
	DEPARTMENT OF MATHEMATICS TANTA UNIVERSITY FACULTY OF SCIENCE (Computer Science Division)	
EXAMINATION FOR PROSPECTIVE STUDENTS (4TH YEAR)		
Data Base 2 COURSE TITLE:		COURSE CODE: CS4101
DATE: 27-12-2016	TERM: 1	TOTAL ASSESSMENT MARKS: 150
TIME ALLOWED: 2 HOURS		

Solve the following questions

Question 1: (30 Marks)

- a- Define Data Models? List some examples for Data Models?
- b- List types of database architecture?
- c- Define schema and instance for any data base?
- d- Define join condition and join type?

Question 2: (50 Marks)

- a- Write two examples of data base which are not in 1NF, 2NF, and 3NF?
- b- Write the steps for making any data base in 1NF, 2NF, and 3NF?
- c- Apply the steps in part b on examples in part a?

Question 3: (30 Marks)

department(dept name, building, budget)
 instructor(ID, name, dept name, salary)

For the pervious two relations, construct the following SQL queries:

- Delete all tuples in the *instructor* relation for those instructors associated with a department located in the Watson building.
- Increase salaries of instructors whose salary is over \$100,000 by 5%, and all others receive a 7% raise
- Find the names of all instructors whose salary is greater than the salary of all instructors in the Music department.

Question 4: (40 Marks)

For the following department relation and instructor relation, find the relation of the following join

- a- department natural left outer join instructor.
- b- department natural right outer join instructor.
- c- department natural full outer join instructor.
- d- department inner join instructor on department.dept_name= instructor.dept_name


dept_name	building	budget
Biology	Watson	90000
Comp. Sci.	Taylor	100000
Finance	Taylor	85000
Music	Painter	120000

department relation

ID	name	dept_name	salary
101	Wu	Biology	1000
201	Glog	Comp. Sci.	2000
211	Katz	Elec. Eng.	2500
222	Kim	History	3000

instructor relation

Good luck

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF MATHEMATICS		
	EXAMINATION FOR SENIORS (LEVEL FOUR) STUDENTS OF COMPUTER SCIENCE		
	COURSE TITLE: COMPUTER GRAPHICS		COURSE CODE: CS4105
	DATE: 3-1-2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150
			TIME ALLOWED: 2 HOURS

Answer the Following Questions:

الاختبار من ورقتين

QUESTION 1: [Total marks: 50]

- Consider the point (x, y) is the point $(1, 0.5)$, what is the point (x', y') if we apply each of the following transformation: (30 marks: 5 points for each)
 - Translate point by $(-2, -1)$.
 - Scale $(0.6, 0.4)$.
 - Rotate (60) .
 - Shear_x (0.4) .
 - Reflect_y.
 - Two transforms: scale $(0.6, 0.4)$ then rotate (60) .
- Compare between each following pair. (10 marks; 5 for each)
 - Image-order rendering and object-order rendering.
 - Defuse reflection and specular reflection.
- State Blinn-Phong shading model. Explain in brief its terms. Why do we use the power P and max operation in this model?. (10 marks)

QUESTION 2: [Total marks: 50]

- A ray $(1, 1, 1) + t(-1, -1, -1)$ intersects the plane of a sphere centered at the origin. Is the ray intersects the sphere? If yes, determine the candidate point. (25 marks)
- Consider the point (x, y, z) is the point $(2, 1, 3)$, what is the point (x', y', z') if we apply each of the following transformation: (25 marks: 5 points for each)
 - Translate point by $(+2, -1, +3)$.
 - Scale $(1, 0.5, 1.5)$.
 - Rotate_x (45) .
 - Shear_z $(0.5, 0.3)$.
 - Two transforms: Rotate_x (45) then Scale $(1, 0.5, 1.5)$.


QUESTION 3: [Total marks: 25]

Choose the best answer for each of the following points: (25 marks: 5 for each point)

- Which of the following is true about image and graphic?
 - Image is captured by cameras, sensors, etc; while graphic is a visual presentation on some surface, such as a wall, canvas, computer screen, etc.
 - Graphic is captured by cameras, sensors, etc; while image is a visual presentation on some surface, such as a wall, canvas, computer screen, etc.
 - Most images are artificial; while graphics typically are like photograph.
 - Image and graphics are identical with no differences.

انظر خلفه

good look

 1989	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF MATHEMATICS		
	EXAMINATION FOR COMPUTER SCIENCE (FOURTH YEAR) STUDENTS		
DATE:	17/1/2017	TERM: SECOND	TOTAL ASSESS. MARKS: 150
COURSE TITLE:		OPERATION RES. (I)	COURSE CODE: MA303 4105
TIME ALLOWED: 2 H.			

