	UNIT I Basic Concepts and Isentropic Flow	**YEAR : 2016-2017** **SEMESTER: VI**

Part-A

1. What is meant by gas dynamics? (May/June 2015)

Gas dynamics is defined as the study of motion of gases and its effects.

2. Define Mach number. (May/June 2015, May/June 2010, May/June 2008, Nov/Dec2007)

Mach number is defined as the ratio between the local fluid velocities to the velocity of sound. Mach number M=c/a. It is used for the analysis of

compressible fluid flow problems.

3. Distinguish between nozzle and diffuser. (May/June 2014)

Nozzle is a device which increases the velocity and decreases the pressure of working substance. Diffuser is a device which increases the pressure and decreases the velocity of the working substance.

4. When does maximum flow occur for an isentropic flow with variable area duct? (May/June 2014)

Mass flow rate will be maximum at throat section where the Mach number is one.

5. What is the basic difference between compressible and incompressible flows? (May/June 2013, May/June 2007, May/June 2006)

In Compressible flow the density of the fluid is constant whereas incompressible flow the density of the fluid is not constant.

6. Name the four reference velocities that are used in expressing the third velocities in non-dimensional form. (May/June 2013)

Local velocity of sound, stagnation velocity of sound, maximum velocity of sound, critical velocity of sound.

7. Zone of silence is absent in subsonic flow. Why? (May/June 2012)

Wave propagation in subsonic flow. Spherical sound waves are generated at t=3,2 and 1 s.

8. What is the cross section of the nozzle required to increase the velocity of compressible fluid from (i) subsonic to supersonic (ii) subsonic to sonic (May/June 2012, May/June2011, May/June 2010)

Cross section of the nozzle is convergent divergent.

Cross section of the nozzle is convergent.

9. Define Stagnation State. (May/June 2010, Nov/Dec2007, May/June 2007, Nov/Dec2006, Nov/Dec 2005, May/June 2005)

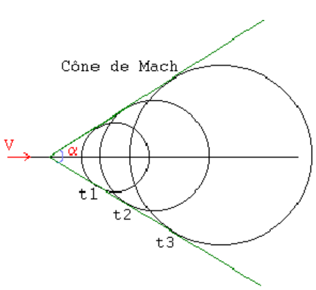
The state of fluid attained by isentropic ally decelerating it to zero velocity at zero elevation is referred as stagnation state. E.g. Fluid in a reservoir or in a settling chamber.

10. Express the stagnation enthalpy in terms of static enthalpy and velocity of flow. (Nov/Dec 2009)

$h_1 + c_1^2/2 + gZ_1 = h_2 + c^2_2/2 + gZ_2 + W_1$

Adiabatic energy equation is $h_0 = h + \frac{1}{2} C^2_2$

11. Draw the Mach cone and indicate various zones. (May/June 2009)



12. What is the advantage of using M* (second kind of Mach number) instead of M (local Mach number) in some cases? (May/June 2009, Nov/Dec 2008)

M is proportional to the fluid velocity and sound velocity but M* is proportional to the fluid velocity.

At high velocities M approaches infinity but M* gives a finite value.

13. What is Mach Cone? (May/June 2006)

Tangents drawn from the source point on the spheres define a conical surface referred to as Mach cone.

PART-B

1. Air is discharged from a reservoir at p_o = 6.91 bar and To = 325 C through a nozzle to an exit pressure of 0.98 bar. If the flow rate is 3600 Kg/hr, determine throat area, pressure and velocity at the throat, exit area, exit Mach number and maximum velocity. Consider flow is isentropic. (AU: May 2012, Dec 2009, May 2008)

2. A supersonic diffuser diffuses air in an isentropic flow from a mach number of 3 to a mach number of 1.5. The static conditions of air at inlet are 70 kpa and -7 C. If the mass flow rate of air is 125 kg/s, determine the stagnation conditions,

areas at throat and exit, static conditions (pressure, temperature, velocity) of air at exit.(AU: May 2012)

