\_\_\_\_\_.

## Chapter 2

1. A sampling of Earth's atmospheric composition from the surface outward shows  
\_\_\_\_\_.
2. Which region of the atmosphere extends to about 30 miles and has temperatures ranging from -40°F to -76°F? \_\_\_\_\_
3. What is the main reason astronauts need to wear "pressure suits"?  
\_\_\_\_\_
4. The composition of the atmosphere is generally described either according to atmospheric elements, atmospheric regions or atmospheric pressure. True or False
5. Jet Streams shift position frequently. They have some effect on the formation of cold and warm air masses. They migrate with the seasons, and  
\_\_\_\_\_.

6. Pressure at any one point fluctuates as cells of higher or lower pressure are formed and move across the Earth's surface. True or False
7. What part of the water cycle can't we see? \_\_\_\_\_
8. An Example of precipitation is:  
a. Fog b. Dew c. Hail d. Frost e. A Cloud
9. The sum total energy of all moving molecules within a substance is known as\_\_\_\_\_.
10. The heat energy reaching the Earth is an example of what type method of heat transfer?  
\_\_\_\_\_.
11. Icing which seems insignificant but can effect takeoff is called \_\_\_\_\_.
12. The relative humidity of an air mass is its capacity for maintaining water in what form?  
\_\_\_\_\_.
13. Insolation is the rate at which Earth's surface is heated by \_\_\_\_\_.
14. A "front" is the boundary between air masses of what characteristics? \_\_\_\_\_.
15. Evaporation fog may occur when \_\_\_\_\_.
16. Very high mountains cause air masses to rise, cool and lose their moisture on the windward side in the form of \_\_\_\_\_.
17. What is the general movement of an air mass across the conterminous U.S.?  
\_\_\_\_\_.
18. The jet stream is a narrow current of air which moves around what hemisphere of the Earth?  
\_\_\_\_\_.
19. The chief danger vertical growth of cumulus clouds pose to aircraft is \_\_\_\_\_  
\_\_\_\_\_.
20. A microburst is a threat to aviation and is associated with \_\_\_\_\_.
21. Wind Shear is illustrated by the up and down bounding of the aircraft as it encounters vertical air currents near the end of the runway. True or False
22. A maritime air mass is \_\_\_\_\_.
23. The cloudiest part of the conterminous U.S. is the \_\_\_\_\_.
24. Weather satellites are better than other weather forecasting instruments because they can see

large areas of the Earth at one time.

True or False

25. The National Weather Service (NWS) is a part of \_\_\_\_\_.
26. CRT tube displays of data eliminate \_\_\_\_\_.
27. Weather forecasting is a service strictly limited to pilots or navigators. True or False
28. The major advantage of the computer in weather forecasting is its \_\_\_\_\_.
29. Temperature and pressure are two factors which can effect a weather forecast of a cold front. True or False
30. Weather takes place from the Earth's surface to about 10 miles outward in a region we call the \_\_\_\_\_.
31. An atmospheric condition which is an optical phenomenon effecting in-flight visibility is \_\_\_\_\_.
32. "Interplanetary Space" is measured from the center of the sun to the orbit of \_\_\_\_\_.
33. A weather forecast may be effected by pressure, temperature, rate of speed and change of direction of fronts. True or False
34. In the Northern Hemisphere, typical hurricanes will move either \_\_\_\_\_.
35. The intensity of hurricanes weakens over land because they lose their energy source. True or False
36. Glaze ice has a "frosty" appearance. True or False
37. How many Earth days does it take Mercury to complete an orbit of the sun? \_\_\_\_\_.
38. A shortwave radio can be used for international broadcasting due to electrical reflective characteristics of the \_\_\_\_\_.
39. The photosphere of the sun is composed mostly of \_\_\_\_\_.
40. Sunspots occur in the sun's \_\_\_\_\_.
41. The Ionosphere is composed of separate reflecting layers in the Earth's \_\_\_\_\_.
42. Radiation from the Van Allen Belts which spills into the Earth's atmosphere produces a visible night-time phenomenon known as \_\_\_\_\_.
43. An ion is an atom that carries an abnormal amount of electrons. True or False

