Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
M.Tech I Year II Semester (R16) Regular Examinations June 2017
JET PROPULSION & ROCKETRY
(Thermal Engineering)
(For Students admitted in 2016 only)

Time: **3 hours**   Max. Marks: **60**

(Answer all Five Units **5 X 12 =60** Marks)

UNIT-I

1 a What is Combustor? Explain with neat sketches   6M
  b What is Turbo Machine? Types of Turbo Machines.   6M

OR

2 a. Briefly explain open cycle Gas Turbine?   6M

  b. A gas Turbine work between 750OC and 15OC Leaves the compressor at
     6 bars and 250OC. The maximum temperature raised in the combustion
     chamber is 667OC. Calculate the thermal efficiency and Work ratio?   6M

UNIT-II

3 a What is the Principle of Jet propulsion and Rocketry?   6M
  b Classify any two Air Breathing Jet Engines?   6M

OR

4 A air is isentropically expanded from P_0=12 bar, T_0=5200C in a nozzle to an

   exit pressure of 7.5 bar. If the rate of flow of the air is 1.4Kg/sec. Calculate:

   a) Pressure, Temperature and velocity at the nozzle throat and exit

   b).Maximum possible velocity c).Type of nozzle   d).Throat area   12M

UNIT-III

5 What is specific impulse and explain the units and diagram of specific   12M
   impulse

OR

6 What is the properties of mixture of gases and explain the laws?   12M

UNIT-IV

7 What is solid propellant and explain its components?   12M

OR

8 (a) Explain the propellant grain,fuels,oxidizers,blinders,additives?   6M

   (b) Draw the diagram of several grain configurations?   6M

UNIT-V

9 a (a) explain propulsive efficiency, thermal efficiency, overall efficiency?   6M

   b (a) What is meant by propeller thrust?   6M

OR

10 Draw andExplain ramjet engine and write the working principle of ramjet
    engine?   12M

*** END ***