حسابات قد م

Tanta University   Department: Computer and Control Engineering   **Faculty Of Engineering**
Total Marks: 80 Marks

| Course Title: Test | | Year: 4rd |
| Date: 2011 (First term) | Allowed time: 3 hrs | No. of Pages: 2 |

Answer ALL the following questions and assume any missing data

Problem Number (1)

1. Discus briefly the three way handshake connection establishment in TCP protocol.
2. Discus briefly TCP/IP model
3. Why do we need a source port number & destination port number? What is a socket pair?
4. What's meant by window size? Illustrate your answer using an example.

Problem Number (2)

Write the HTML code needed to generate the following table and data

Invoice		
Item	**Qty.**	**Price**
Milk	1	5$
Rice	1	2$
Cheese	1	7$
Salt	3	1$
Total		15$

Problem Number (3)

Write a short Note about each of the following:

a. LAN, MAN and WAN
b. DNS Name Resolution process
c. DHCP
d. Client Server Model

Problem Number (4)

1. State to Which OSI layer(s) each of the following Protocols belong

- SMTP
- FTP
- Telnet
- TCP

- ICMP
- ARP
- IPv6
- OSPF

- Ethernet
- IPX
- RIP
- HDLC

- PPP
- HTTP
- POP3
- UDP

2. **Put (true) or (False) in front of each sentence and correct the wrong one:**

    a) UDP is a simple, connection-oriented protocol   (.....)

    b) Applications that use TCP include DNS, Video Streaming, and VoIP   (.....)

    c) UDP Establish their connection using the 3-way handshake   (.....)

    d) IP Protocol multiplexes upper layer application using port numbers (.....)

    e) Hubs are device used for routing a packet to a remote network   (.....)

    f) The Data Link layer changes bits into electromagnetic signals.   (.....)

    g) Transport layer Protocols are used for Multiplexing of upper layer application using port numbers.   (.....)

    h) A switch and a bridge operate in the network layer.   (.....)

3. **Choose the correct answer for each of the following:**

    a) At which layer of the OSI model is the optimal path to a network destination determined at?

      i. Data Link   iii. Physical   v. Network

      ii. Session   iv. Presentation   vi. Transport

    b) Which OSI layer offers ordered data reconstruction services?

      i. application layer   iii. presentation layer   v. transport layer

      ii. network layer   iv. session layer

    c) Which of the following application layer protocols use UDP segments? (Choose two.)

      i. DNS   ii. FTP   iii. Telnet   iv. TFTP   v. SMTP

    d) Which IP packet field will prevent endless loops?

      i. type-of-service   iii. flags   v. header checksum

      ii. identification   iv. time-to-live

    e) Given a host with the IP address 172.32.65.13 and a default subnet mask, to which network does the host belong?

      i. 172.32.65.0   ii. 172.32.65.32   iii. 172.32.0.0   iv. 172.32.32.0

Problem Number (5)

    a) Find the netid and the hostid of the following IP addresses:

      i. 110.34.2.8

      ii. 192.66.8.55

    b) The value of HLEN in an IPv4 datagram is 7. How many option bytes are present?

    c) Compare between TCP and UDP protocols used in transport Layer of OSI model

Tanta University
Computer Engineering Dept
Fourth Year
Course: Power Electronics (Elective II)

Marks: 70
Time: 3 – Hour
Date:/2/1/2011

Final – Term Exam

Answer all the following questions:

1) A- Three-phase uncontrolled bridge rectifier is supplied from a Y-connected 220 V, 50 Hz supply. The average output voltage is 180 V. The load current is 60 A and has negligible ripple.
   - (a) Derive an expression for reduction of output voltage due to commutation.
   - (b) Calculate the percentage reduction of output voltage due to commutation if the line inductance per phase is 0.5 mH. Draw the waveforms for the output voltage V_0.

2) A single-phase full converter of **Fig. 1** is operated from a 220 V, 50 Hz supply. The load current with an average value of I_a is continous and the ripple content is negligible. The turns ratio of the transformer is $N_p/N_s = 1$. If delay angle is $\alpha = \frac{\pi}{3}$.

   Calculate the:
   - (a) Harmonic factor of input current;
   - (b) Displacement factor; and   (c) Input power factor.

