UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program : Fifth Semester – Fall 2021

Roll No. .....

Paper: Electronic Devices and Circuits **Course Code: PHY-304-A** **Time: 3 Hrs.** **Marks: 60**

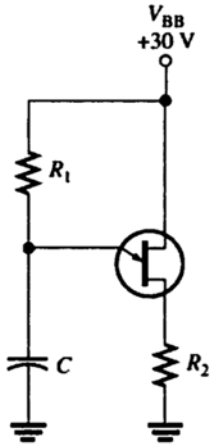
Q.1. Give short answers of the following: **(15x2=30)**

i. DIAC TRANSISTOR
ii. SILICON-CONTROLLED SWITCH (SCS)
iii. FLIP-FLOPS
iv. BJT
v. π-FILTER
vi. π-R FILTER
vii. CRYSTAL OSCILLATOR
viii. CLASS C AMPLIFIERS
ix. PHOTODIODE
x. TUNNEL DIODE
xi. VARACTOR DIODE
xii. ZENER DIODE
xiii. LIGHT-ACTIVATED SCR
xiv. UNIJUNCTION TRANSISTOR
xv. LCD

Q.2. Answers the following questions. **(3x10=30)**

I. (a) Briefly explain a Unijunction Transistor (UJT) **(05)**

(b) Determine a value of given Figure that will ensure proper turn-on and turn-off of the UJT. The characteristic of the UJT exhibits the following values: η=0.5, V_V = 1V, I_V =10 mA, I_P = 20 μA, and V_P = 14V. **(05)**



II. Briefly explain the OP-AMP basics and discuss how negative feedback affects OP-AMP impedances **(10)**

III. Identify and describe the WIEN-BRIDGE OSCILLATOR: **(10)**

(a) Calculate the RESONANT FREQUENCY

(b) Discuss the POSITIVE FEEDBACK conditions for oscillation