44. The great destructiveness of a tornado is caused by its wind speeds and its \_\_\_\_\_.
45. A tropical depression involves cyclonic movement of winds not greater than \_\_\_\_\_.
46. Severe weather can be regarded as good because it acts to balance different forces at work in the atmosphere. True or False
47. The moon's orbit about the Earth is slightly elliptical. True or False
48. A meteoroid becomes a meteor when it \_\_\_\_\_.
49. The Van Allen Belts are filled with \_\_\_\_\_.
50. We only see one side of the moon because the moon rotates about its axis in the same length of time as it takes to complete an orbit. True or False
51. Auroras are caused by electrons and protons spilling into the upper atmosphere from the Van Allen Belts and causing atmospheric gases to glow. True or False
52. The surface of the moon contains mostly \_\_\_\_\_.
53. The normal hurricane season, as defined by the NWS, begins in \_\_\_\_\_.
54. Mariner 9 gave us the chance to study \_\_\_\_\_.
55. The outer most planet in our solar system is \_\_\_\_\_.
56. The largest planet in our solar system is \_\_\_\_\_.
57. Mercury has been given a first priority as a planet to colonize. True or False
58. Saturn's rings contain mostly \_\_\_\_\_.
59. The Voyager I probe of Saturn occurred in 1980, and to this day \_\_\_\_\_.
60. The color of the hottest star is \_\_\_\_\_.
61. The asteroid belt is located between what two planets? \_\_\_\_\_.
62. The one planet whose polar axis is almost in line with the plane of the ecliptic is \_\_\_\_\_.
63. The principal probes of Comet Halley in 1986 were accomplished by \_\_\_\_\_.

64. Venus is completely covered by \_\_\_\_\_.
65. Earth acts as if it had a large bar magnet going through its center and surfacing at the \_\_\_\_\_.
66. "Cislunar space" describes everything lying on a plane between Earth and the orbit of the \_\_\_\_\_.
67. Comets are composed of \_\_\_\_\_.
68. We live in the galaxy called the \_\_\_\_\_.
69. The Milky Way has an estimated diameter of how many light years? \_\_\_\_\_.

### Chapter Three

1. The relatively wide spaces between the molecules of a gas make possible its \_\_\_\_\_.
2. The flight of aircraft through the air is the subject of the study of \_\_\_\_\_.
3. The force of the recoil of a gun that has been fired and the force of the bullet leaving the gun are equal. This statement is an example that illustrates which of Newton's laws of motion? \_\_\_\_\_.
4. Mach number will vary with \_\_\_\_\_.
5. A "fluid" is something that flows when a difference in what is present? \_\_\_\_\_.
6. "A fluid stream moving past an object produces a relative movement that has direction and velocity." This concept is called \_\_\_\_\_.
7. Which axis of rotation runs from the tip of the airplane nose to the tail? \_\_\_\_\_.
8. The force of flight which is in opposition to lift is \_\_\_\_\_.
9. The airplane part that causes movement or roll around the airplane's longitudinal axis is the \_\_\_\_\_.
10. Generally, the less dense the air, the \_\_\_\_\_ lift there is available.
11. A "headwind" will mean ground speed and air speed will be different. True or False
12. A \_\_\_\_\_ occurs when lift is destroyed and the force of weight takes over.
13. The part of the airfoil that determines lift is its \_\_\_\_\_.

14. The three axes of rotation are the lateral, vertical and longitudinal axis. True or False
15. Drag can be decreased by keeping the surfaces of the airplane highly polished. True or False
16. The weight the airplane can carry, excluding the empty weight, is known as the \_\_\_\_\_.
17. "Useful load" is the difference between maximum allowable weight and basic empty weight. True or False
18. Flaps would be used on takeoff especially if the runway were very long. True or False
19. Flaps act to increase \_\_\_\_\_.
20. To permit a steep descent upon landing, the pilot would normally use \_\_\_\_\_.
21. To make a left turn in flight, the pilot basically turns the rudder to the \_\_\_\_\_.
22. Spoilers act to destroy \_\_\_\_\_.
23. When you try to break a rope by pulling on its end, you are exerting \_\_\_\_\_.
24. When you push against both ends of a football, you are exerting \_\_\_\_\_.
25. To make a coordinated turn in flight, aileron and rudder pressure are applied \_\_\_\_\_.
26. An aircraft stress that tries to twist something apart is \_\_\_\_\_.
27. The part of the empennage which causes the airplane to go up or down is the \_\_\_\_\_.
28. The landing gear arrangement which has two main from wheels and a small tail wheel is called \_\_\_\_\_.
29. The fixed landing gear which uses a single, straight arrangement and which usually incorporates a oleo strut type shock absorber is classified as \_\_\_\_\_.
30. Which aircraft instrument tells the pilot his altitude? \_\_\_\_\_.
31. Instruments that tell the pilot altitude, airspeed and attitude fall into what classification? \_\_\_\_\_.

