Mansoura University Faculty of Engineering Computer and Systems Department		Fourth Year
Exam Time: 3hours	Final Term Exam 1-1-2013	Elective Course (3)

Answer All Questions (Full Mark 90)

Question one (15 marks) State which of the following statements are true and which are false (X) and correct the false ones (لا تستخدم النفي):

1. Privacy enhancing technologies are used to enforce user privacy preferences
2. User consent is required when sharing user's profiles, among different organizations for the purpose of marketing.
3. Encryption can enforce privacy protection.
4. The platform for privacy preferences (P3P) is a platform for controlling users' privacy preferences.
5. Fuzzy Systems can be considered as black box model.
6. Bayesian networks and Fuzzy reasoning are methodologies to deal with inexactness of data and knowledge.
7. Fuzzy membership functions are required for variables, which you cannot specify sharply
8. Input function memberships in a fuzzy system are required and they can be obtained through random choices.
9. Examples of phenomena that can be analyzed using fuzzy logic are weather and temperature.
10. For data classified as confidential, data has to be stored encrypted.

Question Two (20 marks)

1. Explain five useful applications of XML (10 marks)
2. Consider we need to download an XML data file from location A to location B via the Internet. Provide the authentication level needed incase of restricted, confidential and highly confidential data classification and specify when and where we should encrypt the file (10 Marks).

Question Three (30 marks)

1. Sketch the main components of a ShEM System Architecture (10 Marks)
2. Using a sequence diagram, specify the interactions among the ShEM system components (10 Marks)
3. For the below information collectors, specify the expected privacy evaluation output using "AND" Rule Connectors (10 Marks)

PRIVACY PREFERENCES

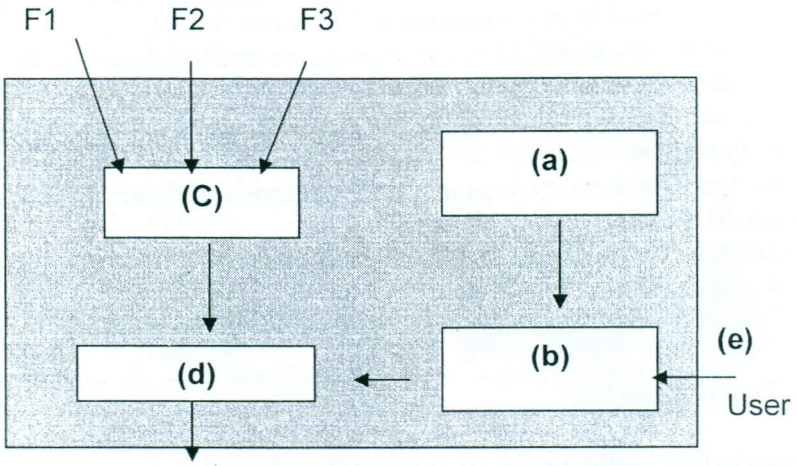
Purpose	Recipient	Retention	Consent
Not specified	Not specified	Stated Purpose	Request
Not specified	Not specified	indefinite period	Block

INFORMATION COLLECTORS ASKED DATA PRACTICES

Information Collector	Purpose	Recipient	Retention
Entertaining	Marketing	Not specified	indefinite period
	Delivery	Ours	Stated Purpose
Traveling	Not specified	Not specified	indefinite period
Restaurent	Marketing	Not specified	Stated Purpose
Tourist	Marketing	Not specified	Stated Purpose
BeThere	Not Specified	Ours	Stated Purpose

Question Four (25 marks)

1- Specify the names of the components in the figure that constitute the fuzzy system (10 Marks)



2- For the above Fuzzy System, find μ_{F4} and F_4 crisp value knowing that every fuzzy set consist of three levels; Low, Medium, High while the system governing rules are as follows (15 Marks):

