

Aerospace Science

Unit 2-3

1. What are the two principle means for meeting the human requirements of flight?
 - a.
 - b.
2. Without a range of _____ equipment and _____ programs, people could never have advanced into the _____ zone of the atmosphere.
3. What are the three kinds of protective equipment used in today's aircraft?
 - a.
 - b.
 - c.
4. Oxygen in high-flying aircraft was first supplied by an _____ and then by a _____. Now, most high-flying aircraft have a _____ cabin.
5. All flights made above 50,000 feet are made by _____ or _____ pilots.
6. What are the three ways pilots flying above 50,000 feet are protected?
 - a.
 - b.
 - c.
7. What are the three types of oxygen breathing systems used on aircraft?
 - a.
 - b.
 - c.
8. Today, almost all aircraft flying at high altitudes are equipped with the _____ oxygen system.
9. As aircraft fly higher, _____ oxygen is needed by the aircrew.
10. The system of supplying oxygen only when the pilot inhales is called _____.
11. When an aircraft reaches the 30,000-foot level, the _____ oxygen system switches and delivers _____ percent oxygen under pressure automatically adjusted to the _____.
12. The first aircraft _____ suit was invented by _____ in the 1930s.

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13. Wiley's third pressure suit used the principle of _____ with an inner rubber container to hold _____ and an outer rubberized fabric that kept its shape and allowed the pilot some _____.
14. In the 1940s, _____ developed the partial-pressure suit. This type of suit uses _____ to provide pressure over certain parts of the body (but not all parts).
15. A _____ suit creates a completely pressurized environment. When used by aircrews, it is typically unpressurized below altitudes of _____. Above this altitude, the suit automatically inflates to a pressure of _____.
16. What are the three parts to the modern pressure suit?
 - a.
 - b.
 - c.
17. When G-forces are _____, the blood rushes to the _____, and the pilot may experience _____.
18. The G-suit is comprised of small bladders placed at each _____ and _____, and a large bladder spread across the _____. These bladders inflate automatically when the aircraft reaches a positive _____.
19. G-suit bladders force the pilot's blood out of the _____ and into the head preventing _____.
20. The pressurized cockpit is generally called the _____.
21. The first American pressurized airliner, a Stratoliner, carried passengers in _____.
22. The difference in pressure between the atmosphere in the aircraft cabin and the atmosphere outside is called the _____.
23. A pressure differential of 14.7 psi would represent a pressure of _____ on each square foot of aircraft surface.
24. With a cabin pressurized to the 8,000-foot level, aircraft can fly at _____ feet with a maximum pressure differential of _____.

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25. Improvements in _____ have made it possible for stronger and lighter aircraft structures to support _____ pressure differentials.
26. Military aircraft going to a very high altitude usually operate with a maximum pressure differential of about _____.
27. When above _____ feet, the air from outside must be sealed off and the cabin pressurized by using a supply of oxygen or other gas carried onboard. Such a cabin is called a _____.
28. When converted into a gas for aircrew use, liquid oxygen (LOX) expands about _____.
29. The greatest danger from rapid decompression is _____.
30. For escape from high-performance aircraft, the military crewmember now has an _____.
31. The first use of a parachute to save an American life was made in _____ by Lt Harold Harris.
32. What are the three basic parts of a parachute?
 - a.
 - b.
 - c.
33. _____ are lines used to guide the parachute as it nears the ground.
34. The best minimum altitude for opening the parachute is about _____ feet above the ground.
35. The first American ejection seat was built from a _____ model.
36. _____ made the first live American ejection over Wright Field in 1946.
37. One of the Americans best known for basic research on ejection equipment for use in high-speed aircraft is _____.

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38. Name the advantages newer ejection seats have over the older models.
- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | |
39. A _____ is an apparatus that simulates, or gives the effect of one or many conditions of flight.
40. The purpose of the _____ training is to give trainees the actual experience of what happens at high altitude.
41. A device that helps prospective flyers become accustomed to the spinning and disorientation experienced in flight is the “biaxial simulator,” or _____.
42. The _____ is simply a rotating chair with a large bearing system to ensure smooth operation.
43. The _____ is the illusion of turning in the opposite direction of rotation.
44. The _____ makes training much safer and more economical.