
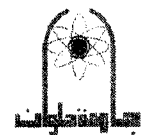


دا حمدي أمين

ماده ورشي الكيرتوسية
الاربطاء ١١٢٠٠١٧

الفرقة اول انصا لات

التفكير

 كلية الهندسة بطنوان	Dept/Division: Electronics, Communications & computers Academic level: First Course code & title: ELC 2112- Workshop Electronic Technology Instructor: Dr. Hamdy Amin Total mark: 90 marks	 جامعة اسيوط
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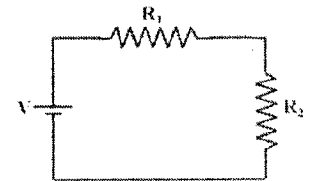
Each Section in every question has **10 Marks** grade

Answer the following questions

1

a) Define each of the following:

- i-Photo Resistor
- ii-Metal films Resistors
- iii- Transformers
- iv-ESR
- v-PTC and NTC



b) Given two resistors ($R_1=15K$ and $R_2=5K$) connected in series, The E series tolerance given as:

E6 series 20% tolerance: $R_i = 10^{i/6}$ where $i = 0, 1, 2, \dots 5$

E12 series 10% tolerance: $R_i = 10^{i/12}$ where $i = 0, 1, 2, \dots 11$

E24 series 5% tolerance: $R_i = 10^{i/24}$ where $i = 0, 1, 2, \dots 23$

i-Determine the color code for each resistor?

ii-Determine the total equivalent resistance with R_1 and R_2 values approximated to E12 series?

c) Explain with drawing the different types of capacitors?

2

a) Compare between Capacitors and Batteries from the point of view of:

- i-Theory of operation
- ii- Type of energy stored
- iii- applications

b) Explain briefly with drawing the theory of the Lechlanche cell and how the energy stored and consumed in the cell? Determine the anode, the cathode, and the solution?

3

a) Explain with drawing the theory of operation of the following:

- i- Metal-Oxide Varistors
- ii-BJT transistors

b) Sketch a block diagram showing the main parts of a dual channel Oscilloscope?

4

a) Write short notes with drawings on Waveform Generator and its applications?

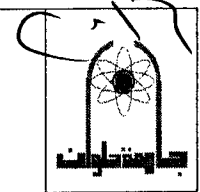
b) Explain briefly with drawing the theory of operation of the following:

- i-741 Op-Amp
- ii-555 Timer

اور اس ارٹیکل سے
 طارہ / الکترونیکس



Dept/Division : : Electronics, Communication and Computer Dept.
 Academic level: 1st year Semester: First 2015/2016
 Course code & title: (ELC 2111) Electronics1 Date: 10/1/2016
 Instructor: Dr. Mohamed Abou Elwafa and Dr. Roaa I. Mubarak
 Total mark: 120 marks Time allowed: 3 hrs



Part1:

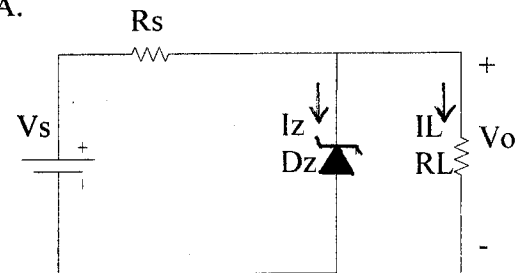
Answer The following Questions:

Question No.1 (20 marks)

- a) Differentiate between:
- The intrinsic and extrinsic semiconductors.
 - Forward and reverse biased p-n junction.
- b) Find the concentrations of holes and electrons in p-type silicon sample at 300°k assuming resistivity is $0.02\Omega\cdot\text{cm}$ ($\mu_n=1300\text{cm}^2/\text{v}\cdot\text{s}$, $\mu_p=500\text{cm}^2/\text{v}\cdot\text{s}$, $n_i=1.5\times 10^{10}\text{cm}^{-3}$, $q=1.6\times 10^{-19}\text{c}$).

