ANSWER KEY

IMPROVEMENT October
FIRST YEAR HIGHER SECONDARY EXAMINATION ~~MARCH~~ 2022

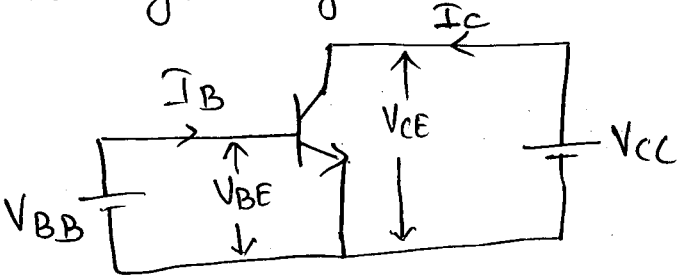
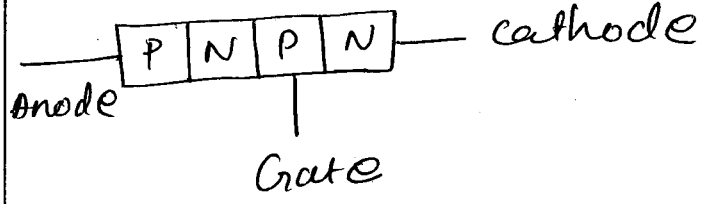
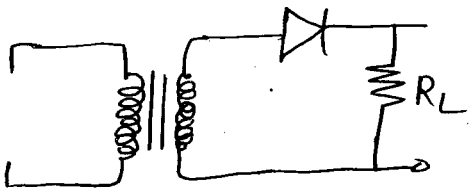
PART-I/II/III

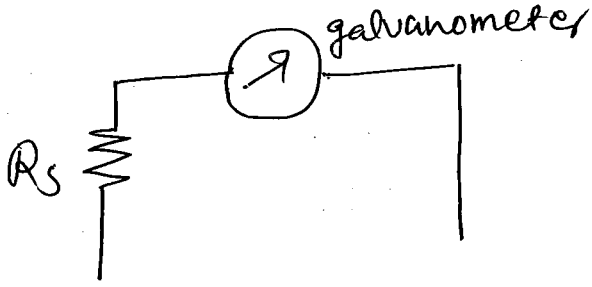
SUBJECT: ELECTRONICS

CODE NO: FY831 VERSION: D

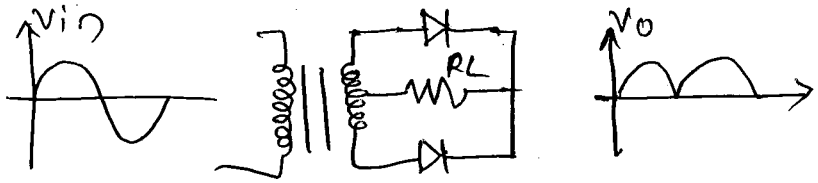
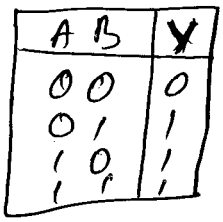
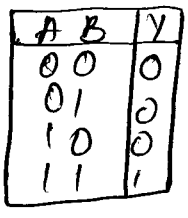
60 SCORES 2 HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1			1	1
2.		Ampere (ആമ്പിയർ)	1	1
3.		1.1 eV	1	1
4.			1	1
5		photodiode	1	1
6.		1.21	1	1
7.		Voltage divides biasing circuit	1	1
8.		.7V	1	1
9.		3	1	1
10.		2	1	1
11.		$22 \times 10^2 \Omega \pm 5\%$ OR $2.2 K\Omega \pm 5\%$	2	2
12.		These is no free carriers in semiconductor at absolute zero temperature	2	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
13	a.		1	2
	b.	voltage regulator	1	
14.			2	2
15.			2	2
16.		Any two differences	1+1	2
17.			2	2
18.		$AB = 1$	1	2
		$\angle AB = 0^\circ$ or 360°	1	
19.		Diagram of damped and unclamped oscillations	1+1	2
20.		$C = \frac{\varepsilon A}{d}$	1	3
		Area of conducting plates, distance between plates, permittivity of dielectric } Any two	2	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
21		Explanation		
	a	cycle	1	3
	b	Time period	1	
	c	frequency	1	
22		Energy band diagrams of insulator, semiconductor & conductor.	3	3
23.		forward characteristics	1½	3
		reverse characteristics	1½	
24		6 steps $6 \times ½ = 3$	3	3
25		3 comparisons size, doping and carries movement.	3	3
26.		circuit diagram	3	3
27.		$(101 \cdot 11)_2 = (5 \cdot 75)_{10}$	3	3
28.		circuit diagram	2	3
		$A = -\frac{R_f}{R_1}$	1	
29.	a).	large value resistors	1	3
	b)		2	

4/4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
30		Total resistance = 10Ω	1	
		Total current = 10/10 = 1 A	1	4
		Current through 5Ω = 1A	1	
		Current through 10Ω = .5 A	1	
31		CE input characteristics	2	4
		output characteristics	2	
32.			1+2+1	4
33.		circuit diagram	3	4
		$f = \frac{1}{2\pi\sqrt{6}RC}$	1	
34		 	2+2	4
35.	a)	$R = R_1 + R_2 + R_3 = 9+9+9 = 27\Omega$	2	4
	b)	$\frac{1}{R} = \frac{1}{9}+\frac{1}{9}+\frac{1}{9} = \frac{3}{9}$ $\therefore R = \frac{9}{3} = 3\Omega$	2	
36.	a)	$V_{rms} = \frac{V_m}{\sqrt{2}} = \frac{10}{\sqrt{2}} = 7.07V$	1	4
	b)	$V_{dc} = \frac{2V_m}{\pi} = \frac{2\times10}{3.14} = 6.37V$	1	
	c)	ripple factor $r = \sqrt{\left(\frac{V_{rms}}{V_{dc}}\right)^2 - 1} = 0.48$	2	
37.	a)	$(16)_{10} = (10000)_2$	1	4
	b)	 	1½+1½ =3	