3. A supersonic nozzle expands air from Po = 25 bar and T0 = 1050 K to an exit pressure of 4.35 bar: the exit are of the nozzle is 100 cm^2. Determine i) throat area ii) pressure and temperature at the throat iii) temperature at exit iv) Exit velocity

as fraction of the maximum attainable velocity v) mass flow rate.(AU: May 2011, May 2010)

4. A conical diffuser has entry and exit diameters of 15 cm and 30 cm respectively. The pressure, temperature and velocity of air at entry are 0.69 bar, 340 K and 180 m/s respectively. Determine i) exit pressure ii) the exit velocity and iii) the force exerted on the diffuser walls assume isentropic flow, γ =1.4, Cp = 1.00 J/Kg K(AU: May 2011, May 2010, May 2009 Dec 2008, Dec 2007)

5. The pressure, temperature and Mach number at the entry of a flow passage are 2.45 bar, 26.5 C and 1.4 respectively. If the exit Mach number is 2.5, determine for adiabatic flow of a perfect gas (γ = 1.3, R = 0.469 kJ/Kg K). I) Stagnation temperature. ii) Temperature and velocity of gas at exit. Iii) The flow rate per square metre of the inlet cross-section. (AU: May 2010, May 2008)

6.Air (γ = 1.4, R = 287.43 J/Kg K) enters a straight axis symmetric duct at 300 K, 3.45 bar and 150 m/s and leaves it at 277 k, 2.058 bar and 260 m/s. The area of cross-section at entry is 500cm^2. Assuming adiabatic flow determine i) Stagnation temperature ii) maximum velocity iii) Mass flow rate iv) Area of cross section at exit. (AU: May 2010, May 2008)

7. In an isentropic flow diffuser the inlet area is 0.15 m^2. At the inlet velocity 240m/s, static temperature = 300 k and static pressure 0.7 bar. Air leaves he diffuser with a velocity of 120 m/s. Calculate at the exit the mass flow rate, stagnation pressure, stagnation temperature, area and entropy change across the diffuser. (AU: Dec 2009)

8. Air is drawn isentropically from a standard atmosphere at sea level (101.3 KPa and 15 C) through a converging diverging nozzle. The static pressure at two different locations at 80 KPa and 40 KPa respectively. Determine the Mach number at each of these locations. Also determine the velocity at each of these locations. (AU: May 2009)

9. Air (Cp = 1.05 KJ/Kg-K, γ = 1.38) at P1 = 3 × 105 N/m^2 and T1 = 500 k flows with a velocity of 200 m/s in a 0.3 m diameter duct. Calculate: Mass flow rate, Stagnation temperature, Mach number and stagnation pressure values assuming the flow as compressible and incompressible respectively.(AU: Dec 2008, Dec 2007)

10.Air flowing in a duct has a velocity of 300 m/s, pressure 1.0 bar and temperature 290 k. Taking γ = 1.4 and R = 287 J/Kg K. Determine: i) Stagnation pressure and temperature. ii) Velocity of sound in the dynamic and stagnation conditions. iii) Stagnation pressure assuming constant density.(AU: May 2008, Dec 2007)

11. What is the effect of Mach number on compressibility? Prove for $\gamma=1.4$, $P_o - P / \frac{1}{2} \rho c^2 = 1 + \frac{1}{4} M^2 + \frac{1}{40} M^4 + \ldots\ldots.$

(AU: May 2009, Dec 2007, and Dec 2006, MAY 2013,)

12. Derive area ratio as a function of Mach number for one dimensional isentropic flow (AU: Dec 2008)

GIT	**UNIT II Flow through Ducts**	**YEAR : 2016-2017**
		SEMESTER: VI

PART-A

1. What is Fanno flow? (May/June 2015)

Flow in a constant area duct with friction and without heat transfer is known as Fanno flow.

2. Give assumptions made on Rayleigh flow. (May/June 2014, May/June 2012, May/June 2010, May/June 2009, Nov/Dec2008, Nov/Dec 2006)

One dimensional steady flow, Flow takes place in constant sectional area, there is no heat transfer, and the gas is perfect with constant specific heats.

