Q.29 State Bernoulli's principle. How do you calculate air speed with it?

Q.30 Locate the center of pressure on different types of airfoils.

Q.31 What is flyover concept.

Q.32 Describe flutter of a wing?

Q.33 Explain the function of flaps and winglets.

Q.34 Explain the dihedral wing use?

Q.35 What are various types of flaps used in airplanes?

SECTION-D

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

Q.36 Classify the different aircrafts in detail with examples from the real world.

Q.37 Explain the characteristics of subsonic, transonic and supersonic airflow over wings.

Q.38 Explain flight control system control systems and describe the various performance parameters of an airplane?

Roll No. .....

3rd Sem / 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 is the thickness of NACA 0012 airfoil?

a) 24% b) 1.2%
c) 6% d) 12%

Q.2 What is the use of horizontal stabilizer in an airplane?

a) Provide stability
b) Control the airplane
c) Provide longitudinal stability
d) All of the above

Q.3 Bernoulli's equation is applicable only for_____

a) Irrotational flow
b) Viscous flow
c) Inviscid, incompressible flow
d) Compressible flow

Q.4 What is the direction of lift?

a) Perpendicular to the direction of motion
b) Parallel to the direction of motion
c) Vertical direction
d) Horizontal direction

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 water jet is a set of_____

a) Streamlines b) Streaklines

c) Path lines d) Position vectors

Q.7 What is the use of trim tab?

a) Minute control of airplane

b) Relieve pilot from stick force

c) To stabilize the airplane

d) All of the above

Q.8 Which of the following is incorrect?

a) Symmetrical wing lift curve is not same as that of the Cambered

b) Stick free and stick fixed are same

c) Lift is not always same as weight

d) Thrust required is not always same

Q.9 Aerodynamic center is close to in supersonic wings?

a) 50% of chord b) 25% of chord

c) 75% of Chord d) None of the above

Q.10 What is a airfoil used in?

a) Supercritical b) Diamond shape

c) thick airfoil d) Symmetrical

SECTION-B

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

Q.11 What are the aerodynamic forces acting on aircrafts?

Q.12 Which part is designed for keeping longitudinal stability in picture?

Q.13 In which phase of airplane flight, lift is maximum?

Q.14 What is a streak line?

Q.15 How L/D is affected?

Q.16 Where honeycomb structure is used?

Q.17 What is the purpose of a slat?

Q.18 How static and dynamic pressures are related?

Q.19 What is an elevon?

Q.20 Draw a ruddervator?

SECTION-C

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

Q.21 Compare coefficient of lift for a wing and airfoil?

Q.22 Classify aircrafts?

Q.23 What is Kutta-condition?

Q.24 How can you reduce drag on a wing?

Q.25 Explain role of aileron on stability.

Q.26 Calculate the temperature at 30000 ft altitude.

Q.27 Differentiate streamline, path line and streak line.

Q.28 What is stagnation temperature?