

**Total Pages – 3      I—Sem/COMMON/2017 (W)  
(New)(Ex-Reg)**

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**BASIC ELECTRONICS**

**(Code—BET-102)**

**Full Marks : 70**

**Time : 3 hours**

**Answer any five questions**

*Figures in the right-hand margin indicate marks*

- 1. (a) What is electronics ? 2
- (b) What is filter ? Describe working of  $\Pi$  filter with a neat circuit diagram. 5
- (c) Classify solid with respect to energy band diagram. 7
  
- 2. (a) What is work function and why it is essential ? 2
- (b) Describe operation and its working of NPN transistor with neat diagram. 5

- (c) What is emission ? Describe different types of emission. 7
  
- 3. (a) What is PIV ? 2
- (b) Describe the operation and working of full wave bridge rectifier with neat circuit diagram. 5
- (c) Explain the working principle of tunnel diode with its application and advantages. 7
  
- 4. (a) What is the need of stabilization ? 2
- (b) Describe V-I characteristic of P-N junction diode. 5
- (c) Derive the relation between  $\alpha$ ,  $\beta$  and  $\gamma$ . 7
  
- 5. (a) What is transistor biasing and what are the different methods of biasing ? 2
- (b) Explain block diagram of dc regulated power supply and explain the function of each block. 5

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- (c) Explain essential of transistor oscillator with a neat block diagram. 7
6. (a) What is transducer? 2
- (b) Explain P type and N type semiconductor. 5
- (c) Describe working principle of JFET and give its characteristics and applications. 7
7. (a) What is the need of modulation? 2
- (b) Explain working of thermocouple with a neat diagram. 5
- (c) What is modulation? Explain AM and FM with its waveform. 7

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