Rules	F1 μ_{F1} ( ) = [0.2 0.5 0.8]	F2 μ_{F2} ( ) = [0.1 0.4 0.8]	F3 μ_{F3} ( ) = [0.2 0.6 0.9]	F4 (output) μ_{F4} ( ) = ??
1	Low	Low	Medium	Low
2	Low	Medium	Medium	Medium
3	Medium	Medium	High	High
4	Medium	High	High	High
5	High	High	High	High

(End of Exam – Good Luck)

مقرر اختياري
4th Year Students. — قديم
Total Marks:

Computer and Syst. Dept.
Time Allowed: 3 Hrs.
2012 – 2013

Question [1]

1. Cocerning **MATLAB**, You can convert from binary to decimal value using the function named ----------
   A. binary B. binary2dec C. binaryToDec D. bin2dec
2. Cocerning **MATLAB**,to start the GUI of Genetic Algorithm / Optimization toolbox you will call --------
   A. optimtool('ga') B. optimtool( ) C. Opti/GA D. GA
3. is a method for solving both constrained and unconstrained optimization problems that is based on natural selection
   A. GA B. PSO C. SA D. Blind Search
4. The space of all feasible solutions is called ---------- space
   A. GA B. Search C. time D. frequency
5. ---------- only explores the search space by randomly selecting solutions and evaluates their fitness
   A. Random search B. GA C. PSO D. Hill Climbing
6. ---------- is search technique to find approximate solutions to optimization and search problems.
   A. Random search B. GA C. PSO D. all
7. in GA, Each solution is represented through a ----------
   A. Chromosome B. Gene C. reproduction D. all
8. ------- is a short length of a chromosome which controls a characteristic of an organism
   A. Chromosome B. Gene C. reproduction D. all
9. how much the current solution meets the requirements of the objective function is ----------
   A. fitness B. diversity C. selection pressure D. all
10. ---------- : how good the candidate solution is
    A. fitness B. diversity C. selection pressure D. all
11. ---------- refers to the average distance between individuals in a population
    A. fitness B. diversity C. selection pressure D. all
12. ---------- is essential to the GA because it enables the algorithm to search a larger region of the space.
    A. fitness B. diversity C. selection pressure D. all
13. The process in which individual strings in the population are selected to contribute to the next generation is called
    A. Roulette wheel B. Parent selection C. Tournament D. all
14. --------- may be considered as one of the weak points of GA
    A. No guarantee for optimality B. Weak theoretical basis C. Need parameter tuning D. all
15. premature convergence may exist in ----------
    A. Roulette wheel B. rank C. Tournament D. all
16. if a population contain 4 chromosomes (n = 4), i is the order of the chromosome (i=1 to 4) staring from the fittest. ---------- equation may be used as way for implementing rank selection
    A. $\frac{n+i+1}{4}$ **B.** $\frac{n-i+1}{10}$ C. $\frac{n-i+1}{4}$ D. $\frac{n-i-1}{10}$
17. ---------- is an array of individuals
    A. generation B. population C. run D. all
18. ---------- children are created by introducing random changes to a single parent.
    A. elite B. crossover C. mutation D. all
19. ---------- children are the best individuals that survive to the next generation
    A. elite B. crossover C. mutation D. all
20. --------- children are created by combining the vectors of a pair of parents.
    A. elite B. crossover C. mutation D. all
21. The genetic algorithm uses the ---------- condition(s) to determine when to stop.
    A. Generations B. Time Limit C. Fitness limit D. all

Assume that each value in [-1.5, 1.5] is encoded as a binary representation with precision to one decimal place.

22. The binary representation of 1.2 is ----------
    A. 10100 B. 11011 C. 11100 D. 10000
23. The decimal value equivalent to 10100 is ----------
    A. 0.8 B. 0.4 C. 1.3 D. -1.3

Under **Roulette wheel selection**, five strings have the following fitness values: 3, 6, 9, 12, and 15. The mating pool has a constant population size, n=5.