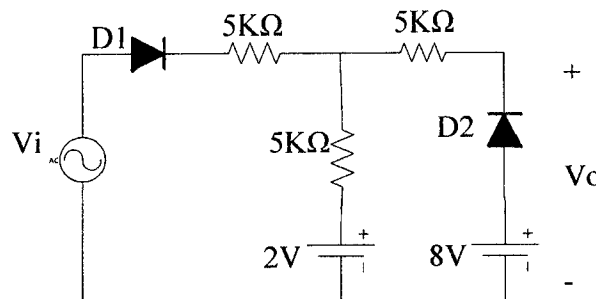
Question No. 2 (20 marks)

- a) Discuss the Light Emitting Diode “LED” and the Photodiode showing their operations, symbols, advantages and the applications.
- b) The circuit shown is used with $R_s=20\Omega$. The 5.6V Zener diode provides regulation for $1\text{mA} \leq I_z \leq 300\text{mA}$ and for a load current of $0 \leq I_L \leq 200\text{mA}$.
- Determine the range of supply voltage V_s .
 - Determine power dissipation rating of Zener diode.
 - If the minimum value of supply voltage has been decreased by 2V. Find V_o with no load and when connecting a load $R_L=2\text{K}\Omega$.



Question No. 3 (20 marks)

- a) What is the rectifier application? Discuss the full-wave rectifier showing the input waveform, output waveform and the transfer characteristics.
- b) The diodes shown in two-level clipper in the following circuit are ideal. Sketch transfer characteristics and indicate the state of each diode.



Part II:

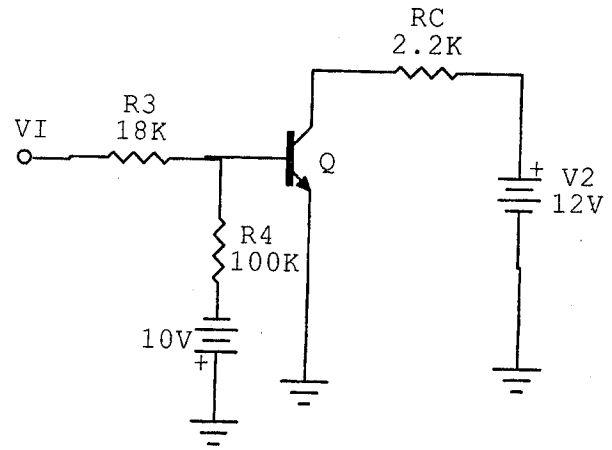
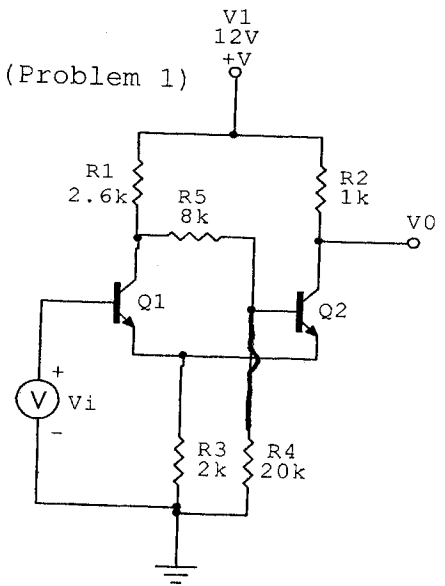
1. Give a clear sketch for the npn BJT input and output characteristics of the common base connection. The sketch should define the three transistor operation modes: Cut off, Active and Saturation.

For the given two-transistor amplifier circuit: $\beta_1 = \beta_2 = 100$.

