ANNA UNIVERSITY – 2007
B.E/B.TECH MODEL EXAMINATION
PROPULSION-II
(AERONAUTICAL ENGINEERING)

TIME-3HOUR
MARK-100

ANSWER ALL QUESTIONS

PART - A (10 X 2 = 20 MARKS)

1. Explain the difference between Impulse and reaction blade.

2. How will you classify turbine blade cooling?

3. Draw T-S diagram of Ramjet Engine.

4. Name the components in Pulse Jet Engine.

5. Describe briefly three important application of rocket propulsion

6. Define specific propellant consumption.

7. What are the types of propellant injector?

8. Name any two properties of liquid propellant.

9. Define thrust coefficient.

10. Explain the principles of Nuclear propulsion?

PART - B (5 X 16 = 80 MARKS)

11. Draw the transition diagram for the lexical analyzer that recognize the following tokens. Identifiers, relational operators. Use the following rules to form the identifier

• begins with an alphabet

• consists of alphabets, digits and hyphen

• should not end with an hyphen

• not two hyphens appear together

12.a) Draw the NFA for the following regular expression using Thompson's Construction and then convert it into an equivalent DFA. (a/b) * (a/c) * b

(OR)

12.b)i) List the tasks performed by a lexical analyzer

ii) Give the complete algorithm that takes a NFA and converts it into an equivalent DFA.

13.a) Remove left recursion from the following grammar and build the predictive parsing table.
S ? (L) |a
L ? (L, S) |S

(OR)

13.b) Build LR(1) parsing table for the grammar: S ? Aa |bAc |Bc |bBa

A ? d
B ? d

14.a) Write down the translation scheme for generating three address code for evaluating Boolean expressions using back patching. Explain the attributes used. Use the above and generate three address code for:

While ((ad)) do
begin

if(p=q) then p = 1
else p = 2
While (p>q) do
Begin
P: = x+y
q: = x-y
end
end

(OR)

14.b) Explain how declarations are processed by the computer. Take into consideration nested procedures also. Explain clearly the attributes used. Show with an example how the symbol tables are formed.

15.a)i) Explain how 'next use' information about names in basic blocks can be collected.

ii) Discuss about the actions performed by a simple code generator while generating code for a typical three-address statement of a form x: = y op z.

(OR)

15.b)i) Write the syntax directed definition that computers and prints the post-fix equivalent of the given infix expression.

ii) Write down the unambiguous CFG for generating Boolean expressions.