

Bharati Vidyapeeth's college of Engg. for women, Pune

Unit Test II

Class - B.E. (Computer)

Sub: - Artificial Intelligence

Marks: - 50

Date/Time: -

Instructions: 17 Figures to the right indicate full mark

27 Q's compulsory & Attempt any two questions from Q 2, 3, 4

Q 1

(a) Write Minimax algo. & Explain with suitable example the concepts of Alpha Beta cut-offs

(10)

(b) Explain Unification algorithm in detail

(8)

Q 2

(a) Explain A* algorithm with suitable example

(10)

(b) The problems solving search can proceed either forward or backward what factors determine the choice of direction for a particular problem?

(6)

Q 3

(a) Explain means & ends analysis with example

(8)

(b) Define the reasonable heuristic estimate for

17 8-puzzle

P.T.O.

Unit-Test-2

Class: BE Computer

Subject - DAA

Note:

Attempt any THREE questions.

Q1. Consider 4 elements $a_1 < a_2 < a_3 < a_4$ with $q_0 = 0.25$,

$$q_1 = 3/16, q_2 = q_3 = q_4 = 1/16, p_1 = 1/4, p_2 = 1/8, p_3 = p_4 = 1/16.$$

1) Construct the OBST as a minimum cost tree.

2) Construct table of values W_{ij}, C_{ij}, V_{ij} Computed by algorithm to compute the roots of optimal subtrees. (8)

Q2. a) Write an algorithm for 0/1 knapsack problem using dynamic programming approach. (8)

b) let $n=4, c=(a_1, a_2, a_3, a_4) = (10, 15, 20, 30)$. let $p(1:4) = (3, 3, 1, 1)$ and $q(0:4) = (2, 3, 1, 1, 1)$.

Compute & construct OBST for above values using dynamic programming. (8)

Q3. a) Explain how backtracking strategy can be used to solve n-Queen's problem. Give the pseudocode for the same. Discuss the time complexity for this problem. (12)

b) Write an algorithm for finding Hamiltonian cycles using backtracking strategy. What is the cost of the tour. (6)

BHARATI VIDYAPEETH'S
COLLEGE OF ENGINEERING FOR WOMEN
COMPUTER ENGINEERING DEPARTMENT
ACADEMIC YEAR 2011-12
SEMESTER I
UNIT TEST II

Subject : OOMD

Marks : 50

Class : B.E. Computer Engineering

Note : Attempt any 5 Questions.

Q.1 Compare the following :

(10 Marks)

- a. Sequence and Communication Diagram .
- b. Synchronous and Asynchronous messages.

Q.2 Identify all the academic activities that you do in a semester from its start till it ends. E.g. admission , attending classes, labs, exams, gathering and many more. Draw an activity diagram showing these activities with swim lanes , forks and joins. (10 Marks)

Q.3 Give notation for following concepts in sequence diagram. Explain these with help of a hypothetical online computer store application . i)Alt ii) Return values iii)Full notation for message iv) Destroy an object (10 Marks)

Q.4 Consider a use case in Library System Namely “ return a book in a library “the member , book, issue and return records will have to be updated appropriately. Please identify correct object and message and draw a sequence diagram for this scenario or use case. (10 Marks)

Bharati Vidyapeeth College of Engineering For Women, Pune-43
Computer Engineering Department

Unit Test - II

Class: B.E. Computer

Sub: PCD

Date: September 2011

Marks: 50

Instructions: Solve ANY FIVE Questions.

Q.1) Check whether the following grammar is SLR(1) or not. Show parsing table.

$S \rightarrow L = R$
 $S \rightarrow R$
 $L \rightarrow * R$
 $L \rightarrow id$
 $R \rightarrow L$

(10M)

Q.2)(a) What is Translation scheme? Consider the following CFG:

$E \rightarrow TR$
 $R \rightarrow +TR \mid -TR \mid \epsilon$
 $T \rightarrow num$

(b) Write translation scheme to generate postfix expression equivalent to the given infix expression which is recognized by above grammar.

(c) Considering above translation scheme, show parse tree for input 9-5+2 with each semantic action attached as the appropriate child of the node.

