Q.27 What are the important factors affecting combustor design?

Q.28 Explain the advantages and disadvantages of an axial flow compressor.

Q.29 What are the three types of combustion chambers?

Q.30 Explain the engine ground testing procedure.

Q.31 Write down the factors which affect the performance of combustion chamber.

Q.32 What are the disadvantages of a centrifugal compressor?

Q.33 What do you mean by after burning in a jet engine?

Q.34 What is the main difference between piston engine and turbine engine.

Q.35 What are the different methods of thrust augmentation?

SECTION-D

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

Q.36 Explain ideal Brayton cycle, real cycle, cycle with inter cooler and cycle with reheat.

Q.37 Explain the various parts of a gas turbine engine. Also describe the salient features of each type.

Q.38 Discuss the complete air system of a turbine with a diagram.

Roll No. .....

5th Sem / Branch : AME

Sub.: Turbo Propeller and Turbo Jet Engine-I

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The thermodynamic cycle for gas turbine engine is _____.

a) Brayton cycle
b) Stirling Cycle
c) Rankine Cycle
d) Reverse Brayton Cycle

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 propulsive efficiency is maximum at

a) $V = V_j$ b) $V = 5V_j$
c) $V < V_j$ d) $V > V_j$

Q.4 _____ compressors can be used in turbojets

a) Axial b) Centrifugal
c) Axial & Centrifugal d) None of the above

Q.5 Bye pass ration in modern turbofan engine is of the order of

a) 1 to 2 b) 4 to 10

c) 10 to 20 d) 20 to 40

Q.6 What is the ratio of air and fuel injected into the combustion chamber?

A) ~100 b) ~50

C) ~15 d) ~5

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 bleed air is used for

a) Air conditioning b) Pneumatic system

c) Both A & B d) None of the above

Q.9 The latest development in turbine blades is the introduction of

a) Titanium b) Ceramic

c) Chromium d) None of the above

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 The process in the combustion chamber is _____ process.

Q.12 What do you mean by a jet?

Q.13 What is the purpose of tertiary air?

Q.14 Inlet of a gas turbine engine act as nozzle or diffuser?

Q.15 What are different types of compressors?

Q.16 What is the effect of by - pass air on performance?

Q.17 How turbine blades are cooled?

Q.18 Define equivalence ratio.

Q.19 What is a free turbine?

Q.20 What type of flow is in the vane less space of centrifugal compressor?

SECTION-C

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

Q.21 Write a brief note on a turbine engine.

Q.22 Draw a typical reheat turbojet cycle.

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

Q.24 What is the purpose of multispooling?

Q.25 How are combustion chambers constructed?

Q.26 What is the use of gears in gas turbine engine?