Menoufiya University
Faculty of Engineering
Shebin El-Kom
Final Exam
Academic Year: 2017-2018 $\quad \cdots$ Department: Electrical Engineering.

| Remarks: <br> Assume any required data | No. of questions: 6 | Allowed Tables and Charts: (None) |
| :--- | :--- | :--- |

أبب عن الأسنلة التالية ( 100 درجة) Answer the following Questions [100Mark]
Ouestion (1) (20Marks) Marks

| [a] | Discus the fault finding procedure in power electronic circ each section of the circuit? | s and fault clearance steps for | [7] |
| :---: | :---: | :---: | :---: |
| [b] | The thyristor in fig. (1), is used to control power delivered to the load, supply voltage is DC source with 300 V , maximum allowable di/dt and dv/dt for thristor are $60 \mathrm{a} / \mathrm{\mu sec}$ and $250 \mathrm{v} / \mu \mathrm{sec}$ respectively. Determine the values of the inductor and snubber circuit components Rs and Cs. | Fig. 1 | [13] |

## Question (2)

(25Marks)
Marks

| [a] | Write the tests must be used to check forced com electronic circuits, after complete the circuit des | n controlled switches of power | [5] |
| :---: | :---: | :---: | :---: |
| [b] | A full bridge single phase inverter shown in fig. 2 used to fed a load with 1 Kw , supplied from solar cell system. the load parameters are: 220 volt, 50 Hz , at duty cycle with turn on time 0.01 sec . for all switches, power factor 0.85 and ripple voltage $5 \%$ of output and ripple current is $20 \%$ of load current. Assume the transformer loaded by $80 \%$ of full load power. design the inverter to choose all switches data and inductance, capacitor at output terminals. | Fig. 2 | [20] |

uestion (3)
(25Marks)
Marks


## Question (4)

[a] Write the classification of different type of DC chopper?
We wish to charge a 120 v battery from a 600 v source Using step-down dc chopper. The average battery current Should be 20 A , as shown in fig 4 ., with a peak to peak ripple current of 2 A . If the chopper switching frequency is 200 Hz . Calculate:

- The de current drawing from source
- DC current in the diode - The duty cycle
- The inductance of the inductor


| Field | National Academic Reference Standard(NARS) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Knowledge \& Understanding |  |  |  | Intellectual Skills | Professional Skills |  |  | General Skills |
| Course ILOs | a-4-1 | a-8-1 | a-8-2 | a-19-1 | b-2-1 | c-13-1 | c-13-2 | c-17-1 | ----- |
| Question No. | $\begin{aligned} & \text { 1(a), } \\ & 3(\mathrm{~b}) \end{aligned}$ | $\begin{aligned} & \text { l(b), } \\ & 3(a), \\ & \text { 4(a), } \end{aligned}$ | $\begin{aligned} & 1(\mathrm{~b}), \\ & 2(\mathrm{a}, \mathrm{~b}), \\ & 4(\mathrm{a}, \mathrm{~b}), \end{aligned}$ | $\begin{aligned} & \text { 2(a), } \\ & 3(\mathrm{a}), \end{aligned}$ | 3(a), | $\begin{aligned} & 1(\mathrm{~b}), \\ & 2(\mathrm{a}) \end{aligned}$ | 3(b), | $\begin{aligned} & 2(\mathrm{a}), 3(\mathrm{a}), \\ & 4(\mathrm{~b}), \end{aligned}$ | ------ |

انتهت الأسئةّ مع أطيب الأمنيات بالتوفيق

