Enrollment No		Exam Seat No: UNIVERSITY mination-2022			
Subject Name	: Applied Physics				
Subject Code: 4TE02APH1		Branch: B.Tech (All)			
Semester: 2	Date: 22/09/2022	Time: 11:00 To 02:00	Marks: 70		
 Instructions: (1) Use of Programmable calculator & any other electronic instrument is prohibited. (2) Instructions written on main answer book are strictly to be obeyed. (3) Draw neat diagrams and figures (if necessary) at right places. (4) Assume suitable data if needed. 					
Q-1	Attempt the following question The breakdown mechanism in		(14) n under		

reverse biased condition is called (A) avalanche breakdown. (B) zener breakdown. (C) breakdown by tunnelling. (D) high voltage breakdown. **b**) Insulating material used in spark plug is (A) rubber (B) porcelain (C) mica (D) Polystyrene c) The common collector amplifier is also known as (A) collector follower (B) Base follower (C) Emitter follower (D) Source follower A BJT is a: (A) current controlled & bipolar device (B) voltage controlled device & bipolar device (C) current controlled & Unipolar device (D) voltage controlled device & Unipolar device The phototransistor is a semiconductor device that is able to sense light e) levels and alter the _____ flowing between emitter and collector according to the level of light it receives. (A) current (B) voltage (C) both current & voltage (D) none of above Define bias stabilization for transistor. f) State controlling equation for JFET. LED stands for. h) Explain Fermi level. i)



Define Pinch-Off Voltage.

State advantages of fiber optics.

Define Numerical Aperture for fiber optics.

i)

k)

l)

- m) What is PIV?n) Define holography

Attempt any four questions from Q-2 to Q-8

Q-2		Attempt all questions	(14)
	A	Differentiate between P-type and N-type Semiconductors. Also name the doping materials used for their formation?	07
	В	Discuss the electrical conduction phenomenon w.r.t. semiconductor.	07
Q-3		Attempt all questions	(14)
	A B	Explain Zener Diode as a Voltage Regulator. Explain working of varactor diode.	07 07
Q-4		Attempt all questions	(14)
	\mathbf{A}	Explain the working of positive clamping circuit.	07
	В	Draw the circuit diagram of half wave rectifier.	07
Q-5		Attempt all questions	(14)
	\mathbf{A}	Explain about DC load line and bias point of transistor.	07
	В	Enlist various types of biasing methods for transistor and explain any one in detail.	07
Q-6		Attempt all questions	(14)
	\mathbf{A}	Discuss enhancement MOSFET and their characteristics.	07
	В	Explain CD configuration for JFET with necessary diagram.	07
Q-7		Attempt all questions	(14)
	A	Compare step index fiber and graded index fibre. State various applications of OFC.	07
	В	Describe stimulated and spontaneous emission w.r.t LASER.	07
Q-8		Attempt all questions	(14)
	\mathbf{A}	Draw the circuit of a BJT in CE configuration and the corresponding	06
		V-I characteristics.	
	В	Compare :(i) BJT and FETs	08
		(ii) Clipper and Clamper Circuits.	

