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GA—118—2023

FACULTY OF SCIENCE

B.Sc. (First Year) (Second Semester) EXAMINATION

APRIL/MAY, 2023

(New Course)

ELECTRONICS

Paper III

(Semiconductor Devices and Electronic Instruments)

(Thursday, 11-5-2023) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—40

N.B. :— (*i*) Attempt *All* questions.

(*ii*) Illustrate your answer with suitable labelled diagrams wherever necessary

1. Explain construction, working and characteristics of Light Emitting Diode (LED) with suitable diagram. 15

Or

(*a*) Explain construction of NPN and PNP transistor with neat diagram. 8

(*b*) Explain characteristics of UJT. 7

2. Explain construction and working of full-wave rectifier. Also derive the expression for average value and efficiency. 15

Or

(*a*) Explain application of CRO. 8

(*b*) Explain how you will convert a galvanometer into ammeter. 7

P.T.O.

3. Explain any *two* of the following : 10

(*a*) Photodiode

(*b*) α_{dc} and β_{dc} of a transistor

(*c*) Bridge rectifier

(*d*) Various controls of CRO.