3. Define Critical condition in Fanno flow. (May/June 2014, May/June 2011)

Due to friction in subsonic or supersonic flow in a constant area duct, flow will reach the critical condition where the Mach number is one.

4. Differentiate between Rayleigh and Fanno flow. (May/June 2013)

Rayleigh flow: Flow in a constant area duct with heat transfer and without friction is known as Rayleigh's flow.

Fanno flow: Flow in a constant area duct with friction and without heat transfer is known as Fanno flow.

5. Give assumptions made on Isothermal flow. (May/June 2013)

Constant area duct, Perfect gas with constant specific heats and molecular weights Isothermal flow

6. Give two practical examples for fanno flow and Rayleigh flow analysis. (May/June 2011, May/June 2010, Nov/Dec 2006, Nov/Dec 2005)

Flow in air breathing engines, Flow in refrigeration and air conditioning Flow of fluids in long pipes.

7. Differentiate between Isothermal and Fanno flow. (Nov/Dec 2009, Nov/Dec 2004, Nov/Dec2003)

In Isothermal flow the area is constant and heat transfer flow is possible whereas fanno flow the area is constant and friction will occurred in a flow.

8. Give four examples of fanno flow in thermal systems. (May/June 2009)

Flow in air breathing engines, Flow in refrigeration and air conditioning Flow of fluids in long pipes.

9. What is the limiting Mach number in isothermal flow? (Nov/Dec 2008)

The limiting Mach number in isothermal flow is M = 1/root gamma and all process approach this Mach number.

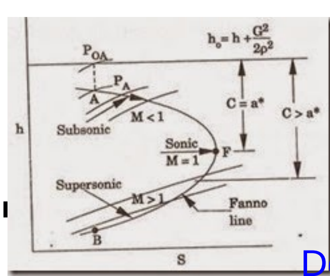
10. Draw Fanno curve and represent subsonic and supersonic flows. (May/June 2008)

11. Define Rayleigh flow. (May/June 2006, May/June 2005)

Rayleigh flow: Flow in a constant area duct with heat transfer and without friction is known as Rayleigh's flow.

12. State the two governing equations used in plotting Rayleigh line. (Nov/Dec 2005)

13. Sketch the fanno line on the T-S plane and explain the significance of it. (Nov/Dec 2004)



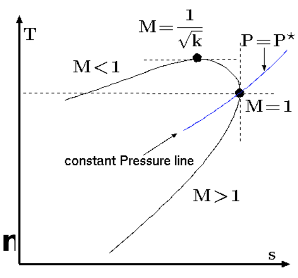
14. Write down the ratio of velocities between any two sections in terms of their mach numbers in a fanno flow. (May/June 2004)

15. Differentiate between adiabatic and diabatic flow. (May/June 2004)

Diabatic flow :Flow in a constant area duct with heat transfer and without friction is known as diabatic flow (Rayleigh flow)

Adiabatic flow:Flow in a constant area duct with friction and without heat transfer is known as adiabatic flow (Fanno flow).

16. Sketch the Rayleigh line on the T-S plane and explain the significance of it. (Nov/Dec 2003)



PART-B

1. Air having Mach number 3 with total temperature 295 C and static pressure 0.5 bar flows through a constant is duct adiabatically to another section where the mach number is 1.5. Determine the amount of heat transfer and the change in stagnation pressure (AU: May 2004)

2. Air flow through a constant area duct with inlet temperature of 20C and inlet Mach number of 0.5. What is the possible exit stagnation temperature? It is desired to transfer heat such that at exit of the duct the stagnation temperature is 1180 K. For this condition what must be the limiting inlet Mach number? Neglect friction. (AU: Dec 2004)

3. Air enters a combustion chamber with certain Mach number. Sufficient heat is added to obtain a stagnation temperature ratio of 3 and a final Mach number of 0.8. Determine the Mach number at entry and the

percentage loss in static pressure. Take γ = 1.4 and Cp = 1.005 KJ/Kg K. (AU: Dec 2005)