3) A single-phase full-wave ac voltage controller in **Fig.(2)** has a resistive load of $R = 10\ \Omega$ and the input voltage is $Vs = 120$ V (rms), 50 Hz. The delay angles of thyristors T_1 and T_2 are equal: $\alpha_1 = \alpha_2 = \alpha = \pi/2$. Determine: **(a)** The rms output voltage V_o; **(b)** The input power factor PF; **(c)** The average current of the thyristors I_A; and **(d)** The rms current of thyristors I_R.
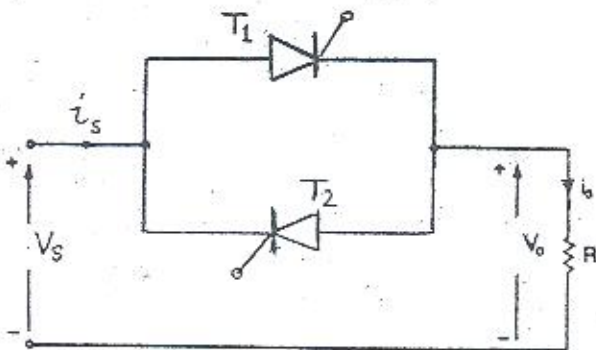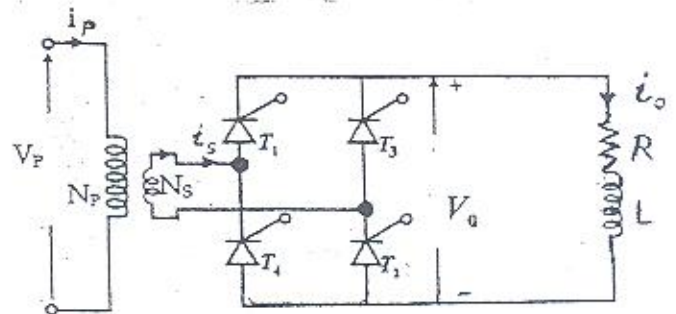

Figure (2)

Figure (1)

P.T.O

4) A chopper is feeding an RL load as shown in **Fig.(3)** with Vs=220 V, R=10 Ω , L=15.5 mH, f=5KHz, K=0.5 and E=20 V. Calculate:

(a) The minimum instantaneous load current, I_1.
(b) The peak instantaneous load current, I_2.
(c) The maximum peak-to-peak ripple current in load.
(d) The average load current, I_a .
(e) The rms load current, I_o .
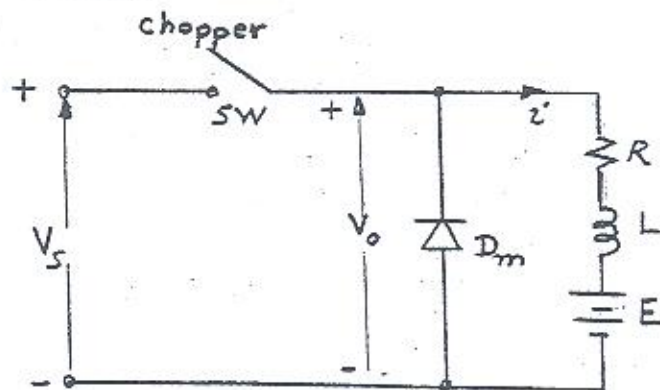(f) The effective input resistance, R_i .
(g) The rms value of chopper current I_R .

Figure (3)

5) The single – phase full-bridge inverter has a resistive load of R= 10 Ω and the dc input voltage is Vs=220V. Determine:

(a) The rms output voltage at the fundamental frequency, V_1 .
(b) The output power P_0.
(c) The average, rms, and peak currents of each transistor.
(d) The peak off-state voltage V_{BR} of each transistor.
(e) The total harmonic distortion, THD.
(f) The distortion factor, DF.
(g) The harmonic factor and distortion factor of the lowest order harmonic .

