MENOUFIA UNIVERSITY
Menouf, Faculty of Electronic Eng.
Department of Phys. & Eng. Math.
Eng. Math 6, final exam
Second Year

جامعة المنوفية
قسم الفيزيقا والرياضيات الهندسية
الرياضيات الهندسية ٦ (لاختبار النهاى)
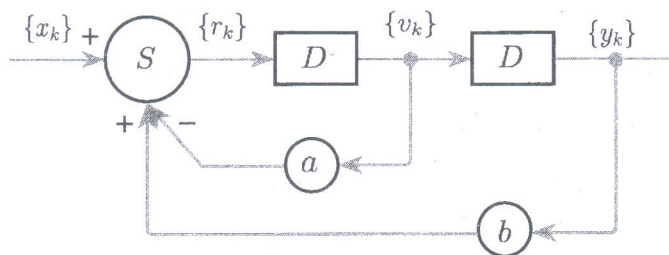الفـرقة الثانية

Answer the following questions

(k is non-negative integer number.)

1. (a) Determine the z transform of the sequence $\{k(\frac{1}{2})^k\}$.

   (b) Obtain the response of the second-order unforced discrete-time system

   $$x(k+1) = \begin{bmatrix} x_1(k) \\ x_2(k) \end{bmatrix} = \begin{bmatrix} \frac{1}{2} & 0 \\ -1 & \frac{1}{2} \end{bmatrix} x(k)$$

   subject to $x(0) = [1 \quad 1]^T$.

2. (a) Find the z-transform of the sequence
   $$\{x_k\} = \{0, 1/2, 1, 3/2, 2, \ldots, k/2, \ldots\}$$

   (b) Find a difference equation to represent the system shown in Figure 1, having input and output sequences $\{x_k\}$ and $\{y_k\}$ respectively, where D is the unit delay block and a and b are constant feedback gains. Solve the resulting difference equation at $a = 1$ and $b = 2$.

Figure 1

3. (a) For a simple die toss, find the mean, median, mode.

   (b) The lifetime of an electronic component (in thousands of hours) is a continuous random variable with density function

   $$f_X(x) = \begin{cases} \frac{1}{2}e^{-x/2} & (x \geqslant 0) \\ 0 & (x < 0) \end{cases}$$

   Find the proportion of components that last longer than 4000 hours.

<div align="center">إقلب الصفحة</div>

4. (a) The number of ships arriving at a container terminal during any one day can be any integer from zero to four, with respective probabilities 0.1, 0.3, 0.35, 0.2, 0.05. Find the variance and standard deviation of these probabilities.

(b) A machine produces components that have defect A with probability 0.005 and defect B with probability 0.008, the two defects being independent. If 88 components are packed into a batch, what is the (approximate) probability that the batch contains at least 85 components without defects?

Marks of questions

Question	1.a	1.b	2.a	2.b	3.a	3.b	4.a	4.b
Marks	3	10	3	10	3	9	3	9

The full mark is 50

Best wishes   *Dr. Hassan M. Abdelhafez*

العرض الثاني رقم /ص

University	: Menoufia		Date	: 10/6/2019
Faculty	: Electronic Engineering		Time	: 3.0 Hours (10 Am-1 PM)
Department	: Physics and Eng. Math.		No. of pages	: 2
Academic year	: Second Year		Full Mark	: 100 Marks
Course Name	: Eng. Mathematics (6)		Exam	: Final (Part I)

Part (I): Answer all of the following questions

Question No 1: {10 Marks}

1. Compute the limits
   a. $\lim\limits_{z \to i} \dfrac{z - i}{z^2 + 1}$
   b. $\lim\limits_{z \to 0} \dfrac{x^2 y^2}{x^4 + iy^4}$
   c. $\lim\limits_{z \to 0} \dfrac{x^2 + iy^2}{|z|}$

2. Using Cauchy-Riemann equation, show if the function $f(z) = 2x^2 + y + i(y^2 - x)$ is differentiable, analytic, or entire function in an appropriate domain D. Then, find its first order derivative if it exists.

Question No 2: {20 Marks}

1. Verify that the function $u(x, y) = -e^{-x} \sin y$ is harmonic in an appropriate domain D. Then, find its harmonic conjugate $v(x, y)$ and form the corresponding analytic function $f(z) = u(x, y) + iv(x, y)$.

2. Evaluate the integral $\int\limits_{C} (3z^2 + 2z + 2)dz$, where C is:

   a. The circle $|z| = R$, R is any real constant.

   b. The straight-line segments connecting the points $\{-1 \to -i \to 1 \to 1 + i\}$.

   c. The straight-line segments connecting the points $\{-1 \to -1 - i \to 1 - i \to 1 + i\}$.

3. Using Cauchy integral formula, evaluate the integral $\int\limits_{C} \dfrac{z^3 + 3}{z(z - i)^2} dz$,
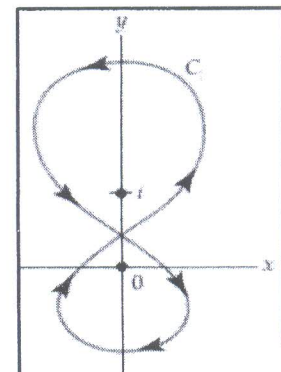
   where C is the contour shown in Fig. 1.

Fig.1

Question No 3: {20 Marks}

1. Expand the complex function $f(z) = \dfrac{1}{z(z - 1)}$ in a Laurent series to be valid for the following annular domains:

   a. $0 < |z| < 1$
   b. $0 < |z - 1| < 1$
   c. $1 < |z - 2| < 2$

2. Using Cauchy's-Residue theorem evaluate the following integrals:

   a. $\oint\limits_{C} \dfrac{e^z}{\left(z - \frac{1}{2} - \frac{\sqrt{15}}{2} i\right)(z + 3)^2} dz$, where C is the circle $|z| = \dfrac{7}{2}$.

   b. $\oint\limits_{C} \dfrac{z + 2}{z^3 + z^2 + 16z + 16} dz$, where C is the straight-line segments connecting the points $\{-2i \to 1 \to 5i \to -2 \to -2i\}$.

Best wishes
Dr. Nasser A. Saeed

MENOUFIA UNIVERSITY
Menouf, Faculty of Electronic Eng.
Department of Phys. & Eng. Math.
Eng. Math 6, final exam
Second Year

جامعة المنوفية
كلية الهـندسة الإلـكترونية بمنوف
قسم الفيزيقا والرياضيات الهندسية
الرياضيات الهندسية ٦ (لاختبار النهائى)
الفـرقة الثانية

Monday 10/6/2019   Test time: 90 minutes

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(k is non-negative integer number.)

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   subject to $x(0) = \begin{bmatrix} 1 & 1 \end{bmatrix}^T$.

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Figure 1

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   $$f_X(x) = \begin{cases} \frac{1}{2}e^{-x/2} & (x \geqslant 0) \\ 0 & (x < 0) \end{cases}$$

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إقلب الصفحة

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The full mark is 50

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الْمَعْرِفَة (٢) ...

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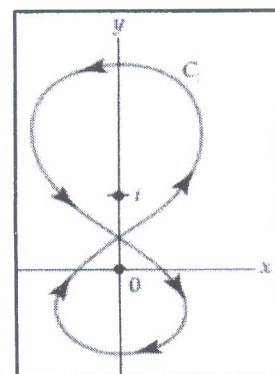

Fig.1

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Best wishes
Dr. Nasser A. Saeed

University	:	Menoufia		Date	:	10/06/2019
Faculty	:	Electronic Engineering		Time	:	3.0 Hours (for two parts)
Program	:	Genral		No. of pages	:	2
Academic level	:	First year		Full Mark	:	70 Marks for two parts
Course Name	:	Electronics 2		Exam	:	Final Exam
Course Code	:	ECE 123		Examiner	:	Dr. Abdelmageed Sharshar

Part I: Bipolar Junction Transistor   35 Marks

Answer all the following questions :

Question No 1 :(10 Marks)

a) For bipolar junction transistor sketch minor carrier concentration in the base region, due to forward injection (for active, saturation, and cutoff modes).   (3 Marks)

b) Sketch the output characteristics for Common Base configuration, show different regions for operation. What is the effect of increasing V_{CB} on output current in active region?   (3Marks)

c) (i) Given that $\alpha_{dc} = 0.98$, determine the corresponding value of β_{dc}.   (4Marks)
   (ii) Given $\beta_{dc} = 150$, determine the corresponding value of α.
   (iii) Given that $\beta_{dc} = 200$ and $I_C = 4.0$ mA, find I_E and I_B.