4. A circular duct passes 8.25 kg/s of air at an exit Mach number of 0.5. The entry pressure and temperature is 3.45 bar and 38 C respectively and the coefficient of friction is 0.005. If the Mach number at entry is 0.15, determine the diameter of the duct, length of the duct, pressure and temperature at the exit, and stagnation pressure loss.(AU: May 2012, May 2010, May 2009, Dec 2007)

5. The mach number at inlet and exit for a Rayleigh flow are 3 and 1.5 respectively. At inlet static pressure is 50 kPa and stagnation temperature is 295 K. Consider the fluid is air. Find i) the static pressure, temperature and velocity at exit, ii) stagnation pressure at inlet and exit, iii) heat

transferred, iv) maximum possible heat transfer, v) change in entropy between the two sections, vi) is it a cooling or heating process?(AU: May 2012)

6. Air at Po = 10 bar, To = 400 K is supplied to a 50 mm diameter pipe. The friction factor for the pipe surface is 0.002. If the Mach number changes from 3.0 at the entry to 1.0 at the exit determine i) the length of the pipe and ii) the mass flow rate.(AU: May 2011)

7. A combustion chamber in a gas turbine plant receives air at 350 k, 0.55 bar and 75m/s. The air fuel ratio is 29 and the calorific value of the fuel is 41.87MJ/Kg. Taking γ = 1.4 and R= 0.287 KJ/Kg K for the gas determine: I) the initial and final mach numbers ii) final pressure, temperature and velocity of the gas. Iii) Percent stagnation pressure loss in the

combustion chamber and iv) the maximum stagnation temperature attainable. (AU: May 2011, Dec 2007)

8. The stagnation temperature of air in a combustion chamber is increased to 3.5 times its initial value. If the air at entry is at 5 bar, 105 C and a mach number of 0.25 determine: i) the Mach number, pressure and temperature at exit. ii) Stagnation pressure loss and iii) the heat supplied per kg of air. (AU: May 2010, May 2008)

9. Air enters a constant area duct at M1 = 3, P1 = 1 atm and T1 = 300 K. inside the duct the heat added per unit mass is q = 3 × 105 J/Kg. Calculate the flow properties M2, P2, T2, ρ2, To2 and Po2 at the exit. (AU: Dec 2009)

10. Air at an inlet temperature of 60 C flows with subsonic velocity through an insulated pipe having inside diameter of 50 mm and a length of 5 m. The pressure at the exit of the pipe is 101 kPa and the flow is choked at the end of the pipe. If the friction factor 4f = 0.005. Determine the inlet Mach number, the mass flow rate and the exit temperature.(AU: Dec 2009)

11. Air flows with negligible friction in a constant are duct. At section one, the flow properties are T1 = 60.4 C, P1 = 135 kPa absolute and velocity 732 m/s. Heat is added to the flow between section one and section two, where

the mach number is 1.2. Determine the flow properties at section two, the heat transfer per unit mass and the entropy change. (AU: May 2009)

12. A long pipe of 0.0254 m diameter has a mean coefficient of friction of 0.003. Air enters the pipe at a Mach number of 2.5, stagnation temperature 310 K and static pressure 0.507 bar. Determine for a section at which the mach number reaches 1.2: i) Static pressure and temperature, ii) Stagnation pressure and temperature, iii) Velocity of air, iv) Distance of this section from the inlet and v) mass flow rate of air.(AU: Dec 2008, May 2008)

13. The Mach number at the exit of a combustion chamber is 0.9. The ratio of stagnation temperatures at exit and entry is 3.74. If the pressure and temperature of the gas at exit are 2.5 bar and 1273 K respectively,

determine: i) Mach number, pressure and temperature of the gas at entry ii) the heat supplied per Kg of the gas and iii) the maximum heat that can be supplied.(AU: Dec 2008)

		YEAR : 2016-2017

	UNIT III Normal Shock and Oblique Shock Wave	**SEMESTER: VI**

PART-A

1. What is oblique shock? (May/June 2015, May/June 2011, May/June 2004)

When the shock wave is inclined at an angle to the flow it is called oblique shock.

