



Attempt the following questions:

I- Read the following passage and answer the questions below: (30 Marks)

Many companies have computerized their accounting procedures because computers can do the work more quickly and more accurately than people. The work the computer does (storing information, finding the right information and doing calculations) is called data processing. The part of the computer that processes the data (information) is called the CPU (central processing unit). This contains only electronic components, called microchips.

A computer can only do what it is instructed to do. The instructions that are stored in a computer are called the computer programme. The people who write these instructions and put them in the computer are called computer programmers. You do not have to be a computer programmer to use a computer.

The parts of the computer that most people use are called terminals. The terminals are usually a keyboard, which looks like a typewriter, and a VDU (visual display unit), which looks like a television or a printer. Information put into the computer on the keyboard is called input. When the computer shows the result of the data processing on the VDU or the printer, this is called output.

When computers go wrong, it is usually because there is something wrong with the input. In other words, it is a mistake made by a person, not by the computer. This is sometimes called GIGO (Garbage In, Garbage Out). *NB. Garbage* is the American word for the British *rubbish*.

Questions:

- 1- How many paragraphs in the passage?
- 2- What kind of abbreviation is VDU—initialism or acronym?
- 3- Give a suitable title for the last paragraph.
- 4- Is the last paragraph written in British or American English?
- 5- Translate the 1st paragraph into Arabic.

II- Choose the correct answer:

(20 Marks)

- 1- I need to buy.....for my computer. (a)antivirus (b)antiviral (c)antibiotic (d)injection
- 2- I have.....money; I cannot take a taxi. (a)a little (b)little (c)a few (d)few
- 3- I hate his badof smoking cigarettes. (a)tradition (b)custom (c)habit (d)norm
- 4- "AIDS" is an abbreviation known as..... (a) initialism (b)shortening (c)contraction (d) acronym
- 5- This is the of the thief who robbed us. (a)body (b)corpse (c)carcass (d)carcase
- 6- The affix in the verb "dislike" is known as..... (a)an infix (b)a prefix (c)a suffix (d)an affix
- 7- We lost our keys.....the books. (a)between (b)amid (c)among (d)amidst
- 8-the oil before driving your car. (a)Cheque (b)Chick (c)Chicken (d)Check
- 9- He is very sick. He.....go out. (a)can't (b)cannot (c)can not (d) could not
- 10- It is our.....to defend our country. (a)work (b) homework (c)housework (d)duty

III- Translate 5 abbreviations *Only* into both English & Arabic:

(10 Marks)

ATM BBC CNN DNA ESL IQ MENA TOEFL UNESCO WHO

=====**Good Luck**=====

Dr Khaled Sirwah



Electronics : اسم المقرر : 2020/2019 امتحان الفرقة : الاولى حاسبات (Bioinformatics) للعام الدراسي
الدرجة : 60 درجة الترم الاول الزمن : 3 ساعة

يتم الاجابة عن هذا الجزء في نفس الورقة

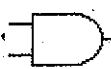


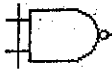
Second Part

Answer the following questions

(30 degree)

Choose the correct answer with an explanation if found:

<p>1- A diode has</p> <p>a) one terminal b) two terminals c) three terminals d) four terminals</p>	<p>2- A zener diode is always connected.</p> <p>a) reverse - forward b) forward- reverse c) either reverse or forward d) none of the above</p>																														
<p>3- Which of the following statements does not represent ohm's law?</p> <p>a) current / potential difference = constant b) potential difference / current = constant c) potential difference = current x resistance d) none of the above</p>	<p>4- Smoothing circuit do not used in rectifiers.</p> <p>a) True b) False</p>																														
<p>5- A transistor has</p> <p>a) one terminal b) two terminals c) three terminals d) four terminals</p>	<p>6- The collector of a transistor is doped</p> <p>a) heavily b) moderately c) lightly d) none of the above</p>																														
<p>7- Which logic gate has the following truth table</p> <p>a) An exclusive NOR gate. b) A two input OR gate. c) An exclusive OR gate. d) A two-input AND gate.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>A</th> <th>B</th> <th>Out</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	A	B	Out	0	0	0	1	0	0	0	1	0	1	1	1	<p>8- Which logic gate has the following truth table</p> <p>a) An exclusive NOR gate. b) A two-input NOR gate. c) An exclusive OR gate. d) A two-input NAND gate.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>A</th> <th>B</th> <th>Out</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	A	B	Out	0	0	1	1	0	0	0	1	0	1	1	0
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<p>9. Minority carriers in p-channel FET are:</p> <p>a) electrons b) holes c) electrons and holes d) none of the above</p>	<p>10. In PNP transistor, the base is :</p> <p>a) L-semiconductor b) P-semiconductor c) P-semiconductor and N-semiconductor d) none of the above</p>																														
<p>11. Output voltage can be limited bigger than 0.7 by</p> <p>a) voltage dropper b) diode limiter c) diode rectifier d) None of the above</p>	<p>12. A semiconductor is formed by bonds.</p> <p>a) Ionic b) Electrovalent c) Co-ordinate d) None of the above</p>																														

