NAME_____ ROLLNO_____

2006–ANNA UNIVERSITY

B.E/B.TECH III SEMESTER DEGREE EXAMINATION

ME 121 - APPLIED THERMODYNAMICS

(ELECTRICAL AND ELECTRONICS ENGINEERING)

DECE-2006

TIME-3 HOUR

MARKS-100

ANSWER ALL QUESTIONS.

PART A - (10 * 2 = 20 MARKS)

1) Define path function and point function.

2) State Kelvin plank's second law of thermodynamics.

3) What is normal and abnormal combustion?

4) What do you understand by open and closed cycle gas turbine?

5) Define wet steam and dryness fraction of steam.

6) List down the advantages of compounding steam turbines.

7) What is the need for an intercooler in a multistage air compressor?

8) Define ton of refrigeration.

9) State Fourier's law of heat conduction and give its expression.

10) What do you understand by natural convection and forced convection

PART B - (5 * 16 = 80 MARKS)

11) (i) Give the steady state flow energy equation and explain the various terms.

(ii) Explain carnot cycle with a neat sketch and a p-v diagram.

12) (a) (i) Sketch the p-V diagrams of otto, diesel and dual cycles and name the various processes.

(ii) Explain the principle of operation of a two strke cycle spark ignition engine with a neat sketch.

OR

(b) (i) With a neat sketch describe the working principle of a four strke cycle compression ignition engine.

(ii) Draw a neat sketch of a brayton cycle on p-V and T-s diagrams indicating the reheating, intercooling and regeneration processes.

13) (a) (i) Mention the function of superheater, reheater, economizer, pressure gauge, safety valve and air preheater.

(ii) Draw the T-s diagram and schematic of rankine cycle and explain the various processes.

OR

(b) (i) Mention the principle of operation of an impulse and a reaction turbine.

(ii) Draw the layout of a steam power plant and explain its principle of operation.

14) (a) With neat sketches explain the principle of operation of centrifugal and axial flow compressors.

OR

(b)(i) Explain the vapour compression cycle with the help of T-s diagram.

(ii) Define wet bulb temperature, specific humidity, humidification and dehumidification.

15) (a)(i) Explain conduction, convection and radiation heat transfer with examples.

(ii) Obtain an expression for heat conduction through a cylinder with a neat sketch.

OR

(b)(i) What do you understand by black body and grey body? Explain

(ii) Discuss the methods of liquid cooling and immersion cooling of electronic chips.