2. What is Prandtl-Meyer relation? (May/June 2015)

It is the basis of other equation for shock waves. It gives the relationship between the gas velocities before and after the normal shock and the critical velocity of sound.

3. Why the efficiency of a machine experiencing shock wave is considerably low? (May/June 2014)

Shock wave may cause boundary layer separation and deviation of flow from its designed condition. There will be loss in stagnation pressure and increase in entropy.

4. What is the use of pitot tube in supersonic flow? (May/June 2014, Nov/Dec 2009)

It measures the stagnation pressure in the downstream of the shock wave.

5. What are the benefical and adverse effects of shock waves? (May/June 2012)

It is used to accelerate the flow to a high Mach number in a shock tube.
It will create damage in flow passage and create sonic flow in supersonic aircraft.

6. Shock waves cannot develop in subsonic flow? Why? (May/June 2011, May/June 2007)

In subsonic flow the velocity of fluid is less than the velocity of sound .Due to this reason, deceleration is not possible in subsonic flow so shock waves cannot develop in subsonic flow.

7. Mention the useful applications of shock wave. (May/June 2010, Nov/Dec2008, May/June 2008)

Jet engines, Shock tubes, Supersonic wind tunnel, Practical admission turbines.

8. What are the situations where shocks are undesirable? (May/June 2010)

The efficiency of the turbo machines are considerably low in shock waves they

behave as normal flow.

9. Define strength of a shock wave. (Nov/Dec 2009, Nov/Dec2008, Nov/Dec 2005,May/June 2004, Nov/Dec 2003)

It is defined as the ratio of difference in downstream and upstream shock pressures to upstream shock pressure.

10. What is the properties change across a normal shock? (May/June 2009)

Stagnation pressure decreases, Stagnation temperature remains constant, Static pressure and temperature increase.

11. Write the Prandtl-Meyer relation for normal shock. (May/June 2009, May/June 2007, May/June 2006)

12. How is the shock formed? (May/June 2008, Nov/Dec 2007, Nov/Dec 2006)

A shock wave is nothing but a steep finite pressure wave.

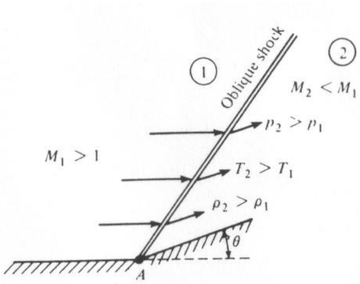
13. What do you meant by strong and weak wave? (Nov/Dec 2007)

A strong wave of the pressure jump (P_2/P_1)is very large whereas the weak wave for the pressure jump (P_2/P_1) is very small.

14. Difference between normal and oblique shock. (Nov/Dec 2006, May/June 2006)

When the shock wave at right angle to the flow it is called normal shock.
When the shock wave is inclined at an angle to the flow it is called oblique shock.

15. Sketch the oblique shock. (Nov/Dec 2005)



Part-B

1. A gas (γ =1.3) at P1 =345 Mbar, T1= 350 K and M=1.5 is to be isentropically expanded to 138 Mbar. Evaluate (a) the deflection angle, (b) final Mach number and (c) the temperature of the gas. (May/June 2014, May/June 2011, May/June 2005)

2. The ratio of the exit to entry area in a subsonic diffuser is 4.0 .The Mach number of a jet of air approaching the diffuser at p=1.013 bar, T =290 K is

2.2.There is a standing normal shock wave just outside the diffuser entry. The flow in the diffuser is isentropic. Determine at the exit of the diffuser. 1. Mach number 2. Temperature 3. Pressure 4. What is the stagnation pressure loss between the initial and final states? (May/June 2013)

