University of Sargodha

BS 1st Term Examination 2022

Subject: CS/IT **Paper: Applied Physics/ Basic Electronics (PHYS-101/PHY-2210)**

Time Allowed: 02:30 Hours **Maximum Marks: 60**

Note: Objective part is compulsory. Attempt any three questions from subjective part.

Objective Part (Compulsory)

Q.1. Write short answers of the following in 2-3 lines each on your answer sheet. (2*12)

i. Calculate the voltage across 2-ohm resistor where supply voltage is 10 V.
ii. What kind of energy is stored in a capacitor?
iii. What is eddy current?
iv. What is the most common type of the resistor?
v. Define the net charge on the N-type material.
vi. Is it meaningful to say that atom is ferromagnetic?
vii. Write down the factors upon which self-inductance of the coil depends.
viii. Briefly explain the Photodiode.
ix. What is full wave rectification.
x. What is reverse saturation current?
xi. Differentiate the regulated and unregulated power supplies.
xii. Define Zener diode.

Subjective Part (3*12)

Q.2. (a) Find the α rating of the transistor shown in Figure. Hence determine the value of I_c using both α and β rating of the transistor. (6)

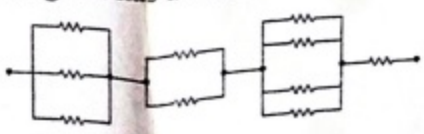
(b) What is transformer and how does it work? Write conditions for ideal transformer (6)

Q.3. (a) What are different methods of biasing? Discuss volage divider bias. (6)

(b) Discuss the different types of capacitors. (6)

Q.4. Discuss band theory in detail. Also explain diamagnetism, paramagnetism and ferromagnetism. (12)

Q.5. (a) Each of the resistors in the diagram has a resistance of 12 Ω. Find the total resistance. (6)



(b) Discuss Ohm's law of magnetism. (6)

Q.6. What is the difference between intrinsic and extrinsic semi-conductor materials? Explain the role of doping of an impurity in a semi-conductor material. (12)