6) The dc output voltage of the full-bridge circuit in Fig.4, V_o =24 at a load resistance of R=0.4 Ω. The dc input voltage, Vs =50 V. The on –state voltage drops of transistors and diodes are negligible. The turns ratio of the transformer, a= N_s / N_p=0.5. Determine the **(a)** average input current, I_S; **(b)** average transistor current, I_A; **(c)** peak transistor current, I_P; **(d)** rms transistor current, I_R; and **(e)** open-circuit transistor voltage, V_{oc} . Neglect the losses in the transformer, and the ripple current of the load.
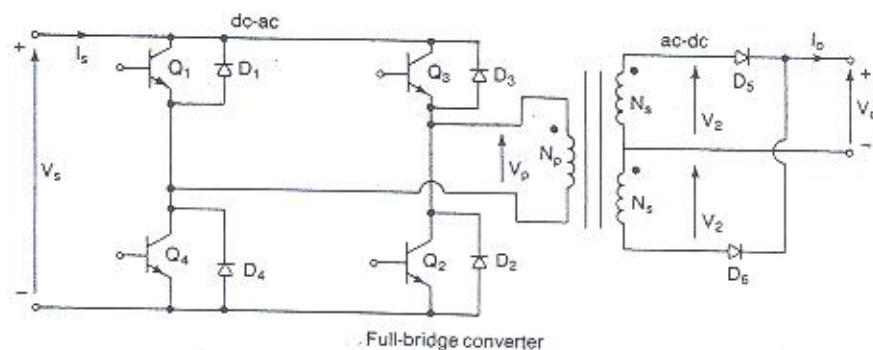

Full-bridge converter

Figure 4

Good Luck

<u>Old Bylaw</u>

Tanta University	Fourth Year Students
Faculty of Engineering	**First Term Exam**
Computers and Control Department	**January 2011**

Elective Specialized Course (3) | *Database Systems*

Answer the following *four* questions. Time allowed : 3 hours.

Question 1

(a) Give a definition for the database management system (DBMS). What are the merits and drawbacks (if any) of DBMSs?

(b) Specify the task of the database administrator (DBA).

(c) What is meant by a 'key', 'superkey', and 'primary key' in relational data models? What do you understand from the expression 'key by chance'?

(d) Verify that every relation has a key.

(e) Discuss the problem of NULL values.

Question 2

Consider the two-relation database given in Fig. 1.

(a) Describe, in words, the information involved.

(b) Determine the primary keys and referential integrity constraints.

(c) What are the attributes on which NULL values are allowed?

(d) Find the left, right, and full outer joins of relations ADMISSION and DOCTOR.

Question 3

Consider the two-relation database given in Fig. 2. Use relational algebra to write expressions for the following queries, showing the result in each case.

(a) Find the numbers of the supervisors of the employees earning more than 40000 pounds.

(b) Find the names, ages, and salaries of the supervisors of the employees earning more than 40000 pounds.

(c) Find the employees who earn more than their respective supervisors, giving the numbers, names, and salaries of both the employees and the supervisors.

(d) Find the numbers and names of the supervisors whose employees all earn more than 40000 pounds.

Question 4

(a) Write a short account on the families of SQL domains that allow representation of exact and approximate numeric values.

(b) Give a set of SQL commands that can construct a relation

TRAINEE (ID, FirstName, Surname, Specialization)

with the following specifications:

- The attribute ID is a primary key, with domain char (10).
- The attributes FirstName and Surname are each subject to a constraint not null, with domain char (20).
- The attributes FirstName and Surname, taken together, are subject to a constraint unique.

- The attribute Specialization, with domain char (15), refers to an attribute Career in another relation TRAINER, thus constituting a foreign key.
- The foreign key specified above has correction policies of set default for deletions and no action for updates.

(c) Do the commands of part (b) belong to the data definition language (DDL) or data manipulation language (DML)? Why?

(d) Modify the commands of part (b) so that the foreign key will have correction policies of set null for deletions and cascade for updates.