Question No 2:(10 Marks)

a) Given the load line shown in Fig. 2(a) and the defined Q-point, determine the required values of V_{CC}, R_C, and R_B for a fixed-bias configuration. Determine from the characteristics approximately the values of V_{CEQ}, I_{CQ} at the operating Q-point.   (5 marks)

b) Given the transistor circuit shown in Fig. 2(b), explain how it works as an inverter. Draw the output signal V_o and then determine R_B and R_C to insure that it works as inverter if $I_{Csat} = 10$ mA.   (5 marks)
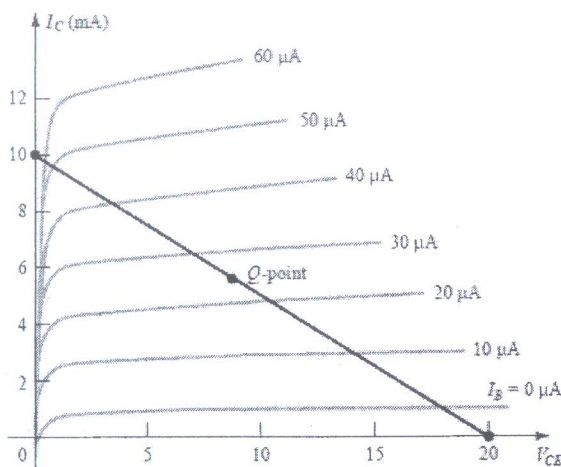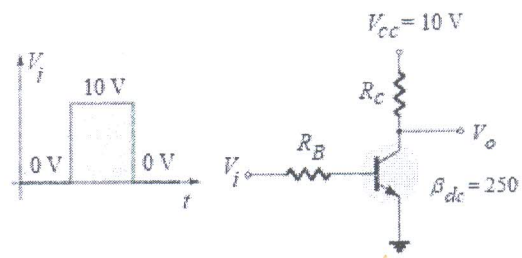

Fig. 2(a)   Question 2 (a)

Fig. 2(b)   Question 2 (b)

Question No 3 : (15 Marks)

a) For the network of Fig. 3(a): Draw the r_e equivalent
   model for small ac signal and then:
   (i) Determine Z_i and Z_o.
   (ii) Find A_v and A_i.
   (iii) Repeat part (i) with r_o =20 kΩ.
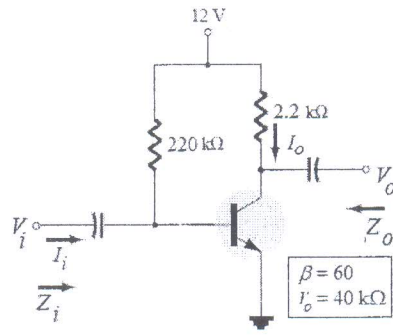   (iv) Repeat part (b) with r_o = 20 kΩ.   (8 Marks)

Fig. 3(a)

b) For the common-base amplifier of Fig. 3(b), draw the hybrid equivalent model circuit and then
determine:
   (i) Z_i.   (ii) A_i.   (ii) A_v.   (iv) Z_o.   (7 marks)
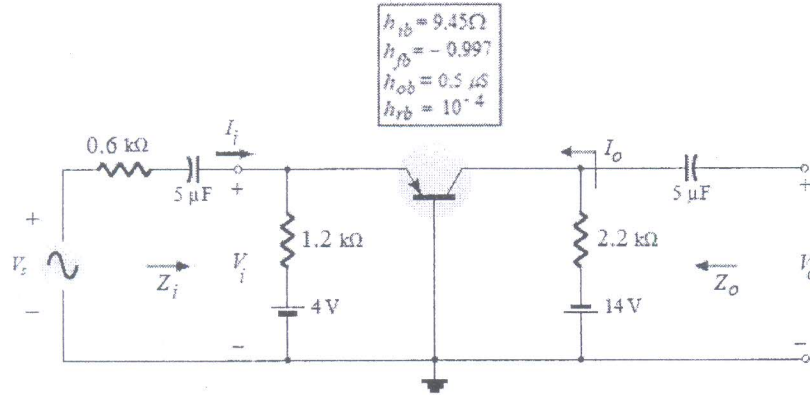

Fig. 3(b) Question 3(b)

Menoufia University
Faculty of Electronic Engineering
Dept. Electronics and Electrical Commun. Eng.
Course: Communication Engineering (ECE 222)
Second Year
Total Exam Time: 3 Hours (10:00 AM-1:00 PM)
Part 2 Time: 1.5 Hours

2nd Term Exam
Academic Year: 2018 / 2019
Date: 13 / 6 / 2019
No. of Exam Pages: 2
No. of Exam Questions: 2
Total Exam Marks: 70 Marks
Part 2 Marks: 40 Marks

Part 2

Answer all the following questions:

Question 1:   [20 Marks]

a) Explain how the problem of aliasing arises in communication systems,   [4 Marks]
   and how anti-aliasing filters can be used to prevent this problem.
   Discuss whether such a filter should come before or after the sampling
   process.

b) Explain the difference between analog messages and digital messages.   [4 Marks]
   Discuss why digital technology is replacing analog technology in modern
   communication.

c) Using mathematical expressions, discuss whether a coherent   [4 Marks]
   demodulator could be used to recover the message signal from an AM
   (DSB with carrier) signal given by $[A + m(t)] \cos \omega_c t$.

d) You are asked to design a DSB-SC modulator to generate a modulated   [8 Marks]
   signal $km(t) \cos 3\omega_c t$, where $m(t)$ is a signal band-limited to B Hz.
   Fig. Q1.(a) shows a DSB-SC modulator available in the stock. The
   carrier generator available generates $\cos^3 \omega_c t$. Explain whether you
   would be able to generate the desired signal using only this equipment.
   You may use any kind of filter you like.

   a. What kind of filter is required in Fig. Q1.(a)?

   b. Refer to Fig. Q1.(b) and determine the signal spectra at point x
      and y.

   c. Would this scheme work if the carrier generator output were
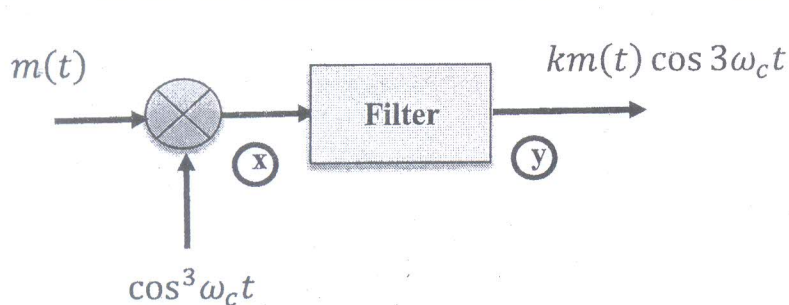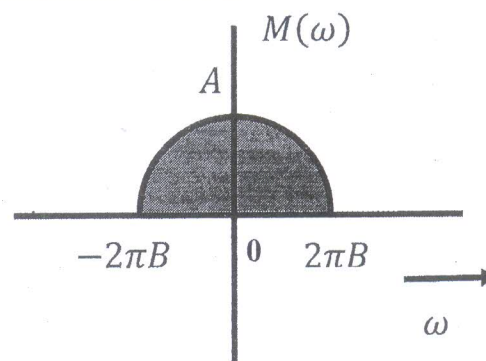 $\cos^2 \omega_c t$? Explain.

Fig. Q1.(a)

Fig. Q1.(b)

****

Question 2:   [20 Marks]

a) Draw the block diagram of the Quadrature Amplitude Modulation (QAM)   [4 Marks]
    transmitter and receiver. Explain how this scheme can solve the problem
    of twice the baseband signal bandwidth required for DSB-SC
    transmission.

b) Referring to the QAM scheme in the above question, prove that any slight   [4 Marks]
    error in the phase or frequency of the carrier used at demodulator will lead
    to interference between the two channels as well as distortion.

c) The FM output signal of an angle modulator is given as: [6 Marks]

$$\varphi(t) = 20\cos(1.9 \times 10^8 \pi t + 2\pi \sin 1000\pi t)$$

   a. Determine the modulation index and the carrier frequency.

   b. Is this signal narrow-band FM or wide-band FM? Determine the
       effective frequency bandwidth of the signal.

   c. If the same signal $\varphi(t)$ were instead the PM output of an angle
       modulator, what would the original message signal be?

d) Design (only the block diagram) an Armstrong indirect FM modulator to   [6 Marks]
    generate an FM carrier with a carrier frequency 98.1 MHz and $\Delta f = 75$
    KHz. A narrow-band FM generator is available at a carrier frequency of
    80 KHz and $\Delta f = 20$ Hz. The stock room also has an oscillator with an
    adjustable frequency in the range of 4 to 5 MHz. There is a bandpass filter
    with any center frequency and plenty of frequency doublers ($\times$ 2), triplers
    ($\times$ 3), and quintuplers ($\times$ 5).