<p>13- Transistor as amplifier can be</p> <p>a) common emitter b) common collector c) common base d) all of the above</p>	<p>14- Gate that is also known as inverter is called</p> <p>a) OR b) NOT c) XOR d) NAND</p>
<p>15- The β_{dc} of the transistor is the ratio of I_c and I_e</p> <p>a) True b) False</p>	<p>16- The input control parameter of a JFET is</p> <p>a) gate drain voltage b) source voltage c) drain voltage d) none of the above</p>
<p>17- A crystal diode utilises characteristic for rectification</p> <p>a) reverse - forward b) forward- reverse c) either reverse or forward d) none of the above</p>	<p>18- The current across a pn junction is due to</p> <p>a) Minority carriers b) Majority carriers c) Junction capacitance d) None of the above</p>
<p>19- Symbol of transistor</p> <p>a) PPN transistor b) NPN transistor c) PNP transistor d) none of the above</p>	<p>20- A MOSFET has terminals</p> <p>a) two b) five c) four d) none of the above</p>
<p>21- The Emitter-base junction in a transistor has always</p> <p>a) forward bias b) reverse bias c) low resistance d) none of the above</p>	<p>22- The element that has the biggest size in a transistor is</p> <p>a) collector b) base c) emitter d) collector-base-junction</p>
<p>23- The number of holes in an intrinsic semiconductor is</p> <p>a) twice number of free electrons b) Greater than number of free electrons c) Less than number of free electrons d) None of the above</p>	<p>24- The arrow in the symbol of a transistor indicates the direction of</p> <p>a) electron current in the emitter b) electron current in the collector c) hole current in the emitter d) donor ion current</p>
<p>25- The inverting input is pin 3</p> <p>a) True b) False</p>	<p>26- Depletion layer is caused by</p> <p>a) Doping b) Barrier potential c) Ions d) None of the above</p>
<p>27- Avalanche in Diode occurs at</p> <p>a) Barrier potential b) Depletion layer c) Knee voltage d) None of the above</p>	<p>28- The ideal output impedance for an operational amplifier is 0Ω</p> <p>a) True b) False</p>
<p>29- When transistors are used in digital circuits they usually operate in the</p> <p>a) active region b) breakdown region c) saturation and cutoff regions d) linear region</p>	<p>30- Which of the figures shown below represents the exclusive-NOT-OR gate?</p> <p>a.  b.  c.  d. </p>

End of the test

With my best wishes



Answer the following Questions

Q1. (15 Marks)

[1] Simply the following; give your answer without negative exponents.

a) $x^6 x^{-3}$

b) $\frac{x^{-1} y^2}{z^{-3}}$

c) $\frac{x^2 - x - 6}{x^2 - 6x + 9}$

[2] Factorize the following

a) $3x^2 - 18x + 27$

b) $2x^2 - 12x + 16$

c) $x^2 + 8x + 16$

Q2. Use Cramer's rule to solve the following. (15 Marks)

$$x - 2y + z = 1$$

$$3x + y - 2z = 4$$

$$y - z = 1$$

Q3. Find the Derivatives for the following: (15 Marks)

a) $3\sqrt{x} + 2x - \frac{8}{x}$

b) $\frac{x^3}{e^x}$

Q4. (15 Marks)

[1] Find the Integration for the following:

a) $\int x^4 dx$

b) $\int e^{-2x} dx$

c) $\int (x^3 + \sin x) dx$

[2] Find the midpoint of a line segment whose endpoints have coordinates of (3, 9) and (11, 5)?

