

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018–19 Examination

Semester: 4
Subject Code: 03106254
Subject Name: Industrial Electronics-I

Date: 06/05/2019
Time: 02:00pm to 04:30pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Fill in the blanks, one word answer, MCQ-not more than Five in case of MCQ) (All are compulsory) (Each of one mark) (15)

1. In 1-phase full converter with RL load, if input supply voltage is $325.2\sin\omega t$ then output RMS voltage is
(a) 325.2 volt (b) 460 volt
(c) 230 volt (d) 187.7 volt
2. V_{LDC} of 1-phase full wave controlled rectifier for R load is
(a) $(2V_m/\pi)(\cos\alpha)$ (b) $(V_m/2\pi)(1+\cos\alpha)$
(c) $(V_m/\pi)(1+\cos\alpha)$ (d) $(V_m/\pi)(\cos\alpha)$
3. di/dt protection for an SCR is achieved by using
(a) R in series with SCR (b) R across SCR
(c) L in series with SCR (d) L across SCR
4. For $\alpha < 90^\circ$ and $\alpha > 90^\circ$, phase controlled rectifier respectively works as a
(a) Inverter and rectifier (b) Rectifier and inverter
(c) Only rectifier (d) Only inverter
5. Ideally form factor (FF) should be _____ and ripple factor (RF) should be _____
(a) 1 and 0 (b) 0 and 1
(c) 1 and 1 (d) 0 and 0
6. Choose the correct statement:
(a) Both MOSFET and BJT are voltage controlled devices (b) Both MOSFET and BJT are current controlled devices
(c) MOSFET is a voltage controlled devices whereas BJT is a current controlled devices (d) MOSFET is a current controlled devices whereas BJT is a voltage controlled devices
7. Thyristors can be turned off by
(a) Reducing the gate current (b) Reducing the current below the holding current
(c) Applying the negative voltage to the anode of the device (d) b and c both
8. For UJT employed for triggering an SCR, stand-off ratio $\eta = 0.64$ and dc source voltage V_{BB} is 20 V. The UJT would trigger when the emitter voltage is (voltage drop across the diode is 0.7 V)
(a) 12.8 V (b) 10 V
(c) 5 V (d) 13.5 V
9. In three phase full converter, three SCRs pertaining to one group are fired at an interval of
(a) 120° (b) 60°
(c) 90° (d) 30°
10. In three phase full converter, the output voltage pulsates at a frequency equal to
(a) f (b) 3f
(c) 6f (d) 2f
11. What is the input voltage required in step up chopper for output voltage of 400 V with duty cycle of 40%?
(a) 1000 V (b) 160 V
(c) 240 V (d) 400 V
12. The half bridge SMPS is fed from 100 V dc source to deliver the load voltage with duty cycle of 60%, then output voltage is
(a) 60 V (b) 100 V
(c) 30 V (d) 50 V