ANSWER THE FOLLOWING QUESTION:

[1] Find the set of all feasible solution and determine the optimal one graphically of the LP: (35 deg.)

$$LP \begin{cases} \max & z = -x_1 + 2x_2 \\ \text{s.t.} & x_1 + 2x_2 \leq 20, & 2x_1 + x_2 \leq 30, \\ & 1.5x_1 - 5x_2 \leq 15, & x_1, x_2 \geq 0. \end{cases}$$

[2] By simplex method solve of linear program: (40 deg.)

$$(LP) : \begin{cases} \min z = -5x_1 + 2x_2 - 3x_3 \\ \text{s.t.} & 2x_1 + 2x_2 - x_3 \geq 2, \\ & 3x_1 - 4x_2 \leq 3, \\ & x_2 + 3x_3 \leq 5, \\ & x_1, x_2, x_3 \geq 0 \end{cases}$$

[3] By simplex method solve of following dual linear program: (35 deg.)


$$(D) : \begin{cases} \min W = -2x_1 + 3x_2 + 5x_3 \\ \text{s.t.} & -2x_1 + 3x_2 \geq 5, \\ & -2x_1 - 4x_2 + x_3 \geq -2, \\ & x_1 + 3x_3 \geq 3, \\ & x_1, x_2, x_3 \geq 0 \end{cases}$$

[4] By minimum cost method and Vogel method solve of the transportation problem: (40 deg.)

	Demand			
Supply	4	7	13	9
6	14	25	45	24
8	60	25	39	50
16	30	23	65	15

EXAMINERS	PROF. E. AMMAR	GOOD LOKE
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علوم الحاسب

	TANTA UNIVERSITY			
	FACULTY OF SCIENCE			
	DEPARTMENT OF MATHEMATICS			
EXAMINATION FOR SENIORS (LEVEL FOUR) STUDENTS OF COMPUTER SCIENCE				
COURSE TITLE: SELECTED TOPICS IN COMPUTER			COURSE CODE: CS4109	
DATE: 22-1-2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS	

Answer the Following Questions:

الاختبار من ورقتين

QUESTION 1: [Total marks: 55]

1. Consider a domain of objects that have the following attributes and values:

University	Faculty	Dept.	Grad. year	Employed	Example type
Tanta	Science	Pure math.	2014	Yes	Positive
Tanta	Engineering	CS	2015	No	Negative
Tanta	Engineering	Pure math.	2013	Yes	Positive
Sadat	Medicine	Pathology	2014	Yes	Negative
Tanta	Science	Applied math.	2014	Yes	Positive
Tanta	Engineering	CS	2014	Yes	Positive

Learn the concept "employed graduate students of Tanta University" using the following:

- a. Specific-to-general algorithm. (15 marks)
- b. General-to-specific algorithm. (15 marks)
- c. Candidate elimination algorithm. (15 marks)
2. What is the epistemology? (5 marks)
3. Define in your own words the swarm intelligence. (5 marks)

QUESTION 2: [Total marks: 55]

1. Consider the following training data to be represented by the decision tree:

Patients	Shivering	Cough	Temperature	Fever (decision)
P ₁	Seldom	Always	High	Yes
P ₂	Always	Always	Low	No
P ₃	Always	Always	High	Yes
P ₄	Always	Seldom	Low	Yes
P ₅	Seldom	Seldom	High	No
P ₆	Never	Seldom	High	No
P ₇	Always	Never	High	No
P ₈	Seldom	Never	Low	No
P ₉	Always	Seldom	High	Yes
P ₁₀	Always	Always	High	Yes

Which attribute, from the three different attributes of the patients, is better to be the root of the decision tree? (25 marks)

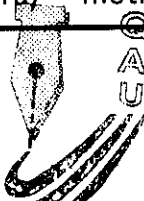
2. Answer **only one** of the following two parts:

Part1: Answer the following questions about Ant Colony Optimization (ACO): (30 marks)

- a. What is ACO? (5 marks)
- b. Write the basic flow of ACO. (10 marks)
- c. Define the probability rule that drive the ants and state its mathematical form with explanation. (10 marks)
- d. Write the equations that ACO uses to update pheromone trails. (5 marks)

Part2: Consider the following relations: (30 marks)

mother(Mona, Ebtsam) - mother(Ebtsam, Sara) - mother(Salma, Ahmad);



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