3. Derive the Prandtl Meyer relation for a normal shock wave. (May/June 2013, Nov/Dec 2008, May/June 2004)

4. The velocity of a normal shock wave moving into stagnant air (P =1.0 bar, T=17°C) is 500 m/s. If the area of cross- section of the duct is constant. Determine (a) pressure (b) temperature (c) velocity of air (d) stagnation temperature and (e) the Mach number imparted upstream of the wave front. (May/June 2012)

5. The velocity of a normal shock wave moving into stagnant air (P =1.0 bar, T=17°C) is 500 m/s. If the area of cross- section of the duct is constant. Determine (a) pressure (b) temperature (c) velocity of air (d) stagnation temperature and (e) the Mach number imparted upstream of the wave front. (May/June 2012)

6. Air approaches a symmetrical wedge (angle of deflection δ= 15°) at a Mach number of 2. Consider strong waves conditions. Determine the wave angle, pressure ratio, density ratio, temperature ratio and downstream

Mach number. Derive the equation for static pressure ratio across the oblique shock waves. (May/June 2012)

7. The ratio of the exit to entry area in a subsonic diffuser is 4.0. The Mach number of a jet of air approaching the diffuser at P= 1.013 bar, T = 290 K is 2.2. There is a standing normal shock wave just outside the diffuser entry. The flow in the diffuser is isentropic. Determine at the exit of the diffuser, 1. Mach number, 2. Temperature and pressure and 3. Stagnation pressure

loss between the initial and final states of the flow. (May/June 2011, May/June 2010, Nov/Dec2008, May/June 2007)

8. A supersonic nozzle is provided with a constant diameter circular duct at its exit. The duct diameter is same as the nozzle exit diameter. Nozzle

exit cross section is three times that of its throat. The entry conditions of the gas (γ = 1.4, R = 0.287kJ/kg-k) are Po = 10 bar, To = 600 K. Calculate the static pressure, Mach number and the velocity of the gas in the duct: i) when the nozzle operates at this design condition ii) when a normal shock occurs at this design condition. ii) when a normal shock occurs at its exit. (May 2010, May 2008)

9. A convergent-divergent nozzle is designed to expand air from a reservoir in which the pressure is 800 kpa and temperature is 40 C to give a mach number at exit of 2.5. the throat area is 25 cm^2. Find i) mass flow rate, ii) exit area and iii) when a normal shock appears at a section where the area is 40 cm^2 determine the pressure and temperature at exit. (Dec 2009)

10. A pilot tube kept in a supersonic wind tunnel forms a bow shock ahead of it. The static pressure upstream of the shock is 16 kPa and the pressure at the mouth is 70 kPa. Estimate the mach number of the tunnel. If the stagnation temperature is 300 C, calculate the static temperature and total pressure upstream and downstream of the tube. (Dec 2009)

11.A convergent-divergent nozzle has an exit area to throat area ratio of 2. Air enters this nozzle with a stagnation pressure of 1000 kPa and a stagnation temperature of 360 K. the throat area is 500 mm2. The divergent section of the nozzle acts as a supersonic nozzle. Assume that a normal shock stands at a point M = 1.5. Determine the exit plane of the nozzle, the static pressure and temperature and Mach number. (May 2009)

12. A convergent divergent nozzle operates at off design condition while conducting air from a high pressure tank to a large container. A normal shock occurs in the divergent part of the nozzle at a section where the

cross section area is 18.75 cm2. The stagnation pressure and stagnation temperature at the inlet of the nozzle are 0.21 Mpa and 36 C respectively. The throat area is 12.5 cm2 and the exit area is 25 cm2. Estimate the exit mach number, exit pressure, loss in stagnation pressure and entropy increase during the flow between the tanks. (May 2009)

13. A jet of air at a mach number of 2.5 is deflected inwards at the corner of a curved wall. The wave angle at the corner is 60'. Determine the deflection angle on the wall, pressure and temperature ratios and final Mach number. (Dec 2007)

14. Derive the Rankine Hugoniot equation.(May/June 2007, Nov/Dec 2005)

GIT	**UNIT IV Jet Propulsion**	**YEAR : 2016-2017**
		SEMESTER: VI

PART-B

1. Define propulsive efficiency (May/June 2015, May/June 2006, May/June 2004)

It is ratio of the propulsive power to the power output of the engine
η_p=propulsive power/power output of the engine.