PATIENT

Code	Surname	FirstName
A 101	Lotfy	Laila
B 372	Raouf	Samir
B 543	Karim	Iman
B 444	Karim	Aly
R 555	Amin	Tamer

ADMISSION

Patient	Admitted	Discharged	Ward
A 102	2/05/04	9/05/04	A
B 102	2/12/04	2/01/05	A
B 555	5/10/04	3/12/04	B
B 444	1/12/04	1/01/05	B
R 555	5/10/04	1/11/04	A

DOCTOR

Number	Surname	FirstName	Ward
203	Magdy	Samir	A
574	Salem	Maha	B
461	Farouk	Alaa	B
530	Rashad	Nabil	C
405	Ammar	Nabil	A
501	Farahat	Sherif	A

WARD

Code	Name	Consultant
A	Surgical	203
B	Paediatric	574
C	Medical	530

Fig. 1 **Four-relation database for Question 2**

EMPLOYEES

Number	Name	Age	Salary
101	Mona Sedky	34	40000
103	Mona Abdo	23	35000
104	Amr Khalil	38	61000
105	Ihab Farid	44	38000
210	Medhat Aly	49	60000
231	Samia El-Khouly	50	60000
252	Ihab Farid	44	70000
301	Samir Sedky	34	70000
375	Mona Sedky	50	65000

SUPERVISION

Head	Employee
210	101
210	103
210	104
231	105
301	210
301	231
375	252

Fig. 2 **Two-relation database for Question 3**

Prof. Dr. Mahmoud M. Fahmy

b- Design the fuzzy rules to keep the liquid level at *5 ft*.

c- For the error *e = 3 ft*, Determine:

  i-   The fired rules.

  ii- The output fuzzy set of each rule.

  iii- The crisp value of the controller output *u*.

Q. flow into tank

A. tank cross sectional area

valve

h

q. flow from tank

$w = 5 ft$

$e = w - h$

Controller
$Q = f(e)$
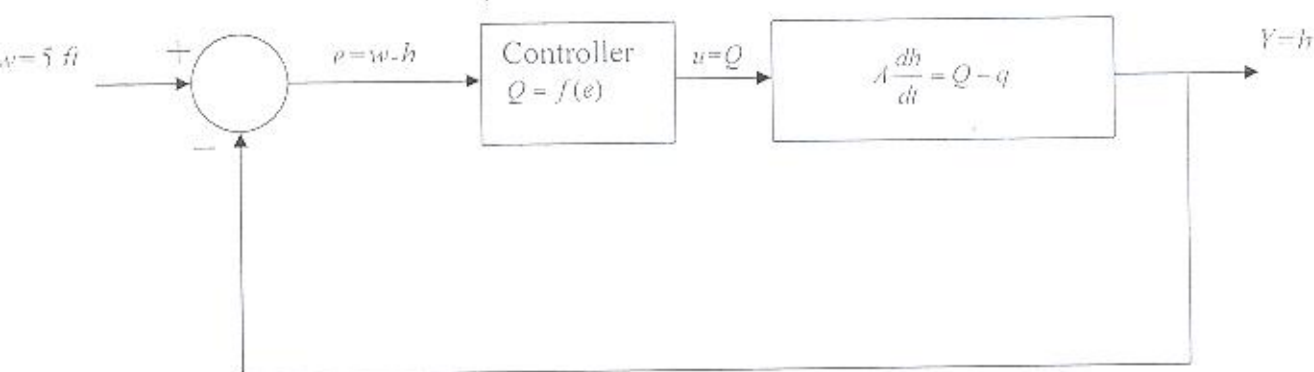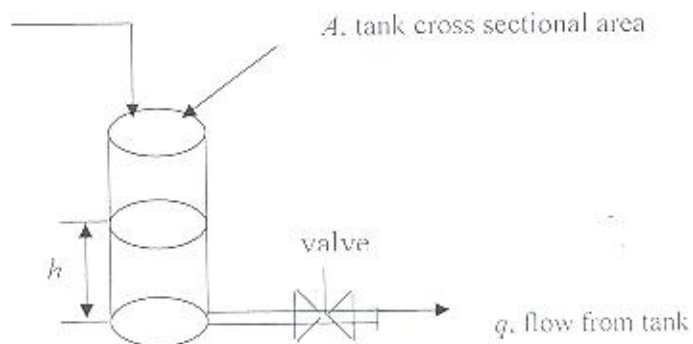
$u = Q$

$A\dfrac{dh}{dt} = Q - q$

$Y = h$

Fig. 1

(Question 3)

Design a fuzzy controller to control the temperature of a shower, ignoring any delays, etc. Assume that the water is pleasant at temperatures around 35–40°C. Test the performance of the fuzzy system by showing that it can provide the desired temperature for different inputs.