32. The only totally reliable direction sensing device in the airplane is the \_\_\_\_\_.
33. The primary instrument used in celestial navigation is the \_\_\_\_\_.
34. Modern aircraft reciprocating engines are cooled by \_\_\_\_\_.
35. All reciprocating engines include systems for \_\_\_\_\_.
36. The basic types of engines common to modern aircraft propulsion are reciprocating engine and the jet engine. True or False
37. What is the name of the aircraft instrument that measures engine crankshaft speed? \_\_\_\_\_.
38. Three flight instruments which are necessary to blind flight are indicators for \_\_\_\_\_.
39. The first area of a turbine engine is the \_\_\_\_\_.
40. The word "turbine" means basically, \_\_\_\_\_.
41. In a four-stroke, five-event cycle reciprocating engine, ignition of the fuel-air mixture occurs on which stroke? \_\_\_\_\_.
42. The only totally reliable direction sensing device in the airplane is the \_\_\_\_\_.
43. The ignition system serves primarily to \_\_\_\_\_.
44. The primary function of a lubrication system is to \_\_\_\_\_.
45. The rings which actually seal the open end of a reciprocating engine's cylinders are the \_\_\_\_\_.
46. The quietest of all turbine powered engines is the \_\_\_\_\_.
47. The all-jet engine with the simplest operation is the \_\_\_\_\_.
48. The high velocity exhaust is the main source of turbojet \_\_\_\_\_.
49. Propfans are considerably more \_\_\_\_\_ than turbofans.
50. What produces the electricity for ignition on an aircraft reciprocating engine? \_\_\_\_\_.

51. A thrust reverser basically reverses the direction of the exhaust flow, thus redirecting the direction of thrust. True or False
52. The biggest drawback of the ramjet engine is its \_\_\_\_\_.
53. An aircraft's electrical system can be used to:
- provide a spark to the spark plugs
  - operate solenoid switches
  - charge batteries
  - all of the above
54. At higher altitude, higher temperature or higher humidity, an airplanes lift capability and power output are lowered by a \_\_\_\_\_.
55. The north-south lines of reference on a map are called \_\_\_\_\_.
56. A meridian may be defined as any imaginary map grid line that \_\_\_\_\_.
57. "Contour" lines and "shading" on an aeronautical chart are methods of showing \_\_\_\_\_.
58. The front part of a turbojet engine is called the \_\_\_\_\_.
59. The largest area of controlled airspace is called \_\_\_\_\_.
60. Airspace is categorized as either controlled or uncontrolled. True or False
61. Low altitude airways are known as \_\_\_\_\_.
62. "Compass error" is \_\_\_\_\_.
63. Generally, the direction of magnetic north is different from true north and subsequently from the true course heading. True or False
64. Ramjet engines are limited practically to low hypersonic speeds because of \_\_\_\_\_.
65. A great circle is any circle on the surface of a sphere whose center and radius \_\_\_\_\_.
66. Coordinates are first written according to \_\_\_\_\_.
67. Pilotage navigation means basically navigating by \_\_\_\_\_.
68. The VOR received enables the pilot to establish \_\_\_\_\_.