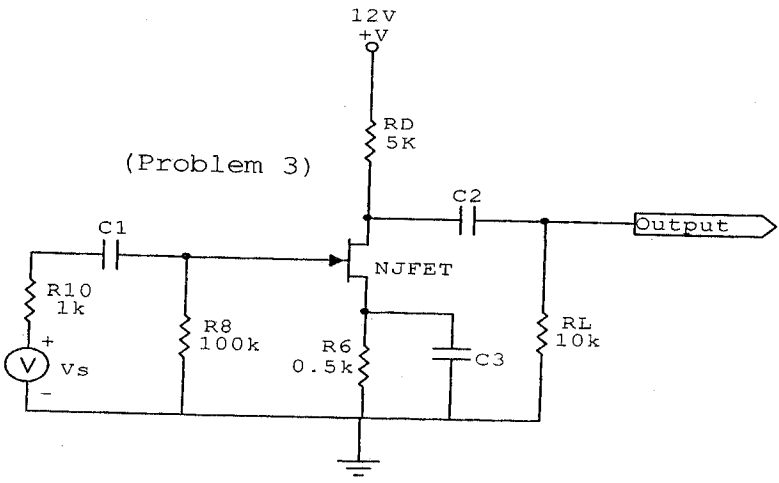
1. Find V_o when $V_i = 0$. Assume Q1 is off and justify the assumption.
2. Find V_o when $V_i = 6V$. Assume Q2 is off and justify the assumption. (25 Point)

2. For the given transistor circuit, $\beta=60$, $V_{BE} = 0.7V$., find the value of V_I to make $V_{CE}=6V$.
If R_C is changed, what is the maximum value for R_C while the transistor is kept active? (15 Point)

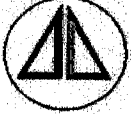
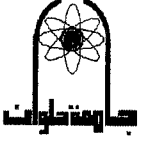
3. State the transistor transfer equation from which find the trans-conductance, g_m .
For the given NJFET amplifier, if $I_{DSS}=6mA$, $V_p=-5V$, find the drain current and the trans-conductance, g_m . Assuming that capacitors have very large capacitance, draw the small signal equivalent circuit and find the small signal voltage gain. (20 Point)



(Problem 2)



Good Luck

 <p>كلية الهندسة بحلوان</p>	<p>Dept/Division : Communications department Academic level: First Semester: First 2015/16 Course code & title: GEN2114 Technical Report Writing Instructor: <i>Drs , Morcos Ghobrial, Azza Barakat and Hussien Abdel Moneam</i> Total mark: 40 mark Time allowed: 2 hrs</p>	
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- **Students must follow the rules of “Technical Report Writing” through answering all questions.**
- **Answer all questions.**

Question (1) [10 Marks]

- a) What are the most commonly used **Patterns of organization** in technical report writing. Describe in details the features of the **Listing pattern**?
 - b) Show the main contents of the **Application letter for admission**?
 - c) What is the purpose of the **Abstract**? Mention its main contents of **information**.
-

Question (2) [10 Marks]

- a) Illustrate steps of the **Full form report** for stating problem.
 - b) Draw a diagram to show the main steps of the **Writing process** for the technical report writing? What are the questions one should fulfill through the stage of “**Draft the document**”?
 - c) What are the specific guidelines used to create effective **Bar charts**.
-

Question (3) [10 Marks]

- a) What are different types of **letter format**? Sketch one of them showing the main parts of letter.
- b) Define “**Page Design**” and state the sources of “**white spaces**”. Support your answer with drawings.

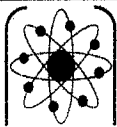
- c) Discuss in details the term “**Proofreading**”. Give two examples for **Homophones words** and put each of them in a sentence?
-

Question (4) [10 Marks]

- a) Sketch the general format of the **Memorandum** (Memo)? Then show the main contents of “ **Progress report** ”.
- b) What are the **Fundamental problems** facing the technical report writers? Discuss in details any two of them.
- c) Show the structure and contents of: **Heading section** for the long informal report and **Title page** for the formal report.
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Good Luck

