Q.27 What are the important factors affecting combustor design?
Q.28 Explain the engine ground testing procedure.
Q.29 Explain S.I. engine operating principle with neat labelled diagram.
Q.30 What is meant by after burning in a jet engine.
Q.31 Do a comparative study between piston engine and turbine engine.
Q.32 Discuss the different methods of thrust augmentation. Draw T-S diagram for turboject engine with thrust augmentation.
Q.33 What are the three types of combustion chamber? Compare its advantages and disadvantages.
Q.34 Explain the advantage and disadvantages of Axial compressor.
Q.35 Write down the factors which affect the performance of combustion chamber.

SECTION-D

Note : Long Answer type question. Attempt any two questions. (2x10=20)

Q.36 What are the various types of engine air inlet used? Explain the advantages and disadvantages of all.
Q.37 Compare the characteristics, advantages & disadvantages of turboject, turbofan and turboprop engine.
Q.38 Draw the functioning diagram of a Turbo Jet Engine along with its components.

Roll No.....

5th Sem, Branch : AME
Subject : Turbo Propeller and Jet Engines--1

Time : 3 Hrs. M.M. : 100

SECTION-A

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

Q.1 The combustion chamber mass is not a function of _____
a) Payload mass b) Method of cooling
c) Chamber pressure d) Nozzle area ratio

Q.2 Gas turbines are used in aircraft propulsion because
a) They are light
b) They are compact
c) They have high power-to-weight ratio
d) All of the mentioned

Q.3 The thrust developed in turbojet engine is the
a) Unbalanced force b) Balanced force
c) Both of the mentioned d) None of the mentioned

Q.4 _____ compressors are used in turbojets.
a) Axial b) Radial
c) Axial & Radial d) None of the mentioned

Q.5 Internal energy in the fuel is converted into _____ of the exhaust in turbojets.
a) Kinetic energy
b) Pressure energy
c) Kinetic & Pressure energy
d) None of the mentioned

Q.6 What is stay time?

a) Average time spent by each molecule or atom within the combustion chamber volume.
b) Average time spent by each molecule or atom within the thrust chamber volume.
c) Average time spent by each molecule or atom with in the propellant tank after rocket take off
d) Average time spent by each molecule or atom within the injector manifold

Q.7 Extra fuel is injected to after burners to _____ the thrust

a) Decrease
b) Increase
c) Extra fuel is not injected
d) None of the mentioned

Q.8 The processes in compressor, turbine, diffuser and nozzle are

a) Reversible
b) Adiabatic
c) Reversible & Adiabatic
d) None of the mentioned

Q.9 The propulsive efficiency is given by

a) Work done by engine / propulsive power
b) Propulsive power / work done by engine
c) Energy input rate / propulsive power
d) Propulsive power / energy input rate

Q.10 Which of the following is an example of a cooling system

a) Downdraft cooling b) Downdraft lofting
C) Sideway lofting d) sideway circulation

SECTION-B

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

Q.11 Define Bypass ratio.

Q.12 Mention one advantage of Jet engine over Piston Engine?

Q.13 How does Thrust Reversal work.

Q.14 What is the basic principle behind functioning of turbine engines?

Q.15 What is the requirement of Aircraft Intake?

Q.16 How does bypass affect Thrust performance?

Q.17 What are the different types of nozzle used in gas turbine engines?

Q.18 Define equivalence ratio.

Q.19 What is combustion intensity?

Q.20 What are the different types of materials used in combustion chamber of gas turbine engines?

SECTION-C

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

Q.21 Write a brief note on Turbo Shaft engine.

Q.22 Discuss the typical turbojet cycle performance with suitable sketches.

Q.23 Write a brief note on different types of nozzles used.

Q.24 Name the material used for combustion chamber and discuss the special qualities of the material used for combustion chamber?

Q.25 How are combustion chambers constructed? What are the factors taken into consideration?

Q.26 Write in brief about long term engine preservation.