(Question 4)

A crane system is used to transport containers from a place to another place at a specific distance from the picking up position. As soon as the crane starts to move, both the container and the crane itself start to swing. The container swing is not a problem as it can be easily controlled. The main issue is the crane swing which can cause some problems during the transportation of the containers.

(a) Suggest a suitable conventional controller for the above described crane to keep the crane swing minimum (i.e. no swing if possible) as it transports the containers to their desired places. This is can be done by controlling the speed of the crane motor.

(b) Design a fuzzy gain scheduler that tunes the conventional controller suggested in (a).

Good Luck

Dr. Ahmed Elmogy

جامعة طنطا
كلية الهندسة
الفرقة الرابعة(حاسبات)

المادة/ دراسات الجدوى للمشروعات
(EC41H51)
لائحة قديمة

بسم الله الرحمن الرحيم
التاريخ : ٢٠١١/١/٢٦
الزمن : ساعتان

أجب عن الأسئلة الآتية:- (٤٠ درجة)

السؤال الأول:-

١- ما هو المشروع ؟- اكتب نبذة مختصرة عن المراحل التى يمر بها المشروع المقترح للاستثمار.

٢- الجدوى الفنية هى إحدى مكونات دراسة الجدوى الاقتصادية - تكلم باختصار عن الجدوى الفنية.

٣- تكلم بالتفصيل عن عناصر التصنيع.

السؤال الثانى:-

١- ما المخزون؟ - لماذا نحتفظ بالمخزون.

٢- ما هى العوامل التى يترتب عليها نقصان أو زيادة العرض؟

٣- لماذا نقوم باعداد دراسات الجدوى الاقتصادية؟ مع شرح تفصيلى لأنواع دراسات الجدوى الاقتصادية.

السؤال الثالث:-

١- ما اهمية المفاضلة بين المشروعات مع شرح لمراحل المفاضلة بين المشروعات.

٢- اذكر اسس ومبادئ عملية تقييم المشروعات.

٣- اذكر اهم نقاط الاختلاف بين معايير الربحية التجارية ومعايير الربحية القومية.

السؤال الرابع:-

١- تكلم بالتفصيل عن اهم البيانات الثانوية اللازمة لاجراء دراسة الجدوى التسويقية.

٢- تكلم بالتفصيل عن البيئة التسويقية.

• اكتب نبذة مختصرة عن التقرير الخاص بك.

مع أطيب التمنيات بالنجاح
ا٠د/عبد الفتاح مصطفى خورشد

Tanta University   Measurements & Control
Faculty of Engineering   Fourth year
Computers and Control Dept.   Time allowed: 3 Hours

Answer the following questions:

(Question 1)

Consider the following two discrete fuzzy sets, which are defined on universe $X = \{-5, 5\}$:

$$A = \text{"Zero"} = \left\{ \frac{0}{-2} + \frac{0.6}{-1} + \frac{1}{0} + \frac{0.6}{1} + \frac{0}{2} \right\}$$

$$B = \text{"positive Medium"} = \left\{ \frac{0}{0} + \frac{0.3}{1} + \frac{0.6}{2} + \frac{1}{3} \right\}$$

     (a) Construct the relation for the rule IF A, THEN B (i.e., IF x is "Zero" THEN y is "Positive Medium") using Mamdani implication.
     (b) If we introduce a new antecedent,

$$A' = \text{"Positive Small"} = \left\{ \frac{0}{-1} + \frac{0.5}{0} + \frac{1.0}{1} + \frac{0.5}{2} + \frac{0}{3} \right\}$$

Find the new consequent B', using max-min composition.

(Question 2)

Consider the tank with liquid shown in Fig. 1. It is required to design a controller that will maintain the liquid level at a desired point (the set point-tracking problem). Suppose that the tank is *10 ft* tall and the tank is empty. We want to fill the tank to a level of *5 ft*, so we make the current set point, *r*, equal to *5 ft*. The current level at any time *t* is designated as *h*. Liquid flows out of the tank through an open valve. This flow is designated by the letter *q*. Liquid flows into the tank by means of a pump. The pump flow, *Q*, can be regulated by the controller. The tank cross-sectional area is designated by the letter *A*.

       a- Suggest the membership functions for the controller input *e* with range (*-10, 10*) and the controller output *u* is in range (*-2, 2*).