د. وائل محمد
17/1/16



Helwan University

Department: Telecommunication Engineering.	
Course Title: Electrical Circuit (1)	
Academic Level: First	Semester: First Term 2015/ 2016
Course Code: POW 2113	Total Mark: 100 marks
Instructor(s): Ass. Prof. Dr. A. Serag and, Dr. Ahmed R. Mahran	
Date: 17/1/2016	Time Allowed: 3 Hours



Faculty of Eng. - Helwan

Answer the following questions

Question (1)

(20 marks)

- (A) In the circuit configuration of Fig.(1-A), find the value E which permits a power dissipation of 180 watts in the 20Ω resistor. All value expressed in ohms.
- (B) Find V_o in the circuit given in Fig.(1-B), using Source Transformation.

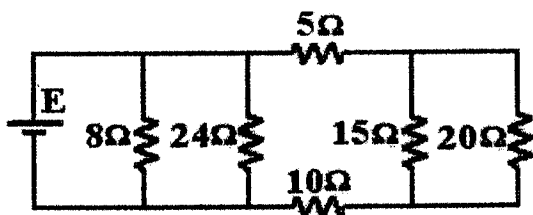


Fig.(1-A)

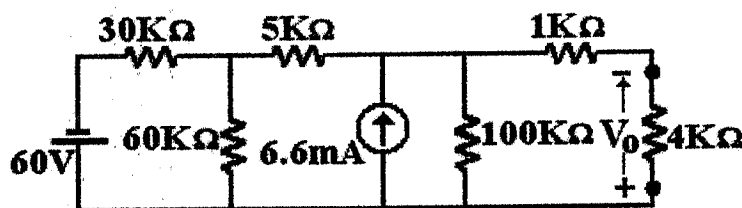


Fig.(1-B)

Question (2)

(20 marks)

- (A) Find the voltage across 1.0Ω resistor of the circuit shown in Fig.(2-A), using Mesh current method.
- (B) For the circuit shown in Fig.(2-B), find the power dissipated in 8Ω resistor and the voltage across 10Ω resistor, using Nodal Analysis Technique.

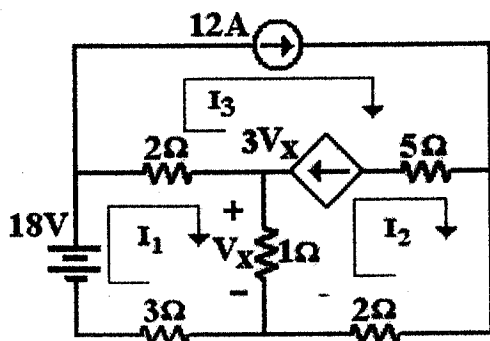


Fig.(2-A)

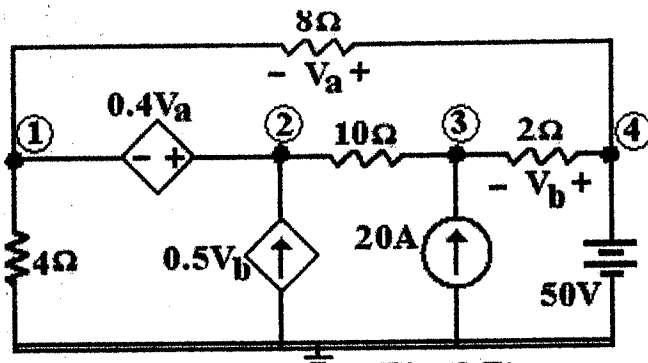


Fig.(2-B)

Question (3)

(15 marks)

The load resistor R_L in the circuit shown in Fig.(3-A), is adjusted until maximum power delivered to R_L . Calculate the value of R_L and the maximum power.