WITH MY BEST WISHES   **DR. AHMED MOHAMED BENAYA**

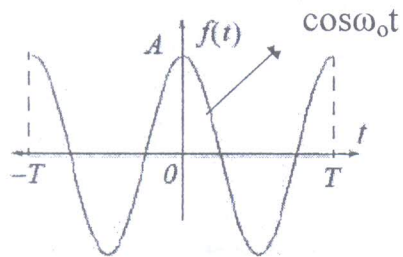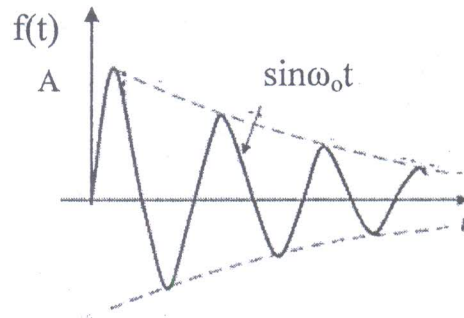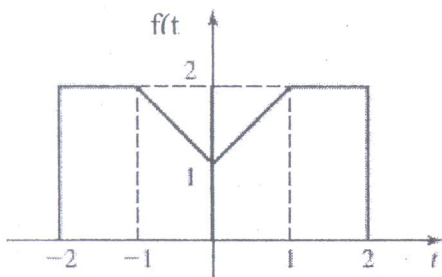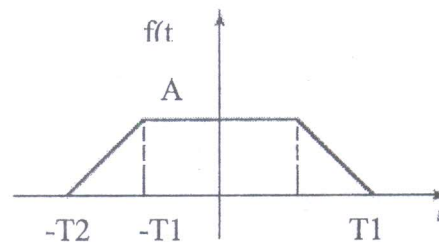| Acd. Year:	2018/2019	Menoufia University			
Semester:	2nd	Faculty of Electronic Engineering			
Year:	second	General			
Time of part one :	1.5 H	Course Title:	Communications Engineering		
Examiners:	Prof..Abd-Elnaser A. Mohamed	Date:	13 /6/ 2019	Course Code:	Part ONE
		Final Term Exam			
Answer The Following Questions			No. of questions: 3		

Fig.1

Fig.2

Fig.3

Fig.4

Total marks: 30
With my best wishes and regards

Prof. / Abd-Elnaser A. Mohamed

Examiners'
signatures:

Acd. Year:	2018/2019	Menoufia University		
Semester:	2nd	**Faculty of Electronic Engineering**		
Year:	second	**General**		
Time of part one :	1.5 H	Course Title:	**Communications Engineering**	
Examiners:	Prof..Abd-Elnaser A. Mohamed	Date: 13 /6/ 2019	Course Code:	**Part ONE**
		Final Term Exam		
Answer The Following Questions			No. of questions: 3	

Question 1 *(10 Marks)*

a) Derive the expression of $y(t) = x(3t+2)$, assuming $x(t) = \prod(t/2)$

b) From : $f_1(t) = \dfrac{1}{a}\prod\left[\dfrac{t-(a/2)}{a}\right]$ and $f_2(t) = \dfrac{1}{b}\prod\left[\dfrac{t-(b/2)}{b}\right]$. Find the following:

     i) Drive the expression for the convolution of two functions

     ii) The F.T of the convolution of two functions

c) Find the F.T of the following Figs.(1,2)

Question 2 *(10 Marks)*

a) Find the F.T of the following Fig.(3)

b) Evaluate the following integral for the cases:

     i) $x = 0$, $y = 4$,   ii) $x = -10$, $y = 5$

$$A = \int_{x}^{y} (t-1)(t+5)\delta(2t+5)dt$$

c) From the Fig.(4). Find the following:

     i) $F(\omega)$,   ii) $\underset{T2\rightarrow T1}{\text{Lim}} F(\omega)$,   iii) $\underset{T1\rightarrow 0}{\text{Lim}} F(\omega)$

Question 3 *(10 Marks)*

a) Express the function interms of a sum of sine functions and draw the amplitude spectrum and phase spectrum:

$$x(t) = -A_o + A_1 \cos(\omega_1 t + \theta_1) - A_2 \cos(\omega_2 t) - A_3 \sin(\omega_3 t + \theta_3), \quad A_i > 0$$

b) Draw the rectangular pulse functions: $\prod(t)$, $\prod(2t)$, and $\prod(t/2)$

c) Find the F.T of the following:

     i) Unit step, $u(t)$ ii) Unit impulse, $\delta(t)$

     iii) Unit ramp, $r(t)$,   iv) Signum function, $sgn(t)$

Prof. / Abd-Elnaser A. Mohamed

Examiners' signatures:

كلية الهندسة الالكترونية بمنوف

قسم : هندسة الالكترونيات و الاتصالات الكهربية

تاريخ الأختبار الأثنين 24 يونية 2019

الامتحان النهائي للفصل الدراسي الثاني- الجزء الثاني (دكتور عادل شاكر الفيشاوي)

اسم المادة : دوائر الكترونية الفرقة الثانية ECE223

زمن الامتحان : 10:00 صباحا - 1:00 ظهرا

Answer the following four questions

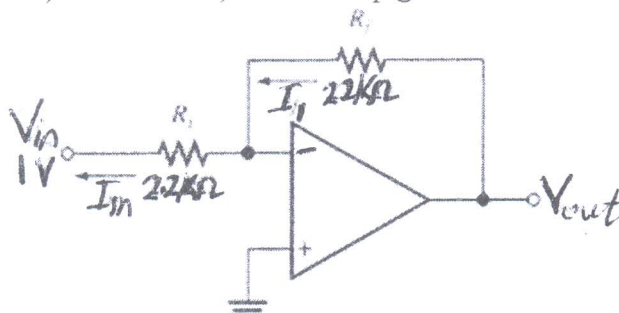**Question No. 1**   **15 Marks**

1) If the input to an Op-Amp log amplifier is z, the output equation will be ....

2) Astable timer 555 has V_{cc} equals to 9 volts, Therefore, the maximum voltage across the external capacitor used will be equals to ....while the minimum value equals to .....

3) The output voltage of a twin T filter (notch filter) at resonance frequency f_r is equals to ....

4) For an oscillator to have sustained oscillation, the gain around the feedback loop must be

(a) less than 1   (b) greater than 1   (c) 1   (d) equal to B.

5) The 555 timer can be used as a voltage-controlled oscillator (VCO) by ....

6) If 10 mV is applied to the input to an inverting the op-amp and R_f is decreased, the output voltage will   (a) increase   (b) decrease   (c) not change.

7) The reason behind that the phase shift oscillator uses three RC sections that gives 180° total phase shift is............

8) An oscillator converts: a) AC input energy to AC output energy.

b) DC input energy to DC output energy.   c) DC input energy to AC output energy.

9) If the output frequency of a certain voltage control oscillator VCO changes from 150 kHz to 165 kHz when the control voltage increases from 0.25V to 1V, the conversion gain K of the VCO be equal to.........

10) The main internal components of a 555 Timer are ....

11) The basic conditions for phase locked loop PLL to acquire lock are ....

12) The main reasons behind using voltage follower are ....

13) In a switched-capacitor circuit, the 1000 pF capacitor is switched at a frequency of 100 kHz, the value of emulated resistor will be equal to ....

14) The reason behind that Field Programmable Array FPAA uses emulated resistors that depends on using switched capacitor instead of using real resistors is that...........

15) During reprogramming of an FPAA running in a system, the first memory into which reconfiguration data are stored is the ....

