Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2024

Course Code: CSE215 Course Title: Electronic Devices and Circuits
Level: 2 Term: 1 Batch: 65

Time: 1:30 Hrs **Full Marks: 25**

Answer all the following Three questions
[All portions of each question must be answered sequentially]

Q1.	***a.***	**Define** Peak Inverse Voltage (PIV).	**5x1 =5**	**CO1**
	b.	**Recall** the name of the commonly used filter circuits.		
	c.	**What** is the difference between crystal diode and LED based on light emission?		
	d.	**Write** short note on Clipper and Clamper circuits.		
	e.	**Why** a week signal applied in the input circuit of a transistor appeared in the amplified form in the collector circuit?		
Q2.	***a.***	**Explain** the *V-I* characteristics of pn junction in detail with necessary diagram.	**2x4 =8**	**CO2**
	b.	**Explain** the working principle of npn and pnp transistor in detail.		
Q3.	***a.***	A full-wave rectifier uses four diodes, the internal resistance of each diode may be assumed constant at 10 Ω. A voltage, $v = 100\sin\omega t$ is appeared at transformer secondary and the load resistance is 980 Ω. **Solve** for ***(i)*** the mean load current and ***(ii)*** the rms value of the load current.	**3x4 =12**	**CO3**
	b.	A voltage stabilizer for varying load using two Zener diodes of 18 V each, which are connected in series. Series and load resistances are 4 KΩ and 6 KΩ respectively and the supply voltage is 60 V. **Solve** for, (i) the output voltage (ii) voltage drops across series resistance and (iii) the current through the Zener diode.		
	c.	A transistor is connected in common emitter (CE) configuration as below. If α = 0.99. **Solve** for (i) the collector-emitter voltage and (ii) base current.