Q.23 How the air density varies with altitude?

Q.24 What are the various types of drags?

Q.25 Describe Bernoulli's theorem

Q.26 Describe longitudinal stability of an airplane

Q.27 Explain the stability of an aircraft with contribution tail.

Q.28 Differentiate real and ideal flow.

Q.29 What is a transonic flight?

Q.30 How does a trim tab work?

Q.31 Which is the most critical phase of flight and why?

Q.32 Describe two airfoil nomenclature.

Q.33 What is a swept back wing and its need?

Q.34 Explain the function of flaps and winglets.

Q.35 What are various types helicopters?

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Classify various aircrafts with their applications. Why air travel is safest mode of travel?

Q.37 Explain the collective and cyclic pitch of rotor. What is a flyover concept?

Q.38 Explain Superstall, delta wing and vortex generator.

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3rd Sem / Branch : Aircraft Maintenance Engg.

Subject:- Theory of Flight

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 What defines transonic airflow?

a) Airflow at speed below the speed fo sound
b) Airflow at speed near the speed of sound
c) Airflow at speeds above the speed of sound
d) Airflow at supersonic speeds

Q.2 Which of the following is true about transonic airflow?

a) It is only encountered during takeoff and landing
b) It is characterized by a sudden increase in drag
c) It occurs at speeds significantly below the speed of sound
d) It is easily controlled and predictable.

Q.3 Which of the following is an example of a high lift device used during takeoff and landing?

a) Spoilers b) Flaps
c) Rudder d) Ailerons

Q.4 What is the direction of lift on wing ?

a) Perpendicular to the direction of motion

b) Parallel to the direction of motion

c) Perpendicular to the wing

d) Parallel to the wing

Q.5 In the flow, the point where the fluid comes to rest is called as_____.

a) Null Point b) Rest Point

c) Stagnation Point d) Viscous Point

Q.6 The smoke particles coming out form the chimney falls under _____.

a) Streamline b) Streakline

c) Path line d) Position vector

Q.7 How do slats contribute to high lift on an aircraft wing ?

a) By reducing airspeed

b) By increasing the curvature of the wing

c) Bt increasing the angle of attack and delaying stall

d) By decreasing lift distribution along the wing .

Q.8 Which of the following is incorrect?

a) Lift is zero in a vertical fight

b) Trim tab is used as high lift device

c) Lift is not always same as weight

d) Tail is stabilizing

Q.9 Which Drag is dependent on Lift?

a) Skin Friction drag b) Induced Drag

c) Form drag d) All of the above

Q.10 Sweep Back is for?

a) Increasing Lift b) Increasing thrust

c) Decreasing weight d) Increasing speed

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Describe the function of a supercritical airfoil?

Q.12 Name three secondary control surfaces

Q.13 Maximum coefficient of lift is during which phase of flight?

Q.14 What is the Mach range for Transonic flow?

Q.15 What is the use of a vortex generator?

Q.16 What is a rotor blade?

Q.17 What is the purpose of a slot?

Q.18 What is a stream line?

Q.19 What is the purpose of vertical stabilizer stabilizer?

Q.20 Drag divergence Mach number is_____?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Draw and explain lift slope curve.

Q.22 Classify aircrafts with respect to size