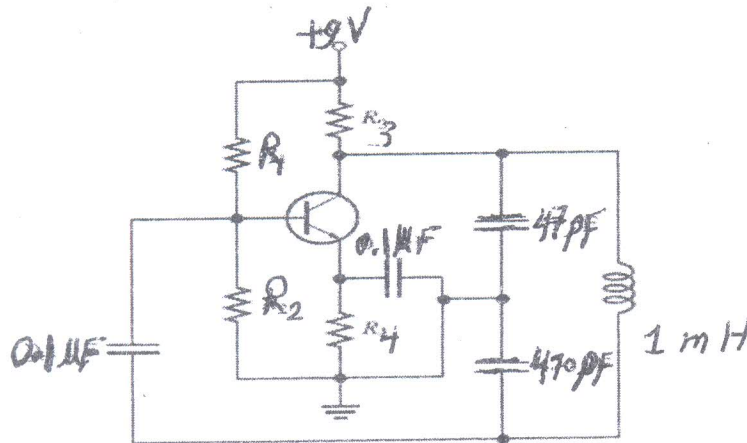**Question No. 2**   **10 Mark**

2-A) Determine the approximate values for each of the following quantities in the Figure below

a) Iin   b) If   c) Vout   d) closed-loop gain ACL   e) Zin

1

2-B) Determine the voltage gain A_v of the amplifier stage in Figure below in order to have sustained oscillation?. What is the frequency of the output signal if the Q of the coil is equal to and 15, respectively?.

Question No. 3

3-A) Draw and discuss in detail the block diagram of a function generator showing the signal at the input and output of each block.

3-B) Derive the output voltage equation in terms of input voltages for Op-Amp summing amplifier.

3-C) Wien bridge oscillator use a lead-lag circuit with the following values: $C_1 = C_2 = C = 0.01 \mu F$ and $R_1 = R_2 = R = 10.0 K\Omega$. Find the output oscillator frequency f_r. Draw the oscillator output showing its frequency. Then, plot the frequency and phase responses of the given lead-lag circuit. Then, show how to find the quality factor Q and the band width B.W. What is the rms output voltage of the given lead-lag circuit if an input signal with a frequency equal to f_r and with an rms value of 3.0 V is applied to the input?.

Question No. 4

10 Marks

4-A) Derive the relation between the output voltage V_{out} and input voltage V_{in} for an Op-Amp differentiator. Then, draw and compare between the output of an ideal differentiator and of Op-Amp differentiator due to a periodic square wave input signal.

4-B) Compare between linear and logarithmic compression of signals.

4-C) Draw a simplified CAB block diagram of Field Programmable Analog Arrays (FPAA).

توقيع أستاذ المادة :

University	:	Menoufia		Date	:	24/06/2019
Faculty	:	Electronic Engineering		Time	:	3 Hours
Department	:	Electronics & Electrical Communications		No. of pages	:	2
Academic level	:	2nd Year		Full Mark	:	45 Marks
Course Name	:	Electronic circuits		Exam	:	Final Exam
Course Code	:	ECE 223		Examiner	:	Dr: A. I. Bahnacy

(برجاء إجابة الجزء الاول من الناحية اليمنى والجزء الثانى من الناحية اليسرى فى كراسة الإجابة)

PART 1

Answer all the following questions :

Question No 1 :   (15 Marks)

1-a-What is meant by cross over distortion in class B push-pull amplifier?.
Describe one method to overcome this distortion .
Clarify your answer with drawing.   (7-Marks)

1-b- Find the maximum ac output power, the dc input power and the maximum efficiency of the
amplifier shown in Fig. 1. Also determine the input resistance assuming β_{ac}=50 and r'$_e$=6Ω.
If the circuit shown in Fig. 1 is replaced by a Darlington class AB push-pull amplifier with β_{ac}=50
for each transistor, what will be the input resistance?,
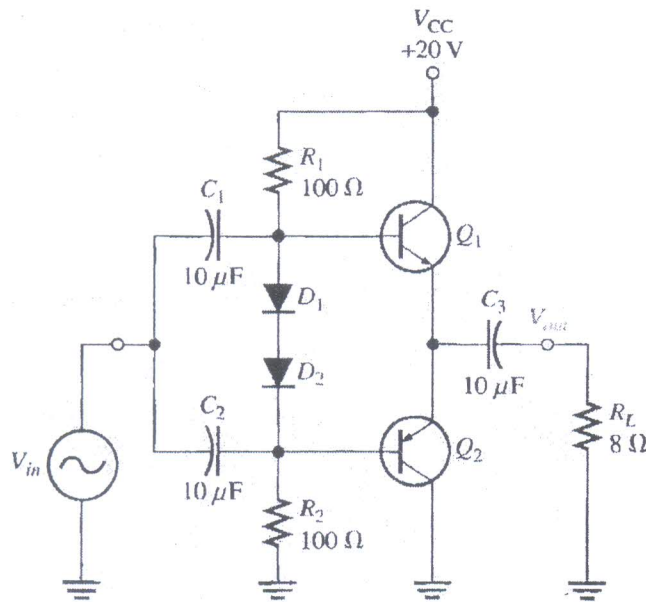and , what is the advantage of that? .   (8-Marks)

Fig. 1

من فضلك اقلب الورقة

University	:	Menoufia		Date	:	20/6/2019
Faculty	:	Electronic Engineering		Time	:	3 Hours
Department	:	Comp. Science & Eng.		No. of pages	:	4
Academic level	:	Second Year		Full Mark	:	60 Marks
Course Name	:	Database and Information Systems		Exam	:	Final Exam
Course Code	:	CSE 226		Examiner	:	Dr. Ahmed Shehata

Q1:Write True or False for each of the following Statements: (10 Marks)

1. A table can have more than one primary key column.
2. A SQL query can contain a HAVING clause only if it has a GROUP BY clause
3. Not all attributes used in the GROUP BY clause need to appear
4. In a row of a relational table, an attribute can have more than one value
5. Check constraints defines a condition that each row must satisfy
6. A composite key is a primary key that consists of more than one column
7. MODIFY DATABASE command is used to change the structural design of a table
8. ROLLBACK command is used to undo all changes made by transaction.
9. Group functions work across many rows to produce one result.
10. Commit is used to make the transaction permanent in the database

Q2: Complete the following statements: (10 Marks)

1. A/An …………………… is an object in the real world that share the same properties.
2. The ……………… keyword excludes duplicate values from the aggregate value calculation.
3. To Add, Drop or Modify a column we use ……………… statement.
4. The multiple row operators are ……, ………, or……..that are used with multiple row subqueries.
5. ……………… data type contains variable length character data.
6. Two types of Relational Query languages are: ………………and ………………
7. The ………………command is used to undo last DML operations.
8. The ………………function is used to return the number of rows in a table
9. Suppose r1=(A, B) and r2=(C,D) are two relation schemas. B in r1 is a foreign key that refers to C in r2. Then the output of : $\Pi_B (r1) - \Pi_C (r2) = $ ………………
10. Clause that used to allow deletion in the parent table and deletion of the dependent rows in the child table is ………………

Q3: Select the best answer: (10 Marks)

1. The relational model is based on the concept that data is organized and stored in two-dimensional tables called …………………………
   A. Fields
   B. Records
   C. Relations
   D. Keys
2. In an ER model, …………… is described in the database by storing its data.
   A. Entity
   B. Attribute
   C. Relationship
   D. Notation

3. A ....allows to make copies of the database periodically to help in the cases of crashes.
   A. Recovery utility
   B. Backup Utility
   C. Monitoring utility
   D. Data loading utility

4. ....specifies a search condition for a group or an aggregate.
   A. GROUP BY Clause
   B. HAVING Clause
   C. FROM Clause
   D. WHERE Clause

5. Clause used in SQL for ensuring referential integrity is classified as ....
   A. PRIMARY KEY clause
   B. SECONDARY KEY clause
   C. FOREIGN KEY clause
   D. INTERVAL KEY clause

6. Which statements are DCL(Data Controll Language) statement:
   A. Commit
   B. Revoke
   C. Grand
   D. Rollback

7. Which SQL statement is used to add new row in a database?
   A. INSERT INTO
   B. ADD NEW
   C. ADD RECORD
   D. Alter Table

8. .... command can be used to modify a column in a table
   A. alter
   B. update
   C. set
   D. create

9. In the case of entity integrity, the primary key may be......
   A. not Null
   B. Null
   C. both Null and not Null
   D. any value

10. Drop Table cannot be used to drop a table referenced by a .... constraint.
    A. Local Key
    B. Primary Key
    C. Composite Key
    D.Foreign Key

Q4: Consider the following three Tables A, B, and C: (6 Marks)

Table A
```
Id  Name   Age
---------------
12  Arun   60
15  Shreya 24
99  Rohit  11
```

Table B
```
Id  Name   Age
---------------
15  Shreya 24
25  Hari   40
98  Rohit  20
99  Rohit  11
```