69. The nationwide VOR system consists of \_\_\_\_\_ stations.
70. Victor Airways are based on the location of \_\_\_\_\_ stations called VOR's.
71. A stormscope is an electronic aid that \_\_\_\_\_.
72. Pilotage navigation involves the systematic consideration of all factors which will and could effect a flight. True or False
73. Compass deviation occurs because most metals and electrical power will cause a compass needle to deviate from magnetic north. True or False
74. How many marker beacons do most ILS's have? \_\_\_\_\_.
75. Coordinates are read first according to \_\_\_\_\_ and then according to \_\_\_\_\_.
76. The Prime Meridian is the starting point for \_\_\_\_\_.
77. Relief is the term used to describe \_\_\_\_\_.
78. Relief on an aeronautical chart is depicted by \_\_\_\_\_.
79. The two types of airspace clearly marked on charts for pilots to avoid are \_\_\_\_\_ and \_\_\_\_\_ airspace.
80. High relative humidity or high air temperature can lower an airplane's \_\_\_\_\_.
81. All fluids possess viscosity (a resistance to flow). Since air is a fluid, it possesses \_\_\_\_\_.
82. A gas is compressible, but \_\_\_\_\_.
83. The "Doppler Effect" is an apparent shift in the frequency of transmitted energy with a change in distance between the transmitter and the receiver. True or False
84. Mach is the ratio of the speed of an object to the \_\_\_\_\_.

#### Chapter Four

1. Civil and military are categories into which all aircraft fit. True or False
2. An air carrier transports \_\_\_\_\_.

3. Which federal agency governs the safety aspects of carriers? \_\_\_\_\_

# Master Chart Teaser

4. The major air carriers include how many of the largest U.S. airlines? \_\_\_\_\_.
5. Medium-length air routes are how long? \_\_\_\_\_.
6. Boeing's 747 was the first \_\_\_\_\_.
7. The Concorde was built by \_\_\_\_\_.
8. Supplemental air carriers do not have what type routes? \_\_\_\_\_.
9. The Airline Deregulation Act of 1978 resulted in a great reduction of the number of airline companies. True or False
10. Prior to 1978, the fares and routes of the air carriers were regulated by the \_\_\_\_\_.
11. All cargo carriers operate the \_\_\_\_\_.
12. General aviation would include what type flying? \_\_\_\_\_.
13. Personal aviation is a subcategory of \_\_\_\_\_.
14. Charter carriers do not have what type routes? \_\_\_\_\_.
15. The majority of instruction aircraft are what type aircraft? \_\_\_\_\_.
16. Deregulation of the airlines resulted in reduced fares. True or False
17. Which of the following classes of air carriers carry the largest number of passengers?
  - a. Major carriers
  - b. Charter carriers
  - c. National carriers
  - d. International carriers
18. All civil aviation aircraft are either \_\_\_\_\_.
19. What percentage of all hours flown in general aviation does personal aviation account for?  
\_\_\_\_\_.
20. Name an aircraft specifically designed as a basic trainer. \_\_\_\_\_.
21. The great majority of personal aviation aircraft have \_\_\_\_\_.
22. The Sundowner is no longer built by \_\_\_\_\_.
23. The Mirage III is produced by \_\_\_\_\_.
24. Antique aviation is a subcategory of what type aviation? \_\_\_\_\_.

25. The typical personal aircraft is a \_\_\_\_\_.

26. Aerobatic flight and racing are what type aviation activities? \_\_\_\_\_.
27. The category of general aviation which has the largest percentage of flying hours is \_\_\_\_\_.
28. The basic difference between a business aircraft and an executive aircraft is the \_\_\_\_\_.
29. Select the aircraft that is generally identified as a "typical" executive aircraft:
  - a. Cessna 210
  - b. Piper Seneca
  - c. Beech Bonanza
  - d. Gates Lear Jet
30. In some cases it is more cost effective to use the airlines instead of a company owned business aircraft. True or False
31. If an individual personally pilots an aircraft used by a business in which he/she engaged, the aircraft is classified as what type airplane? \_\_\_\_\_.
32. Compared to other executive aircraft types, the helicopter is at a disadvantage due to its \_\_\_\_\_.
33. A Cessna Agwagon is used strictly in what type aviation? \_\_\_\_\_.
34. Commercial aviation in aerial agricultural applications uses aircraft such as the Ag Husky. True or False
35. Aerial application is a transportation activity. True or False
36. Which of the following is not a segment of general aviation?
  - a. sport aviation
  - b. personal aviation
  - c. amateur aviation
  - d. instructional aviation
37. The first commercial jet airliner built in the U.S. was the \_\_\_\_\_.
38. Which commercial airlines can lift the heaviest payload? \_\_\_\_\_.
39. The routes flown by regional commuter airlines are usually \_\_\_\_\_.
40. Which of the following aircraft is manufactured by the Beech Aircraft Company?
  - a. Ranger
  - b. Bonanza
  - c. Skyhawk
  - d. Sundowner
41. Which company has manufactured the most general aviation aircraft? \_\_\_\_\_.
42. Which segment of general aviation is the largest in terms of numbers of hours flown? \_\_\_\_\_.

