BIRLA INDUSTRIAL & TECHNOLOGICAL MUSEUM
(A unit of National Council of Science Museums)
19A, Gurusaday Road, Kolkata – 700 019

Written Test for recruitment of Technician 'A' (Electronics) at BITM, Kolkata

Date: 03.03.2023

Marks: 30
Time: 1 hour

Roll No: _____ Signature: _____

General Instructions:

1. All questions in Section 'A' are compulsory.
2. To answer objective type questions put a (√) mark on the correct answer in the question paper itself from the 3 alternatives given below against each question.
3. To change answer, put (X) on previous answer and (√) the fresh answer.
4. Smart phone/smart watch are to be put on switched off mode in the examination hall.
5. There is no negative marking.

Section – 'A'

Select the right alternative: **(10 X 1) = 10**

1. In a pure Inductor the Current lags Voltage by:

a. 90° b. 180° c. 270°

2. A Capacitor stores energy in the form of:

a. Current b. Voltage c. Depends on DC Resistance across the terminals

3. A Rectifier Diode has a Peak Inverse Voltage (PIV) of 12 Volts:

a. Forward current will start flowing if it is forward biased with 5 Volts

b. Forward current will start flowing if it is reverse biased with a Voltage of 5 Volts

c. None of the above

4. Other than rectifiers, Semiconductor Diodes are also used in:

a. Shift Registers b. Envelope Detectors c. Low Pass Filters

5. BJT can be used for:

a. Current Amplification b. Amplitude Modulation c. Both the above

6. Uni Junction Transistors used to have:

   a. Negative Resistance Region in its Current vs. Voltage characteristics

   b. Energy Storage ability in its junction

   c. Temperature Independent Functioning

7. MOSFET stands for:

   a. Metal Oxide Semiconductor Forward Effect Transistor

   b. Multiple Oxide Semiconductor Forward Effect Transistor

   c. Metal Oxide Semiconductor Field Effect Transistor

8. For a Switching Circuit that operates in 10 MHz, you will prefer to use:

   a. A BJT over a MOSFET

   b. Both BJT and MOSFET with equal preference

   c. A MOSFET over a BJT

9. MOSFET is an example of a:

   a. Voltage Controlled Device

   b. Current Controlled Device

   c. Magnetically Coupled Device

10. All other Digital Logic Gates can be designed with the help of:

   a. NAND Gates, not NOR Gates

   b. NOR Gates, not NAND Gates

   c. Both NAND Gates and NOR Gates

Section – 'B'

Write Short Notes on any 5 of the Following: **(5 X 4) = 20**

1. Name of at least 4 different types of Diodes along with their application
2. Design OR Gate using NAND Gate
3. Design AND Gate using NOR Gate
4. Symbol and Truth Table of XOR Gate
5. Switched Mode Power Supply
6. Bluetooth Audio Amplifier