Table C
```
Id  Phone  Area
---------------
10  2200   02
99  2100   01
```

- Write a SQL query to find the phone and area for persons who has Id equal to Id of person who has age =11 in table B (3 Marks)
- Draw the output of the following SQL query (3 Marks)

    SELECT A.id, A.Name, Age
    FROM   A
    WHERE A.age> ALL (SELECT B.age
             FROM   B
    WHERE B.name = "Rohit")

Q5: According to the following table instance charts: (18 Marks)

Column name	Id	Name	salary
Key Type	Primary key		
Null/Unique/ Check		Not Null	>2000
FK Table			
FK column			
Data Type	Number	Varchar2	Number
Size	3	15	(5,2)

Table q1

Column name	SNN	Dname	Phone	qid
Key Type	Primary key			Foreign key
Null/Uniq/ Check				
FK Table				q1
FK column				Id
Data Type	Number	Char	Number	Number
Size	3	5	8	3

Table q2

a. Write SQL statements to create q1 and q2 tables. (4 Marks)
b. Assume the following sample of data in q1 and q2. Write statements to insert data in the two tables (2 Marks)

Id	Name	Salary
10	Aly	2400
20	Majid	4000

q1

SNN	Dname	Phone	Qid
300	Comp.	1010999	10
400	Phys.	1123399	10
500	Chem.	1178399	20

q2

c. Display the data in two tables. (2 Marks)

Check constraint violation and write correct DML to:

d. Add record (30,'kkkk',1800) in table q1. (2 Marks)
e. Remove the first row in table q2. (2 Marks)
f. Remove the last row in table q1. (2 Marks)
g. Add record (600,'wwwww',123456,40) in table q2. (2 Marks)
h. Display the Dname, phone numbers for persons who has qid equal to id for who gets salary >3000. (2 Marks)

Q6:Consider the following tables   (6 Marks)

```
   student                    enrolledIn                   subject
    id |  name                 id    |   code               code  | lecturer
  ----------------------      ----------------------       ------------------------
   1234 |  joe                1234   |   cs1500            cs1500 |  curtis
   4000 |  hector             1234   |   cs1200            cs2001 |  dave
   2000 |  ling               1234   |   cs2001            cs3010 |  curtis
                              4000   |   cs3010            cs2001 |  olivier
                              4000   |   ma3000            ma3000 |  roger
```

Id is a primary key in student table, and foreign key in enrolledin table. Code is a primary key in subject table and foreign key in enrolledin table.

Write the following queries in the relational <u>algebra</u> using the relational schema

  a. Who teaches cs1500 or cs3020?   (2 Marks)
  b. What are the names of all the students in cs1500?   (2 Marks)
  c. To obtain the following table   (2 Marks)

```
    id | name | id | code
    ---------------------------------------
    1234 | joe | 1234 | cs1500
    1234 | joe | 1234 | cs1200
    1234 | joe | 1234 | cs2001
    1234 | joe | 4000 | cs3010
    1234 | joe | 4000 | ma3000
```

4

University	:	Menoufia		Date	:	4/4/2019
Faculty	:	Electronic Engineering		Time	:	1 Hour
Department	:	Comp. Science & Eng.		No. of pages	:	3
Academic level	:	Second Year		Full Mark	:	20 Marks
Course Name	:	Database Systems		Exam	:	Second term Mid Exam
Course Code	:			Examiner	:	Dr. Ahmed Shehata

Q1: Answer by complete the following table:

Question	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

1. -------- Known facts the can be recorded and have implicit meaning

    A. Data   B. Database   C. Information   D. Miniworld

2. An entity which depends on other entity for its existence is a ------

    A. Strong Entity   B. Weak entity

    C. Partial Entity   D. Dummy Entity

3. Which one of the following is a set of one or more attributes taken collectively to uniquely identify a record?

    A. Candidate key   B. Sub key

    C. Super key   D. Foreign key

4. A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.

    A. Rows   B. Key

    C. Attribute   D. Fields

5. Course(course_id, sec_id, semester). Here the course_id, sec_id and semester are _____ and course is a _____

    A. Relations, Attribute   B. Attributes, Relation

    C. Tuple, Relation   D. Tuple, Attributes

6. A database server is responsible for:

A. Database Storage.

B. Data Processing Logic

C. Data Presentation Logic.

D. All of above.

7. ………. is responsible for authorizing access to the database

   A. DBA   B. End user

   C. Sophisticated end user   D. Database developer

8. Phone number can be classified as …………………….. attributes.

9. The attribute AGE is calculated from DATE_OF_BIRTH and current_date so, the attribute AGE is called ………..and can be represented as ………. in the ER diagram.

10. True or false: Each super key can be considered as a candidate key and each candidate can be considered as a primary key.

Q2: For the Cinema database shown write the relational algebra expressions to :

Movies

title	director	myear	rating
Fargo	Coen	1996	8.2
Raising Arizona	Coen	1987	7.6
Spiderman	Raimi	2002	7.4
Wonder Boys	Hanson	2000	7.6

Actors

actor	ayear
Cage	1964
Hanks	1956
Maguire	1975
McDormand	1957

Acts

actor	title
Cage	Raising Arizona
Maguire	Spiderman
Maguire	Wonder Boys
McDormand	Fargo
McDormand	Raising Arizona
McDormand	Wonder Boys

Directors

director	dyear
Coen	1954
Hanson	1945
Raimi	1959

- Find Actors who have acted in some Raimi's movie

- Find movies played by the actor Maguire and directed by Raimi

b

Q3: A database is to be constructed for a bank where each customer has: SSN, name, an address that contains Street, City, State and set of telephones for contacting him. Each Account is opened for a customer has a Number, type, open_date and a balance. Each customer can open many accounts and the account has only one owner.

1- Design an ERD for the following and determine a primary key for each Entity
2- Map the Result ERD into a relational model

Menoufia University

Faculty of Electronic Engineering.

Department of Electronics and Electrical Communications

Mid- term examination

Second Year   Subject: Electronic Circuits

Time: 30 minutes   Date: 03 - 04 – 2019

الرقم: الفصل: الاسم:

Part1

Answer the following questions

Q1(10 Marks)

1-a- What is meant by class A amplifier? .

Show that its maximum efficiency is 25%.   (4 Marks)

1- b-For the circuit shown in Fig.1

i -Draw the DC Equivalent circuit and determine the operating point

(I_{CQ}, V_{CEQ}).

ii-Determine the collector current and the collector to emitter voltage for

the circuit at the points of saturation and cutoff with an ac input

$(I_{csat}, V_{ce\ cutoff})$. Assume $X_{c1}=X_{c2}=X_{c3}=0$ and $\beta ac=200$.

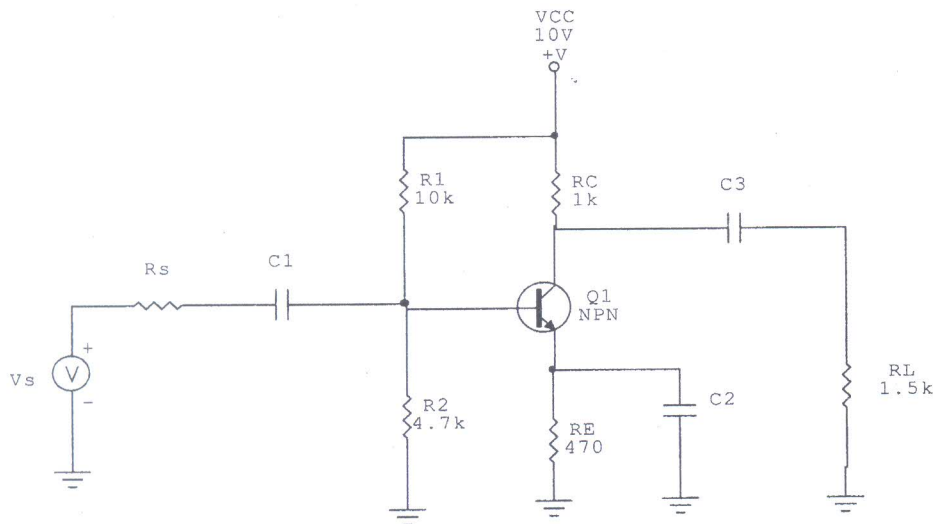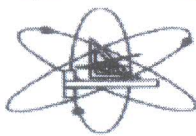iii-Draw the DC and AC load lines.   (6 Marks)

Fig.1

العلاقة التكلفية مدرسة 2019

Menoufia University

Faculty of Electronic Engineering

Department of Industrial Electronics and Control Engineering

Second Year   2018 - 2019

Course Title: Microcontrollers	**Midterm Exam**
Course Code: ACE 225	**Exam Date:** March 31, 2019
Semester: Spring 2019	**Time:** 11:00 AM - 12:00 PM
Course Instructor: Dr. Alaa Khalifa	**Total Marks:** 10
Pages: 2	**Questions:** 2

Question 1: (5 Marks)

(1.1) All upgraded microcontrollers use one of two basic design models called Harvard and von-Neumann architecture. **Compare** between the two architectures. (3 Marks)

(1.2) **Assume** that a certain type of PIC microcontroller has the following specifications:

- 4 K x 14 bit of Flash Program Memory (7 bits for the command and 7 bits for the address)
- 168 bytes of Data Memory (RAM)
- 128 bytes of EEPROM Data Memory
- CPU manufactured with RISC technology
- 8-level deep hardware stack.

