Milestones in Aerospace History

Aerospace Engineering · Answer Key · 25 Questions

1. Which experimental aircraft, first flown in 1947, was the first to officially break the sound barrier in level flight?

A) Bell X-1
B) Douglas D-558-1 Skystreak
C) North American F-86 Sabre
D) Lockheed P-80 Shooting Star

2. The NACA Cowling, developed in 1928, was an engineering breakthrough that primarily served what purpose?

A) Increasing structural rigidity of wing spars
B) Reducing aerodynamic drag of radial engines
C) Improving high-altitude engine combustion
D) Stabilizing flight during turbulence

3. What was the primary innovation of the Vought V-173 'Flying Pancake' aircraft design?

A) Variable-sweep wings
B) Blended wing-body architecture
C) Low-aspect-ratio all-wing design for STOL
D) Counter-rotating turbojet engines

4. The first human-made object to reach the Moon's surface was the Soviet Luna 2 probe. In what year did this impact occur?

A) 1957
B) 1959
C) 1961
D) 1963

5. The 'Tu-144' was the world's first supersonic transport aircraft. Which nation produced this aircraft?

A) United Kingdom
B) United States
C) Soviet Union
D) France

6. Project Gemini's 'Gemini 8' mission achieved a historic first in aerospace engineering by completing:

A) First successful EVA
B) First space docking between two spacecraft
C) First lunar orbit
D) First recovery of a payload from Earth orbit

7. What is the specific name of the aerodynamic phenomenon where shock waves form at the trailing edge of a wing during transonic flight?

A) Mach tuck
B) Wave drag
C) Area rule
D) Vortex shedding

8. Which aircraft was the first to use an ejection seat as a standard safety feature for the pilot?

A) Heinkel He 280
B) Messerschmitt Me 262
C) Gloster Meteor
D) Northrop P-61 Black Widow

9. In 1930, Frank Whittle was granted the patent for the first turbojet engine. What was his specific innovation?

A) The centrifugal compressor
B) The axial flow compressor
C) The afterburner
D) The variable geometry nozzle

10. The 'C-5 Galaxy', introduced in 1970, utilized what specific high-bypass turbofan engine design to achieve massive payload capacity?

A) General Electric TF39
B) Pratt & Whitney JT9D
C) Rolls-Royce RB211
D) CFM International CFM56

11. Which spacecraft was the first to perform a flyby of Pluto, reaching its destination in July 2015?

A) Voyager 1
B) Cassini-Huygens
C) New Horizons
D) Galileo

12. The 'Area Rule' (Whitcomb area rule) was a critical discovery for supersonic flight. Where was Richard Whitcomb employed when he formulated it?

A) Lockheed Skunk Works
B) NACA Langley Research Center
C) Boeing Phantom Works
D) Douglas Aircraft Company

13. What was the first artificial satellite launched into Earth orbit by a multi-stage rocket with a liquid-fueled booster?

A) Vanguard 1
B) Sputnik 1
C) Explorer 1
D) Luna 1

14. The 'SR-71 Blackbird' utilized which specialized fuel to manage high temperatures during sustained Mach 3 flight?

A) JP-4
B) JP-7
C) RP-1
D) Liquid Hydrogen

15. Which early rocket propulsion pioneer is credited with the development of the first liquid-fueled rocket, launched in 1926?

A) Konstantin Tsiolkovsky
B) Hermann Oberth
C) Robert Goddard
D) Wernher von Braun

16. What significant structural failure mode caused the grounding of the de Havilland Comet in the 1950s?

A) Engine turbine blade fatigue
B) Metal fatigue from cabin pressurization cycles
C) Control surface flutter
D) Fuel system cavitation

17. The 'Saturn V' rocket used what type of propellant combination in its first stage (S-IC)?

A) Liquid Hydrogen/Liquid Oxygen
B) RP-1/Liquid Oxygen
C) Solid Polybutadiene
D) Hydrazine/Nitrogen Tetroxide

18. Which aircraft was the first to feature a 'fly-by-wire' control system, replacing traditional mechanical linkages?

A) F-16 Fighting Falcon
B) Avro Canada CF-105 Arrow
C) Apollo Lunar Module
D) NASA F-8 DFBW

19. The 'X-15' rocket plane set a world record for the highest speed ever reached by a manned powered aircraft. In what year was this record set?

A) 1962
B) 1967
C) 1971
D) 1975

20. What was the primary aerodynamic purpose of the 'winglets' first pioneered by NASA's Richard Whitcomb in the 1970s?

A) Increasing lift at low speeds
B) Reducing wingtip vortex drag
C) Stabilizing supersonic flight
D) Enhancing maneuverability in aerial combat

21. The 'Viking 1' mission was the first to successfully land and operate on the surface of which planet?

A) Venus
B) Mars
C) Mercury
D) Jupiter

22. What was the first jet-powered aircraft to enter operational service in World War II?

A) Gloster Meteor
B) Messerschmitt Me 262
C) Heinkel He 162
D) Arado Ar 234

23. Which aerospace manufacturer produced the 'Spirit of St. Louis' used by Charles Lindbergh?

A) Ryan Aeronautical Company
B) Lockheed Corporation
C) Curtiss-Wright
D) Douglas Aircraft

24. The 'Pioneer 10' probe was the first spacecraft to achieve what specific milestone in 1973?

A) Exit the solar system

B) Perform a flyby of Jupiter

C) Land on an asteroid

D) Capture images of the Sun

25. What was the primary function of the 'Sabatier reactor' proposed for use on the International Space Station?

A) Carbon dioxide reduction

B) Oxygen generation

C) Water reclamation

D) Thermal energy storage