43. Which of the following aircraft would probably NOT be flown by a National carrier:  
 a. Boeing 727                      c. Boeing 747  
 b. Boeing 737                      d. MD-80
44. The \_\_\_\_\_ is a French attack airplane.
45. The \_\_\_\_\_ is constructed from composite materials.
46. The primary role of fighter aircraft is the \_\_\_\_\_.
47. An American attack aircraft is the A-10. True or False
48. The FAA permits any certificated pilot to give flight instruction. True or False
49. Aircraft used by the U.S. Coast Guard fall into what type aviation? \_\_\_\_\_.
50. A government aviation aircraft would NOT be a Navy jet. True or False
51. The FAA used aircraft to \_\_\_\_\_.
52. A turbojet powered aircraft is the \_\_\_\_\_.
53. The newest Soviet supersonic strategic bomber is the \_\_\_\_\_.
54. The F-18 Hornet is manufactured by \_\_\_\_\_.
55. The AH-1 aircraft is a military helicopter. True or False
56. Helicopter maintenance problems center chiefly around the \_\_\_\_\_.
57. Helicopter rotor blade problems are being solved by using what type material?  
 \_\_\_\_\_.
58. A "light-life" helicopter is any helicopter with a useful load that does not exceed how many pounds? \_\_\_\_\_.
59. The Sikorsky S-76 is what type lift helicopter? \_\_\_\_\_.
60. What military service pioneered the MAST program? \_\_\_\_\_.
61. "STOL" stands for "Short Takeoff and Landing." True or False
62. One method of achieving jet-lift VTOL is to swivel the exhaust nozzle downward.  
True or False
63. The QSRA (quiet short-haul aircraft) is what type aircraft? \_\_\_\_\_.

64. The Harrier, which the Marines use, is classified as a \_\_\_\_\_.
65. The new V-22 V/STOL aircraft is also known as the \_\_\_\_\_.
66. A rocket-propelled vehicle with a warhead as its payload is known as a \_\_\_\_\_.
67. If the payload of a rocket is a satellite, it is called a missile in general usage. True or False
68. For some purposes, the military is replacing artillery-type weapons with rocket missiles that have a longer range. True or False
69. The launch site of a SAM is a point \_\_\_\_\_.
70. The SLBM that carries ten MIRV warheads is the \_\_\_\_\_.
71. Payloads of sounding rockets are \_\_\_\_\_.
72. The NASA QSR aircraft achieves additional lift by \_\_\_\_\_.
73. Which of the following would NOT be considered a strategic missile?  
 a. Trident c. Peacekeeper  
 b. Pershing II d. Minuteman
74. Which tactical missile will the U.S. have to destroy under the new INF (Intermediate Range Nuclear Force) Treaty? \_\_\_\_\_.
75. The Peacekeeper is the newest U.S. ICBM. True or False
76. SUBROC is a missile that would be launched by a submarine against a \_\_\_\_\_.
77. What rocket is used both as a sounding rocket and as a satellite launch vehicle?  
 \_\_\_\_\_.
78. Which of the following is not manufactured in the U.S.?  
 a. Bell 222 c. Sikorsky S-76  
 b. Agusta 109A d. Schweizer 300C
79. How many solid rocket boosters are used for each launch of a Space Shuttle Orbiter? \_\_\_\_.
80. An example of the AAM is the \_\_\_\_\_.
81. The ALCM is powered by what type engine? \_\_\_\_\_.
82. The only part of the Space Shuttle which is not designed to be reused is the \_\_\_\_\_.