Complete the following sentences with the appropriate number:

1) The program counter will contain …… bits.
2) RAM memory will be partitioned into ……... banks.
3) Each level from the stack will contain ……... bits.
4) …… bits of the STATUS register will be used for bank selection.

Question 2: (5 Marks)

A project in which 8 LEDs are connected to PORTB of a PIC16F877A microcontroller, as shown in figure 1. Start push button is connected to pin RA1 of PORTA through a pull-up resistor. When the project is started (or when reset), the LEDs will be switched off. After the operator pressed the start push button, the LEDs will scroll to the left with a 1-second delay between each output. When the left-most LED (bit 7) is lit, the next LED lit is the right-neighbor LED (bit 6). Then, LEDs will scroll to the right with a 1-second delay between each output. This process is repeated until the user press the stop push button (Reset). **Write a code** for this project. This code must use shift left and shift right operators.

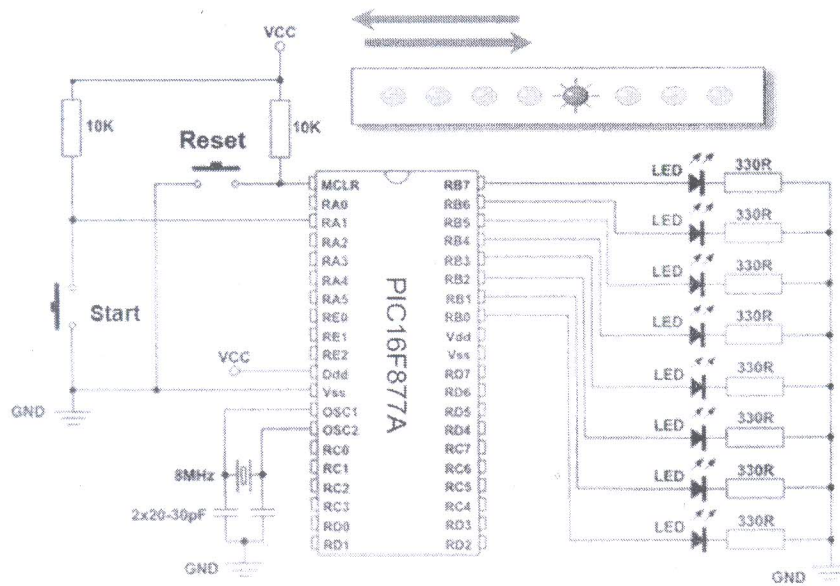**Best Wishes ....**

Alaa Khalifa
March 31, 2019

Figure 1:   Schematic diagram of Question 2.

Menoufia University
Faculty of Electronic Engineering.
Department of Electronics and Electrical Communications
Mid- term examination

Second Year   Subject: Electronic Circuits
Time: 30 minutes   Date: 03 - 04 – 2019

الاسم: الفصل: الرقم:

Part1

Answer the following questions

Q1(10 Marks)

1-a- What is meant by class A amplifier? .
   Show that its maximum efficiency is 25%.   (4 Marks)

1- b-For the circuit shown in Fig.1
   i -Draw the DC Equivalent circuit and determine the operating point
      (I_{CQ}, V_{CEQ}).
   ii-Determine the collector current and the collector to emitter voltage for
      the circuit at the points of saturation and cutoff with an ac input
      (I_{csat}, $V_{ce\ cutoff}$). Assume $X_{c1}=X_{c2}=X_{c3}=0$ and $\beta ac=200$.
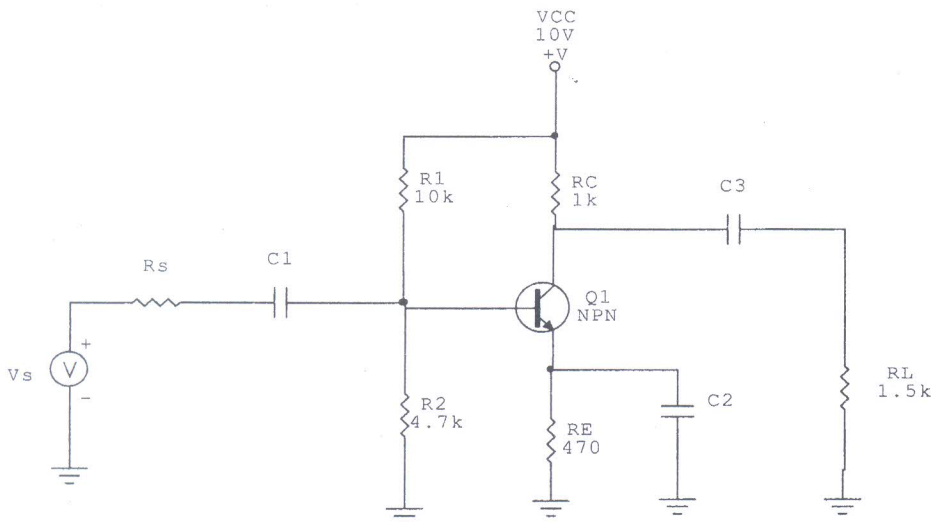   iii-Draw the DC and AC load lines.   (6 Marks)

Fig.1

العربية الثانية

Answer all the following questions: (10 degrees)

Question 1: Choose the correct answer: (5 degrees)

1. Technical writing must (**A.** conveys opinion – **B.** directed - **C.** personal – **D.** dilation)

2. The (**A.** objective – **B.** subject – **C.** purpose – **D.** method) of a technical report is the overall reason for doing the work.

3. The verb that is probably associated with factual statements (**A.** suggested – **B.** thought - **C.** invented – **D.** appear).

4. (**A.** Format – **B.** Purpose – **C.** Style – **D.** Objective) is the way that you write.

5. (**A.** Capital letters – **B.** lower case - **C.** Italics or Roman numerals – **D.** Numbers) can be used for B-heads,

6. A plan or strategy for writing is (**A.** outline– **B.** introduction – **C.** abstract – **D.** purpose)

7. The title page is used to convey (**A**. Author affiliation – **B.** Purpose – **C.** Objectives – **D.** References)

8. (**A.** Nomenclatures – **B.** References – **C.** Outlines – **D.** Appendices) contain information which is important, though in most cases secondary to the purpose of the document

9. The process of gathering facts that can be used to make business decisions is (**A.** Failure Analysis – **B**. Feasibility Study – **C.** Develop Something New – **D.** Research a Mechanism)

10. The (**A.** purpose – **B.** scope – **C.** readership – **D.** objective) of a document is defined by boundaries of what needs to be discussed.

11. The objective is determined by (**A**. government – **B.** reader – **C.** sponsor – **D.** scientists)

12. The objective of most (**A.** analytic – **B.** politic – **C.** economic – **D.** scientific) studies is a finding that adds value to the sponsor or benefits the world

13. The middle of any formal report contains (**A.** procedures – **B.** introduction – **C.** abstract – **D**. recommendations)

14. The most important document that can be written in many industries is (**A.** formal report – **B.** patent – **C.** Informal report – **D.** letters)

15. The documents that concern temporal matters, and they are considered to be transient documents (**A.** formal report – **B.** patent – **C.** papers - **D.** informal report)

16. (**A.** Technical Report – **B**. Patent – **C.** Memoranda – **D.** Published Work) has different forms such as Budget, organization, and management directives

17. (**A.** Bias – **B.** Plagiarism – **C.** Nomenclature – **D.** Acronym) means using another's words without attribution.