(10M)

Q.3)(a) What is coercion?

(b) If declarations are generated by following grammar:

$D \rightarrow id L$
 $L \rightarrow , id L$
 $L \rightarrow : T$
 $T \rightarrow int$
 $T \rightarrow real$

Construct the translation scheme to enter the type of each identifier into symbol table.

(10M)

Q.4) List the commonly used intermediate representations by giving example of following expression in each of them.

$a := b * -c + b * -c$

(10M)

Q.5) Consider the following code fragments. Generate the three-address code for them.

(a) switch (a + b)
{
 case 1: x = x + 1;
 case 2: y = y + 2;
 case 3: z = z + 3;
 default: c = c - 1;
}

(b) for (i = 1; i <= 10; i++)
{
 a[i] = x * 5;
}

(10M)

Software Testing & Quality Assurance B.E. Computer

Duration: - 90 minutes

Unit test II

mark: 50

- Q.1** Assume a web application that is small enough for reasonable hand analysis, yet large & complex enough to include variety of interactions among web components, how mutation testing can be performed in above case?
- Q.2** What are challenges in white box testing? Justify solutions on it in detail.
- Q.3** Write a complete test plan for following test case :-
Retail banking application, upgradation of customer information system being used by clients as a central customer, account & product database & a complete reengineering of a Deposit management System.
The project scope included reengineering of data model, technology change from IMS/ DL1 to CICS/ DB2, rewebsite from JSP COBOL to COBOL-2 & completely new physical Design.
- Q.4** Explain in detail test metric implementation for following reengineering project, project is divided into six iterations starting with basic modules gradually developing into more complex process. Existing COBOL application is a baseline for development & new system will be a web based system developed in J2EE.
- Q.5** Write a note on :-
(a) Scenario testing (b) sanity testing (c) smoke testing

- ii) Tic - Tac - Toe
- iii) chess

(8)

Q4

(a) solve the following cryptarithmic problems by using the constraint satisfaction method

$$\begin{array}{r} \text{SEND} \\ + \text{MORE} \\ \hline \text{MONEY} \end{array}$$

(8)

(b) Write a short Note on:-

- i) Hill climbing
- ii) Generate & test search
- iii) constraint satisfaction

(8)

Best Of Luck

30

Q4. a) Explain how branch & bound method can be used to solve travelling Salesperson problem. (8)

b) Write a schema for an iterative backtracking method. (8)

Q.5 Draw the Activity diagram for the system process described below. A college has different student association like sports, literature, sciences club etc. A student can login in college website ,look at various association and can choose one of them to join. All association expects valid student first Joining process would be different for association eg. Sport association expects undergo physical test. The association can organize various events , member can register online and non member has to pay fees. The registration needs to give confirmation by mail. (10 Marks)

Q.6 Can activity diagram drawn to represent business process? Justify your answer.

(10 Marks)

Q.7 Show how composite structure can best represent CAR and its internal parts like door , transmission system , illustrate. (10 Marks)

Q.6) Draw a snapshot of the execution of the program showing an activation record with static and dynamic links and other relevant details when 'main' calls 'gun' which in turn calls 'fun' and fun again calls 'gun' i.e (main→gun→fun→gun)

```
int x=2;
void fun (int n)
{
    static int x = 1;
    gun (n);
    x--;
}
void gun (int m)
{
    int y = m - 1;
    if (y > 0)
    {
        fun (y);
        x--;
    }
}
main ()
{
    gun (x);
    return 0;
}
```

(10M)

Q.7) Write the output of the following C program using following parameter passing methods. [i] Call by value [ii] Call by reference [iii] Call by value-result [iv] Call by name.

```
int i=0, j=0;
void inc (int x, int y)
{
    x++;
    i++;
    y++;
}
void swap (int x, int y)
{
    int temp;
    temp = x;
    x = y;
    y = temp;
}
main ()
{
    int a[2] = {1,1};
    int b[2] = {1,1};

    inc (a[i], a[i]);
    printf("%d, %d\n", a[0], a[1]);

    swap (j, b[j]);
    printf ("%d, %d, %d\n", j, b[0], b[1]);
    return 0;
}
```

(10M)