83. Which part of the Space Shuttle system is parachuted into the ocean?  
\_\_\_\_\_.

84. The two major categories into which all flying activity is placed are  
\_\_\_\_\_.

#### Chapter Five

1. For aerodynamic stabilization, Congreve used \_\_\_\_\_.

2. The nation which gave rocketry a new start in warfare in WW II was \_\_\_\_\_.

3. The country that first used rockets in war was \_\_\_\_\_.

4. Who was first to design a rocket propelled by gunpowder? \_\_\_\_\_.

5. Who first designed spin-stabilized rockets? \_\_\_\_\_.

6. Goddard used liquid oxygen and gasoline to propel his rockets. True or False

7. The person who used a method of spinning a rocket to achieve stabilization was  
\_\_\_\_\_.

8. Newton's law of motion which most applies to rocketry is the \_\_\_\_\_.

9. Newton's law of universal gravitation simple states that the effect of mutual gravitation depends on the mass and distance between two bodies. True or False

10. The product of mass and velocity is \_\_\_\_\_.

11. Which of Newton's three laws of motion pertains most to rocket acceleration after liftoff?  
\_\_\_\_\_.

12. The rate of change of velocity is called \_\_\_\_\_.

13. The major systems of a rocket are the \_\_\_\_\_.

14. The components of a rocket propulsion system include the propellant used, the container(s) for the propellant, the engine itself and the propellant plumbing. True or False

15. The rocket airframe system contains the \_\_\_\_\_.

16. The rocket system which determines the rocket's flight path is the \_\_\_\_\_.

17. The guidance system used on the larger rockets is the \_\_\_\_\_.

18. A good propellant must ignite accurately and reliably.

True or False

19. Who developed the three laws of motion and the law of universal gravitation? \_\_\_\_\_.
20. What system allows the rocket to be programmed for a desired flight trajectory before launch?  
\_\_\_\_\_.
21. An example of a payload for a typical military rocket is an \_\_\_\_\_.
22. What type of rocket investigates the air or space without achieving orbit? \_\_\_\_\_.
23. The amount of thrust a pound of rocket propellant will deliver in one second of burning is measured by \_\_\_\_\_.
24. A liquid, solid or gas containing oxygen that reacts with rocket fuel is called \_\_\_\_\_.
25. Who discovered oxygen and the principle of oxidation? \_\_\_\_\_.
26. Which of the following reduces moisture absorption in the rocket propellant? \_\_\_\_\_.
27. Atomizing the rocket propellants as they enter the combustion chamber is the function of the \_\_\_\_\_.
28. An orbit whereby satellites are kept fixed above one point on earth is the definition for which type orbit? \_\_\_\_\_.
29. A heavy-lift launch vehicle (HLLV) is \_\_\_\_\_.
30. Parts of an HLLV could possibly be used as elements of a space station.  
True or False
31. An object in space responds more definitely to the application of force because movement in space is not restricted by the influence of gravity.  
True or False
32. The rocket engine which uses a solid reactor to heat a gaseous propellant is the \_\_\_\_\_.
33. The type of propellant used in NERVA rockets is \_\_\_\_\_.
34. A small direction change of a rifle barrel will produce a large change in the impact point of the bullet.  
True or False
35. A serious drawback to a nuclear rocket is its \_\_\_\_\_.
36. A very large force must be applied against the direction of a spacecraft's travel to get out of earth's orbit because the craft's mass exerts such a tremendous amount of what type force?  
\_\_\_\_\_.

