



BRAINWARE UNIVERSITY

Term End Examination 2022

Programme – Dip.ECE-2019

Course Name – Industrial Electronics I

Course Code - DECE504

(Semester V)

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Barasat, Kolkata -700125

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15 = 15

1. Choose the correct alternative from the following :

- (i) A fully controlled converter uses
- a) diodes only
b) thyristors only
c) both diodes and thyristors
d) none of these
- (ii) For a single phase, full bridge, diode rectifier excited from a 230 V, 50 Hz source. With $R = 10$ ohm & the inductance(L) large enough to maintain continuous conduction, the value of the supply power factor will be
- a) 0.707 lag
b) 0.9 lag
c) 0.86 lag
d) Unity
- (iii) Which of the following devices does not belong to the transistor family?
- a) IGBT
b) MOSFET
c) GTO
d) BJT
- (iv) A power transistor is a
- a) three layer, three junction device
b) three layer, two junction device
c) two layer, one junction device
d) four layer, three junction device
- (v) In a power transistor, _____ is the controlled parameter.
- a) VCE
b) VBE
c) IB
d) IC
- (vi) A power BJT is used as a power control switch by biasing it in the cut off region (off state) or in the saturation region (on state). In the on state
- a) both the base-emitter & base-collector junctions are forward biased
b) the base-emitter junction is reverse biased, and the base collector junction is forward biased
c) the base-emitter junction is forward biased, and the base collector junction is reversed biased
d) both the base-collector & the base-emitter junctions are reversed biased
- (vii) For a power transistor, if the forward current gain $\alpha = 0.97$, then $\beta = ?$

a) 0.03

b) 2.03

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loss?

- 10. What is GTO? (5)
- 11. Draw and explain the V-I characteristics of an SCR. (5)
- 12. With suitable waveforms explain the operation of a single-phase uncontrolled rectifier with R-L load. (5)

OR

Explain the operation of a single-phase controlled bridge converter connected with R-L load. (5)

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