2. What is the type of compressor used in turbo jet? (May/June 2015)

Rotary compressor is used in turbo jet engine due to its high thrust and high efficiency.

3. What is thrust or drag? (May/June 2014)

The force which propels the aircraft towards at a given speed is called as thrust or propulsive force. This thrust mainly depends on the velocity of gases at the exit of the nozzle.

4. Why ramjet engine does not require a compressor and a turbine? (May/June 2014)

In ramjet engine due to supersonic and subsonic diffuser, the static pressure of air is increased to ignition pressure. So there is no need of compressor and turbine.

5. List out the different types of jet engines. (May/June 2013)

1. Ram Jet engine 2.Turbo Jet engine 3.Pulse Jet engine 4.Turbo Prop engine 5.Turbofan engine

6. Give the components of turbo jet engines. (May/June 2013)

1. Diffuser 2.Rotary compressor 3.Combustion Chamber 4.Turbine 5.Exhaust Nozzle.

7. A turbojet engine having a flight velocity of 800 km/hr at an ambient pressure of 60 kPa, the properties of gas entering the nozzle are 300 kPa and 200^{0}C. The mass flow rate of air is 20 kg/s. Assuming for air C_p/C_v= 1.4 and R = 0.287 kJ/kgK. Find the thrust powerof the engine. (May/June 2012)

8. What are the benefits of thrust augmentation in a turbojet engine? (May/June 2012)

1. Short take off distance 2. High climb rate to very high altitude.

9. What is thrust augmentation? (May/June 2011)

To achieve better take-off performance, additional fuel is burnt in the tail pipe

between the turbine exhaust section and entrance section of the exhaust nozzle. This is called as thrust augmentation.

10. What is a bypass engine and define bypass ratio. (May/June 2011, May/June 2010, Nov/Dec 2007)

Turbo fan engines are used bypass engine for the total flow of air bypasses part of the compressor.

The ratio of mass flow rate of cold air and mass of hot air is known as bypass

ratio.

11. Briefly explain thrust augmentation and any two methods of achieving it. (Nov/Dec 2009,Nov/Dec2003)

To achieve better take-off performance, additional fuel is burnt in the tail pipe between the turbine exhaust section and entrance section of the exhaust nozzle. This is called as thrust augmentation.

1. Momentum thrust 2.Pressure thrust.

12. What is after burning in turbojet engines? (May/June 2009, Nov/Dec2008, May/June 2008, May/June 2007)

An additional quantity of fuel can be burnt in a section of the jet pipe to increase the velocity of the jet. This process is called as reheating or after burning.

13. Name three commonly used aircraft engines. (Nov/Dec 2006)

1. Turbo Jet engine 2.Turbo Prop engine 3.Turbofan engine

14. What is ram effect? (May/June 2006)

The energy transformation from kinetic energy to pressure energy is known as ram effect.

15. How is turbo fan engine different from turbo prop engine? (Nov/Dec 2005)

Relatively low flight speed, Bypass ratio is high.
Bypass ratio is low and high flight speed.

16. Give the equation of thrust for a turbo jet engine. (Nov/Dec 2005)

17. What is Scram Jet? (May/June 2005)

A supersonic combustion ramjet engine is known as scramjet.

18. What is turbojet? (May/June 2005)

The air-breathing engines are used in turbo jet engines. It is used to high velocity of gas coming out from the engines.

19. What are the main parts of a Ram jet engine.(May/June 2004)

1. Supersonic diffuser 2. Subsonic diffuser 3. Combustion Chamber 4.Discharge Nozzle.

Part-B

1.

PART-A