# Orbital Trajectory

37. The component of an inertial guidance system which keeps the system properly oriented is the \_\_\_\_\_.
38. Which electrical engine is used as an auxiliary propulsion source for north-south satellite station keeping and attitude control? \_\_\_\_\_.
39. What system is used on short-range missiles to detect radiation coming from the target? \_\_\_\_\_.
40. Which guidance system is the most accurate when very long or intercontinental distances are to be flown and when precision of navigation is necessary? \_\_\_\_\_.
41. Detecting and measuring acceleration in all directions on the inertial platform of the inertial guidance system is the responsibility of the \_\_\_\_\_.
42. The leveling and aligning of the inertial platform of an inertial guidance system is called \_\_\_\_\_.
43. What causes a body at rest to remain at rest and one in motion to remain in motion in a straight line at a constant velocity? \_\_\_\_\_.
44. The path of any object flying in the atmosphere or space is called a trajectory. True or False
45. The closed, continuing flight path of one object about another is called \_\_\_\_\_.
46. The term which indicates the farthest point of a satellite orbiting earth is \_\_\_\_\_.
47. The term which indicates the closest point of a satellite orbiting earth is \_\_\_\_\_.
48. The closest point of an object in orbit about the sun is called \_\_\_\_\_.
49. The point in the orbital trajectory where the orbiting body is closest to another planet is called \_\_\_\_\_.
50. Sounding rockets have what type trajectory? \_\_\_\_\_.
51. The right amount of thrust at apogee is required to circularize an orbit. True or False
52. Satellites launched from the equator and toward the east will have how many miles per hour added to the velocity provided by their launch vehicles? \_\_\_\_\_.
53. The two basic types of orbits are \_\_\_\_\_.
54. Increasing the speed of a satellite in a circular orbit will \_\_\_\_\_.

55. Moving a satellite within the same orbital plane is call \_\_\_\_\_.
56. A ballistic trajectory is a flight path taken by an unpowered, unguided object, such as a bullet, to a point on earth. True or False
57. An object remains in orbit through a balance between gravitational and what other type force? \_\_\_\_\_.
58. Any "one shot" orbit has to be \_\_\_\_\_.
59. What is the name of the comet that Skylab studied? \_\_\_\_\_.
60. A primary reason for using space as a manufacturing site is to \_\_\_\_\_.
61. The satellite which is being used for surveying our natural resources is \_\_\_\_\_.
62. Monitoring natural resources, providing global communications, obtaining data on weather for meteorologists and providing precise navigation fixes for aircraft and ships is a benefit to the \_\_\_\_\_.
63. The ballistic trajectory is primarily influenced by \_\_\_\_\_.
64. What is the name of the satellite which was orbited especially for use by amateur radio enthusiasts? \_\_\_\_\_.
65. A spacecraft that either flies by or orbits another celestial body other than earth is generally called a \_\_\_\_\_.
66. The name of the navigation satellite system is \_\_\_\_\_.
67. A major advantage of the Hubble telescope is that its not affected by \_\_\_\_\_.
68. The global Positioning System will include at least \_\_\_\_\_ satellites.
69. A joint search and rescue effort of the United States, Canada and France is \_\_\_\_\_.
70. What was designed to provide simultaneous full time coverage for the Space Shuttle and other low-earth-orbiting space craft? \_\_\_\_\_.
71. Which satellite provides navigational services to civilians and the military? \_\_\_\_\_.
72. Investigation of the interactions of energy coming from the sun and earth's magnetic forces was the mission of the \_\_\_\_\_.
73. Which probe provided the first close-up pictures of the moon's surface? \_\_\_\_\_.

74. The United States first space station was \_\_\_\_\_.

### Chapter Six

1. Mankind's activities in the aerospace environment is called \_\_\_\_\_.
2. "Aerospace power" is a nation's total capacity to act in the aerospace environment.  
True or False
3. Anything that increases a nation's capability in aviation and space exploration adds to that nation's aerospace power.  
True or False
4. Which nation is most "air-minded?" \_\_\_\_\_.
5. New inventions and their development into new, advanced technologies can \_\_\_\_\_.
6. What made the right to fly in space an international concern? \_\_\_\_\_.
7. The larger a nation's population, the greater its potential for aerospace power.  
True or False
8. A Cessna 140 has the right to fly across the Pacific Ocean, but it does not have the what to do so? \_\_\_\_\_.
9. Aerospace education is considered part of general education.  
True or False
10. Training an aerospace engineer is part of aerospace education.  
True or False
11. In our national security policy, preventing military aggression which threatens the United States or its allies is our \_\_\_\_\_ objective.
12. The broad course of action adopted by the United States to promote the nation's vital interests is called \_\_\_\_\_.
13. Preventing military aggression or action which threatens the security of the United States or its allies is the \_\_\_\_\_.
14. The degree of United States involvement in an area of armed conflict is determined by \_\_\_\_\_.
15. Economic sanctions against foreign nations is one part of our national security policy.  
True or False
16. The North Atlantic Treaty Organization (NATO) is an example of \_\_\_\_\_.
17. To resolve international conflicts before military action is required is the purpose of \_\_\_\_\_.