18. A technical document is said to be good if it has (**A.** unclear Purpose – **B.** plagiarism – **C.** bias – **D.** cite to other work)

19. To increase the language skills in technical writing, you mustn't use (**A.** Jargon – **B.** concision– **C.** mixed sentences – **D.** active voice)

20. Using (**A.** plagiarism – **B.** bias – **C.** illustrations - **D.** acronym) helps in increasing interesting and reducing reader boredom

Question 2: Choose (A) for TRUE sentences and (B) for FALSE sentence on the following: (5 degrees)

21. Technical writing may be personal.

22. Manuals, instructions, and procedures often have legal/liability implications.

23. Books on technical topics are most often written by academicians.

24. Technical documents aren't often "serious documents".

25. The exact title can be finalized first.

26. Abstract is usually one or two paragraphs.

27. It is better to make the outline with more details.

28. The table of contents is a listing of the main headings of the document.

29. It may be easy to make the studies unbiased.

30. A successful study always result in the achievement of an ultimate goal.

31. The objective of most engineering projects is increased company profit.

32. Objectives are the short-term reasons for writing.

33. Technical document will be formal if it refers to work of others.

34. Laboratory reports are generally a good example of an informal report.

35. An invention can be patented if it is obvious.

36. The highest document in the hierarchy of reports is an e-mail note.

37. The solution to the problem mayn't be stated in a written document.

38. Formal reports should have specific sections.

39. Putting in a skipped line between paragraphs helps readability.

40. You must create an acronym.

الرقم القومي:

يتم كتابة الرقم القومي من اليمين لليسار من أعلى لأسفل طبقا للأسهم. رقم لكل صف. الجانب الأيمن

يتم كتابة الرقم القومي من اليسار لليمين من أعلى لأسفل طبقا للأسهم. رقم لكل صف. الجانب الأيسر

رقم الجلوس:

ملاحظات:

- يتم كتابة الرقم القومي من اليسار الى اليمين من أعلى إلى أسفل طبقا للأسهم . رقم لكل صف.

- يتم تظليل الدوائر بالكامل بدون فواصل أو أي خطوط خارجية

- لا تستخدم ورقة بها كشط او خطوط من التصوير

- اختيار أكثر من اجابة يحتسب خطأ ما لم يتم الاشارة لذلك صراحة في ورقة الأسئلة

1.	A B C D E	11.	A B C D E	21.	A B C D E	31.	A B C D E
2.	A B C D E	12.	A B C D E	22.	A B C D E	32.	A B C D E
3.	A B C D E	13.	A B C D E	23.	A B C D E	33.	A B C D E
4.	A B C D E	14.	A B C D E	24.	A B C D E	34.	A B C D E
5.	A B C D E	15.	A B C D E	25.	A B C D E	35.	A B C D E
6.	A B C D E	16.	A B C D E	26.	A B C D E	36.	A B C D E
7.	A B C D E	17.	A B C D E	27.	A B C D E	37.	A B C D E
8.	A B C D E	18.	A B C D E	28.	A B C D E	38.	A B C D E
9.	A B C D E	19.	A B C D E	29.	A B C D E	39.	A B C D E
10.	A B C D E	20.	A B C D E	30.	A B C D E	40.	A B C D E
41.	A B C D E	51.	A B C D E	61.	A B C D E	71.	A B C D E
42.	A B C D E	52.	A B C D E	62.	A B C D E	72.	A B C D E
43.	A B C D E	53.	A B C D E	63.	A B C D E	73.	A B C D E
44.	A B C D E	54.	A B C D E	64.	A B C D E	74.	A B C D E
45.	A B C D E	55.	A B C D E	65.	A B C D E	75.	A B C D E
46.	A B C D E	56.	A B C D E	66.	A B C D E	76.	A B C D E
47.	A B C D E	57.	A B C D E	67.	A B C D E	77.	A B C D E
48.	A B C D E	58.	A B C D E	68.	A B C D E	78.	A B C D E
49.	A B C D E	59.	A B C D E	69.	A B C D E	79.	A B C D E
50.	A B C D E	60.	A B C D E	70.	A B C D E	80.	A B C D E

A. 0 1 2 3 4 5 6 7 8 9   B. 0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9   0 1 2 3 4 5 6 7 8 9

كلية الهندسة الالكترونية بمنوف

قسم : هندسة الالكترونيات و الاتصالات الكهربية

اسم المادة : دوائر الكترونية الفرقة الثانية

تاريخ الاختبار الأربعاء ٣ ابريل ٢٠١٩

زمن الامتحان : نصف ساعة

امتحان أعمال السنة الفصل الدراسي الثاني- الجزء الثاني (دكتور عادل شاكر الفيشاوي)

Answer all the following questions

1) In a zero-level detector, the output changes state when the input

(a) is positive   (b) is negative   (c) crosses zero   (d) has a zero rate of change.

2) A summing amplifier can have

(a) only one input   (b) only two inputs   (c) only one output   (d) any number of inputs   (e) c and d.

3) For a step input, the output of an integrator is

(a) a pulse   (b) a triangular waveform   (c) a spike   (d) a ramp

4) The rate of change of an integrator's output voltage in response to a step input is set by

(a) the RC time constant   (b) the amplitude of the step input

(c) the current through the capacitor   (d) all of these

5) The output of a differentiator is proportional to

(a) the RC time constant   (b) the rate at which the input is changing

(c) the amplitude of the input   (d) answers (a) and (b)

6) A certain op-amp has an open-loop gain of 80,000. The maximum saturated output levels of this particular device are when the dc supply voltages are If a differential voltage of 0.15 mV rms is applied between the inputs, the peak-to-peak value of the output is ………….

7) If the input to an Op-Amp logarithmic amplifier is x, the output will be equal to ……….

8) In astable timer 555, the maximum voltage across the external capacitor used is …… , while the minimum value is ……...

9) The output voltage of a twin T filter (notch filter) at resonance frequency f_r equals to ……..

10) At resonance frequency f_r , the output voltage of the lead-lag circuit of Wienbridge oscillator is equal to …………. , while the phase equals to ………….

11) The 555 timer can be used as a voltage-controlled oscillator (VCO) by …………

12) A voltage follower

(a) has a gain of 1   (b) is noninverting.   (c) has no feedback resistor   (d) has all of these.

13) If R_i is increased in the circuit of noninverting op-amp, the voltage gain will

(a) increase   (b) decrease   (c) not change.

14) If 10 mV are applied to the input to inverting the op-amp and R_f is increased, the output voltage will

(a) increase   (b) decrease   (c) not change.

15) If A_{ol} equals to 3500 and A_{cm} equals to 0.35, the CMRR is

(a) 1225   (b)10,000   (c) 80 dB   (d) answers (b) and (c).

16) The output of a particular op-amp increases 8 V in 12 μA. The slew rate is

(a) 96 V/ μS   (b) 1.5 V/μS   (c) 0.67 V/μS   (d) none of these.

17) The frequency of oscillation f_r of a sinusoidal oscillator is mainly determined by

(a) voltage gain of the op-amp A_v used   (b) $A_v \beta$ c) the attenuation of the feedback circuit β

(d) the resonant frequency of the feedback circuit   (e) answers (c) and (d).

18) Draw and compare the frequency response of Op-Amp before and after negative feedback.

19) When negative feedback is used, the gain-bandwidth product of an op-amp

(a) increases   (b) decreases   (c) stays the same   (d) fluctuates.

20) For an oscillator to properly start, the gain around the feedback loop must initially be

 (a) less than one   (b) one   (c) greater than one   (d) equal to β.

توقيع أستاذ المادة :

أجب عن جميع الأسئلة الآتية (ورقة ثانيه)

السؤال الأول | 15 درجة |

(i) عبر عن المقدار $\sin^3\theta \cos^3\theta$ بدلالة النسب المثلثية لمضاعفات الزاويه " θ " .

