



SLR-TX – 15

Seat No.	
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Set	<b>P</b>
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**F.E. (Part – II) (New CBCS) Examination, 2018  
BASIC ELECTRONICS**

Day and Date : Thursday, 22-11-2018  
Time : 10.00 a.m. to 12.00 noon

Total Marks : 35

- Instructions :**
- 1) **All questions are compulsory.**
  - 2) **Assume suitable data if required.**
  - 3) **Figures to the right indicate maximum marks.**
  - 4) **Q. No. 1 is compulsory. It should be solved in first 15 minutes in Answer Book Page No. 3. Each question carries one mark.**
  - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

**MCQ/Objective Type Questions**

Duration : 15 Minutes

Marks : 7

1. Choose the correct answer :

- 1) A pentavalent impurity has \_\_\_\_\_ valence electrons.
  - a) 3
  - b) 5
  - c) 4
  - d) 6
- 2) A Zener diode is used as
  - a) An amplifier
  - b) A transducer
  - c) A voltage regulator
  - d) A multivibrator
- 3) The maximum efficiency of half wave rectifier is
  - a) 40.6%
  - b) 81.2%
  - c) 50%
  - d) 25%

P.T.O.



- 4) A transistor has
- One PN junction
  - Two PN junction
  - Three PN junction
  - Four PN junction
- 5) In a transistor
- $I_C = I_E + I_B$
  - $I_E = I_C - I_B$
  - $I_B = I_C + I_E$
  - $I_E = I_C + I_B$
- 6) Thermocouple is a \_\_\_\_\_ transducer and used for measurement of
- Passive, Temperature
  - Active, Light sensitivity
  - Active, Displacement
  - Active, Temperature
- 7) The binary number 10101 is equivalent to decimal number
- 19
  - 12
  - 27
  - 21
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Time : 10.00 a.m. to 12.00 noon

Marks : 28

- Instructions :** 1) *All questions are compulsory.*  
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3) *Assume suitable data if required.*

SECTION – I

2. Attempt **any two** : **(2×3=6)**

- 1) Explain capacitor filter for bridge rectifier with suitable circuit diagram and waveforms.
- 2) Explain application of transistor as a switch.
- 3) Explain difference between half wave and full wave rectifier with circuit diagram and waveforms.

3. Attempt **any two** : **(2×4=8)**

- 1) Explain zener as a voltage regulator with neat diagram.
- 2) Explain input and output characteristics of common base configuration of transistor.
- 3) Draw and explain common anode LED display along with truth table.

SECTION – II

4. Attempt **any two** : **(2×3=6)**

- 1) State and prove De-Morgan's theorem.
- 2) Briefly explain the principle of operation of LVDT with suitable diagram.
- 3) Simplify the following Boolean expression  
$$\overline{A}B + A\overline{B}C + ABCD + ABC\overline{D}$$

**Set P**



5. Attempt **any two** :

**(2×4=8)**

- 1) Realize basic gates using universal gates.
  - 2) Perform following subtraction using 2's complement method and represent the result in octal number system.
    - i)  $(756)_8 - (637)_8$
    - ii)  $(10011)_2 - (10001)_2$
  - 3) Write a short note on the following :
    - a) Thermistor
    - b) LDR.
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Set	<b>Q</b>
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**MCQ/Objective Type Questions**

Duration : 15 Minutes

Marks : 7

1. Choose the correct answer :

- 1) A transistor has
  - a) One PN junction
  - b) Two PN junction
  - c) Three PN junction
  - d) Four PN junction
- 2) In a transistor
  - a)  $I_C = I_E + I_B$
  - b)  $I_E = I_C - I_B$
  - c)  $I_B = I_C + I_E$
  - d)  $I_E = I_C + I_B$
- 3) Thermocouple is a \_\_\_\_\_ transducer and used for measurement of
  - a) Passive, Temperature
  - b) Active, Light sensitivity
  - c) Active, Displacement
  - d) Active, Temperature

P.T.O.



- 4) The binary number 10101 is equivalent to decimal number
- a) 19
  - b) 12
  - c) 27
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- 5) A pentavalent impurity has \_\_\_\_\_ valence electrons.
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- 7) The maximum efficiency of half wave rectifier is
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- 3) Draw and explain common anode LED display along with truth table.

SECTION – II

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- 1) State and prove De-Morgan's theorem.
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$$\overline{A}B + A\overline{B}C + ABCD + ABC\overline{D}$$

**Set Q**



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**(2×4=8)**

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    - i)  $(756)_8 - (637)_8$
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**MCQ/Objective Type Questions**

Duration : 15 Minutes

Marks : 7

1. Choose the correct answer :

- 1) Thermocouple is a \_\_\_\_\_ transducer and used for measurement of
  - a) Passive, Temperature
  - b) Active, Light sensitivity
  - c) Active, Displacement
  - d) Active, Temperature
- 2) The binary number 10101 is equivalent to decimal number
  - a) 19
  - b) 12
  - c) 27
  - d) 21
- 3) A pentavalent impurity has \_\_\_\_\_ valence electrons.
  - a) 3
  - b) 5
  - c) 4
  - d) 6

P.T.O.



- 4) A Zener diode is used as
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  - b) A transducer
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**Set R**



5. Attempt **any two** :

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**MCQ/Objective Type Questions**

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P.T.O.



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**Set S**



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