With my best wishes;

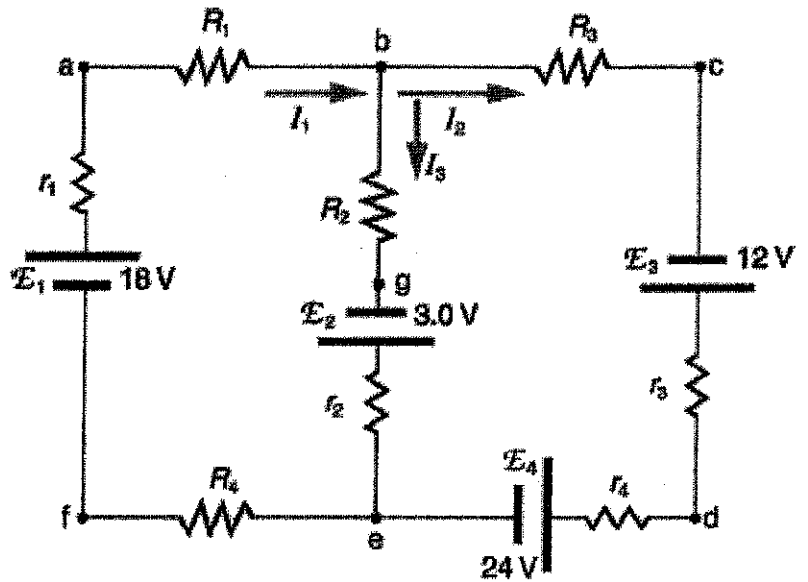
Dr. Haitham Samy ELwahsh

First Part

(30 degree)

Answer the following questions:

1. Find the currents flowing in the circuit8 (Assume the resistances are $R_1 = 15 \Omega$, $R_2 = 12 \Omega$, $R_3 = 20 \Omega$, $R_4 = 8 \Omega$, $r_1 = 0.5 \Omega$, $r_2 = 0.75 \Omega$, $r_3 = 0.25 \Omega$, and $r_4 = 0.25 \Omega$)



2. Prove that $J = nqv$
3. Write short notes about:
 - a. Crystal Diode Equivalent Circuits.
 - b. voltage limiter.
 - c. Rectifiers.
4. When a small amount, say, a few parts per million (ppm), of a suitable impurity is added to the pure semiconductor, the conductivity of the semiconductor is increased manifold. Discuss this in details.
5. Compare between the bipolar junction transistor and field effect transistor showing types of them and the characteristic curves.
6. Operational Amplifier (OP-Amp) is multifunction device, explain this sentence?

Please see the second part



Kafrelsheikh University

Mathematics 1

Time: 3 Hours

Faculty of Computers & Information

First year

Bio Informatics Tech. The first semester exam (2019-2020)

Date: 31-12-2019

Answer the following questions

1- (a) let $y = (x+1)(x^2 + 3)$ Find $\frac{dy}{dx}$.

(b) Let $f(x) = \sqrt{x+7} - \sqrt{x^2 + 2x - 15}$. Find the domain of f .

2- (a) Let $f(x) = \frac{2x+1}{x^2+1}$. Find the range of f .

(b) Let ε and L be the ellipse and the line given by $2x^2 + y^2 = 6$ and $x + 2y - 3 = 0$ respectively. Find $\varepsilon \cap L$.

3- (a) If $f(x) = x+1$ and $g(x) = \sqrt{x}$ Find the domain of $(g \circ f)$.

(b) Let $f(x) = \frac{1}{x}$. Find $\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$.

4- (a) Let $y = \frac{x^2 + 3x - 4}{2x + 1}$. Find $\frac{dy}{dx}$.

(b) Find the area of the region bounded by $f(x) = \sqrt{x}$ and the above the x-axis from $x = 0$ to $x = 1$.

(c) Choose the correct answer: let $y = \frac{2x^2 - 3}{\sqrt{x}}$. Then $\frac{dy}{dx} = \dots\dots\dots$

(a) $3x + \frac{3}{x\sqrt{x}}$

(b) $3 + \frac{3}{2\sqrt{2x}}$

(c) $3 + \frac{3}{2x\sqrt{x}}$

*With my best wishes
Prof. Dr. Osama Abo-Seida*