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**Question Paper Code: 45503**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Electronics and Instrumentation Engineering

14UEI503 - INDUSTRIAL ELECTRONICS

(Regulation 2014)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

- For very high and ultra high frequency applications which of the following is preferred  
(a) SIT                      (b) IGBT                      (c) MOSFET                      (d) BJT
- Power MOSFET is a  
(a) Voltage controlled device                      (b) Current controlled device  
(c) Frequency controlled device                      (d) None of the above
- The converter that can operate in both 3 phase and 6 phase is  
(a) 6 phase full converter                      (b) 6 phase semi converter  
(c) 3 phase full converter                      (d) 3 phase semi converter
- Maximum power is transferred when load impedance is  
(a) equal to zero  
(b) equal to source resistance  
(c) equal to half of the source resistance  
(d) none of the above
- A single phase full bridge inverter can be operated in load commutation mode in case load consist of  
(a) RL                      (b) RLC underdamped  
(c) RLC over damped                      (d) RLC critically damped

6. Dot conversion in coupled circuits is used
- (a) to determine the polarity of the self induced voltage in coils
  - (b) to determine the polarity of the mutually induced voltage in coils
  - (c) to measure the mutual inductance
  - (d) to measure the mutual inductance
7. The time constant of a series RC circuit is
- (a)  $R/C$
  - (b)  $e^{-RC}$
  - (c)  $1/RC$
  - (d)  $RC$
8. Inductor does not allow sudden changes
- (a) in voltages
  - (b) in currents
  - (c) in both (a) & (b)
  - (d) none of the above
9. Which of the following is used in heat sink
- (a) iron
  - (b) aluminium
  - (c) silver
  - (d) carbon
10. An SMPS circuit operating at 20 kHz to 100 kHz range uses which of the following elements
- (a) Thyristor
  - (b) TRIAC
  - (c) UJT
  - (d) MOSFET

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Discuss the transfer, output and switching characteristics of power MOSFET. (8)
12. With neat sketch, explain the working principle of cyclo converters. (8)
13. Draw and explain the circuit diagram of series and parallel inverter. Describe its working principle. (8)
14. Explain the operation of chopper based four quadrant separately excited D.C motor drive. (8)
15. Explain in details about induction heating and dielectric heating with neat sketch. (8)