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18. "Deterrence" is a state of \_\_\_\_\_.
19. Deterrence depends on both \_\_\_\_\_.
20. If deterrence is successful, we will \_\_\_\_\_.
21. War is categorized as either general or \_\_\_\_\_.
22. Limited wars generally end with one side surrendering to the other. True or False
23. A "limited" war is any war that does not escalate into an all-out war. True or False
24. Which of the following is an example of a limited war:
  - a. Korean
  - b. World War I
  - c. World War II
  - d. All of the above
25. what type of transportation changed the entire structure of civilization? \_\_\_\_\_.
26. The airplane has been used for transportation for how many years? \_\_\_\_\_.
27. The two major expenses for airlines are \_\_\_\_\_.
28. Who developed the airport "hub" system? \_\_\_\_\_.
29. In the airport hub system, Chicago is classified as a \_\_\_\_\_.
30. In addition to the direct employment category to support airport operations, many more jobs are created in the "secondary employment" category. True or False
31. Federal Express specializes in \_\_\_\_\_.
32. One major advantage air travel has over all other forms of transportation is \_\_\_\_\_.
33. The National Transportation Safety Board (NTSB) is responsible for \_\_\_\_\_.
34. Airports aid the tourist industry form a community. True or False
35. In 1986, aerospace exports were \_\_\_\_\_.
36. Which of the following is not involved with general aviation aircraft:
  - a. FAA
  - b. CAP
  - c. NASA
  - d. CRAF
37. Which organization is not involved with general aviation.
  - a. FAA
  - b. CAP
  - c. CRAF
  - d. SARDA

38. Aircraft orders which have been received but not yet filled are called \_\_\_\_\_.
39. The feature of the MD-90 series aircraft that makes it unique is its \_\_\_\_\_.
40. The aircraft that form the CRAF are \_\_\_\_\_.
41. The function of the FAA Air Traffic Control System pertains directly to aviation \_\_\_\_\_.
42. The movement of men and supplies within the battle area is called \_\_\_\_\_.
43. The U.S. Special Operations Command was formed to \_\_\_\_\_.
44. Which of the following is not part of the Triad:  
 a. B-1B Bombers                      c. Trident submarines  
 b. Minuteman III                      d. Nuclear aircraft carriers
45. One of the advantages of the manned strategic bomber as part of the Triad is that it \_\_\_\_\_.
46. Which of the following is not a mission of the U.S. Space Command:  
 a. Space Operations                      c. Surveillance and warning  
 b. Manned spaceflight                      d. Ballistic missile defence planning
47. The INF Treaty limits the number of which type weapons? \_\_\_\_\_.
48. Heart patient pacemakers represent \_\_\_\_\_.
49. Which of the following treaties allowed for on-site inspections?  
 a. INF Treaty                      c. ABM Treaty  
 b. Salt I Treaty                      d. Salt II Treaty
50. Research which is performed to gain new knowledge is called \_\_\_\_\_.
51. Studies of the upper atmosphere are an example of \_\_\_\_\_.
52. Which of the following is not an example of applied research?  
 a. building transistor radios      c. developing weather satellites  
 b. inventing microwave ovens      d. finding a cure for the common cold
53. The purpose of aerospace education is to teach everyone to understand aerospace developments while that of aerospace training is to train someone to do something in the field of aerospace. True or False
54. Which of the following schools is usually the least expensive to attend?  
 a. University                      c. Four-year College

b. Junior College

d. Private college or University

55. What type of degree can you earn through the Community College of the Air Force?  
\_\_\_\_\_.
56. Special talents and natural abilities a person possesses are called \_\_\_\_\_.

Misc Questions

1. Which military branch did not participate in designing the X-15? \_\_\_\_\_.
2. Which executive jet aircraft is a foreign built aircraft? \_\_\_\_\_.