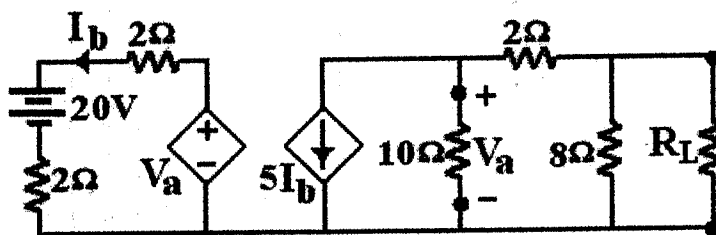


Fig.(3-A)

Question (4)

(25 marks)

(A) The switch in the circuit shown in Fig.(4-A), has been in position (1) for a long time. At $t=0$, the switch S moves instantaneously to position (2). Calculate:

i. $V_C(t)$ for $t \geq 0$

ii. $V_o(t)$ for $t \geq 0^+$

iii. $i_o(t)$ for $t \geq 0^+$

iv. The total energy dissipated in the 240Ω resistor.

(B) The switch S in the circuit shown in Fig.(4-B), has been open for a long time. At $t=0$ the switch S is closed. Calculate:

(a) $i_L(t)$ for $t \geq 0^+$

(b) $V_L(t)$ for $t \geq 0^+$

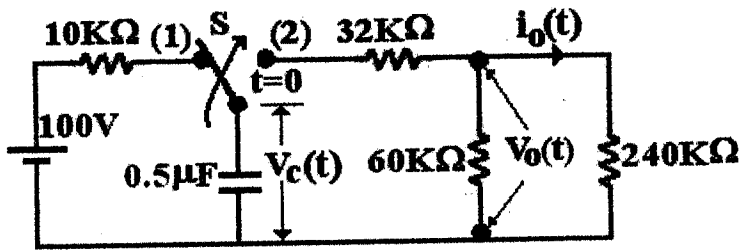


Fig.(4-A)

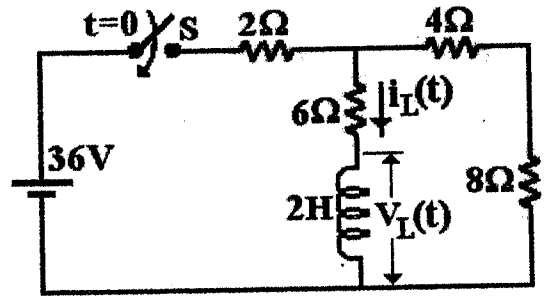


Fig.(4-B)

Question (5)

(20 marks)

(A) An impedance of $Z_1 = 6 - j12 \Omega$ is connected in series with unknown impedance Z to a $100V$, 2000 rad/sec source as shown in Fig.(5-A). Find Z such that the resulting current $I = 5A$ lagging the source voltage by 37° . What is the power dissipated in the circuit.

(B) The phase angle between I_1 and I_2 is 120° , in the circuit shown in Fig.(5-B). Also $E=100V$, $I_1=5A$, $\omega=1000 \text{ rad/sec}$, and $L=0.04H$. Find:

a. The values of R and C ,

b. The source current I_t ,

c. The circuit power factor, and draw the phasor diagram,

d. The equivalent simple series impedance Z_t ,

e. The active power, and the reactive power

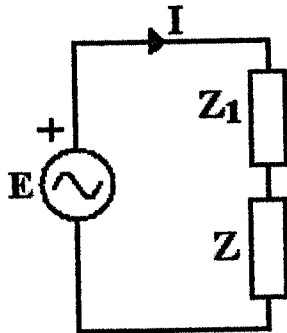


Fig.(5-A)

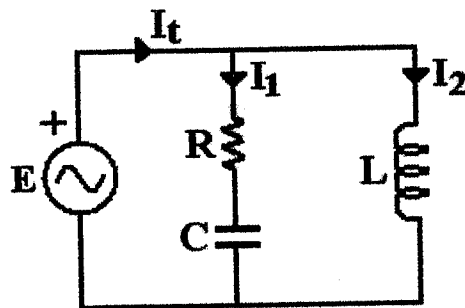


Fig.(5-B)

GOOD LUCK