(ii) حول الدالة ذات المتغير المركب الآتية إلي دالة مركبة

$$w = \left| z \right|^2 + 3z - (z + \bar{z})\, e^{\bar{z}}$$

(iii) ابحث عن نقط النهايات للفئة التاليه ووضح إذا كانت نقط النهايات تنتمي إلي " S " أم لا

$$S = \{\, z : z = 2(-1)^n + \frac{n-1}{n^2+2}\, i \quad , \qquad n \in N \,\}$$

السؤال الثاني | 20 درجة |

(i) إدرس إتصال الدالة الآتية عند نقطة الأصل

$$F(z) = \frac{x^3 + i\, y^3}{z\, |z|} \quad , \quad z \neq 0 \quad , \quad F(0) = 0$$

(ii) باستخدام نظرية $C - R$ إدرس قابلية التفاضل للدالة الآتية مع إيجاد $F'(z)$ إن وجدت

$$F(z) = \left| z \right|^2 + 3z - 2\bar{z} + 2i(x^2 - x - y)$$

(iii) أوجد قيمة التكامل الآتي بإستخدام نظرية كوشي للتكامل

$$\oint_C \frac{z^2 + 2}{(z-1)^2(z^2+4)}\, dz \qquad , \qquad \text{(a)}\; C \equiv \left| z \right| = \frac{3}{2} \quad , \quad \text{(b)}\; C \equiv \left| z \right| = 5$$

السؤال الثالث | 15 درجة |

(i) أوجد نصف قطر التقارب ـ مركز التقارب ـ فترة التقارب للمتسلسلة الآتية

$$\sum_{n=0}^{\infty} \frac{1}{4^n} \frac{(n!)}{(n+1)!} (z-3)^n$$

ثم بين قابلية التفاضل للدالة عند النقطتين $z = 8$, $z = 5$

وأوجد $f'(z)$ عند النقطة التي تكون قابلة للتفاضل عندها .

(ii) أوجد قيمة التكامل الآتي باستخدام نظرية البواقي

$$\oint_C \frac{z}{(z+1)(z-1)(z-3)^2}\, dz \qquad , \qquad \text{(a)}\; C \equiv \left| z \right| = 2 \quad , \quad \text{(b)}\; C \equiv \left| z \right| = 4$$

أطيب التمنيات للجميع بالنجاح والتوفيق

ا.د. وداد علي   د. هاني الجوهري

Menufia University
Faculty of Electronic Engineering
Second Term Final Exam
21 May 2015   Part1

Second Year
Mathematics 6
Time Allowed: 3 Hours
From 10 AM to 1 PM

Answer all the following questions:

Question 1: (20 Marks)

a) Find a difference equation to represent the system shown in this Figure having input and output sequence $\{x_k\}$ and $\{y_k\}$ respectively, where D is the unit delay block and a and b are constant feedback gains. Solve this difference equation where $a=-4$, $b=-3$, $y_0=y_1=0$ and $x_k=3^k \ (k\geq 0)$.   (10 Marks)
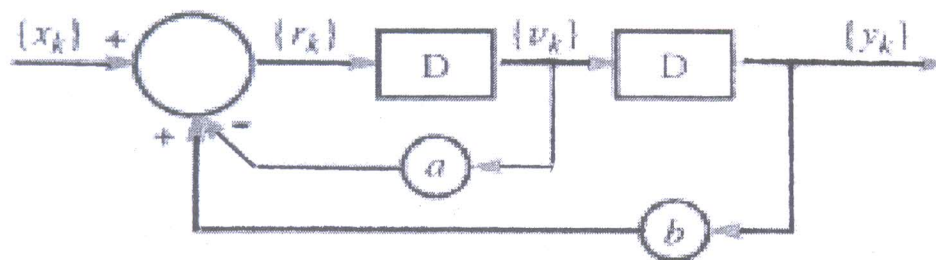
b) The causal sequence $\{x_k\}$ is generated by $x_k=(1/3)^k \ (k\geq 0)$. Determine the Z-transform of the shifted sequence $\{x_{k-3}\}$.   (5 Marks)

c) Determine the convergence region of the sequence $\{x_k\}=2^{-|k|}$ (5 Marks)

Question 2: (15 Marks)

a) Two textbooks are selected at random from a shelf containing three statistics texts, two mathematics texts and three engineering texts. Denoting the number of books selected in each subject by S, M and E respectively, finds: (8 Marks)

(1) The joint distribution of S and M (2) The marginal distributions of S, M and E

b) Find and test the rank correlation for the data in the table: (7 Marks)

X_i	15	18	30	18	16	15	30	35	40	45
Y_i	12	19	12	25	20	35	30	25	30	20

Question 3: (15 Marks)

a) Find the moment generating function of the Poisson distribution and determined the mean and the standard deviation of this function.

$$P(X=k)=\frac{\lambda^k e^{-\lambda}}{k!}, \ (k=0,1,2,\ldots)$$ (8 Marks)

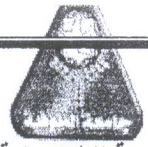b) Find the relation between Laplace and $Z-$transforms where the sampled function is defined as $\hat{f}(t)=\sum_{n=0}^{\infty} f(nt)\,\delta(t-nT)$ (7 Marks)

Look in the part 2

كلية الهندسة الالكترونية بمنوف

قسم : هندسة الالكترونيات و الاتصالات الكهربية

تاريخ الاختبار الأربعاء ٣ ابريل ٢٠١٩

امتحان أعمال السنة الفصل الدراسي الثاني- الجزء الثاني (دكتور عادل شاكرالفيشاوي)

اسم المادة : دوائر الكترونية الفرقة الثانية

زمن الامتحان : نصف ساعة

Answer all the following questions

1) In a zero-level detector, the output changes state when the input

(a) is positive   (b) is negative   (c) crosses zero   (d) has a zero rate of change.

2) A summing amplifier can have

(a) only one input   (b) only two inputs (c) only one output   (d) any number of inputs   (e) c and d.

3) For a step input, the output of an integrator is

(a) a pulse (b) a triangular waveform   (c) a spike   (d) a ramp

4) The rate of change of an integrator's output voltage in response to a step input is set by

(a) the RC time constant   (b) the amplitude of the step input

(c) the current through the capacitor   (d) all of these

5) The output of a differentiator is proportional to

(a) the RC time constant   (b) the rate at which the input is changing

(c) the amplitude of the input   (d) answers (a) and (b)

6) A certain op-amp has an open-loop gain of 80,000. The maximum saturated output levels of this particular device are when the dc supply voltages are If a differential voltage of 0.15 mV rms is applied between the inputs, the peak-to-peak value of the output is ....

7) If the input to an Op-Amp logarithmic amplifier is x, the output will be equal to ....

8) In astable timer 555, the maximum voltage across the external capacitor used is ...... , while the minimum value is ....

9) The output voltage of a twin T filter (notch filter) at resonance frequency f_r equals to ....

10) At resonance frequency f_r , the output voltage of the lead-lag circuit of Wienbridge oscillator is equal to .... , while the phase equals to ....

11) The 555 timer can be used as a voltage-controlled oscillator (VCO) by ....

12) A voltage follower

(a) has a gain of 1   (b) is noninverting.   (c) has no feedback resistor   (d) has all of these.

13) If R_i is increased in the circuit of noninverting op-amp, the voltage gain will

(a) increase   (b) decrease   (c) not change.

14) If 10 mV are applied to the input to inverting the op-amp and R_f is increased, the output voltage will

(a) increase   (b) decrease   (c) not change.

15) If A_{ol} equals to 3500 and A_{cm} equals to 0.35, the CMRR is

(a) 1225   (b)10,000   (c) 80 dB   (d) answers (b) and (c).

16) The output of a particular op-amp increases 8 V in 12 µA. The slew rate is

(a) 96 V/ µS   (b) 1.5 V/µS   (c) 0.67 V/µS   (d) none of these.

17) The frequency of oscillation f_r of a sinusoidal oscillator is mainly determined by

(a) voltage gain of the op-amp A_v used   (b) $A_v \beta$ c) the attenuation of the feedback circuit β

(d) the resonant frequency of the feedback circuit   (e) answers (c) and (d).

18) Draw and compare the frequency response of Op-Amp before and after negative feedback.

19) When negative feedback is used, the gain-bandwidth product of an op-amp

(a) increases   (b) decreases   (c) stays the same   (d) fluctuates.

20) For an oscillator to properly start, the gain around the feedback loop must initially be

(a) less than one   (b) one   (c) greater than one   (d) equal to β.

توقيع أستاذ المادة :

Menoufia University   Faculty of ElectronicEngineering
Dept. of Communications   Third Year
Midterm Exam: Elective Course (Speech Processing)
Time Allowed   1 hour

Answer Five questions only:

1- Explain mathematically the adaptive Wiener filter for speech enhancement.
2- Explain a speech watermarking algorithm.
3- Discuss the steps performed for automatic speaker identification.
4- Compare between speech deconvolution and speech enhancement.
5- Explain an algorithm for blind signal separation that can be used to enhance the quality of speech signals.
6- Explain the steps utilized for speech encryption.
7- Explain mathematically the steps of wavelet denoising.
8- Explain the spectral subtraction method used for speech enhancement.