CBCS SCHEME

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31	First/Second Semester B.E. Degree Examination, Aug./Sept.20			
Wing.	The same of the sa	-	Basic Electronics	
	4 Jan	me:	3 hrs. Max. M	Manleau 100
	The second secon			Iarks: 100
ું.	Note: Answer any FIVE full questions, choosing ONE full question from each module.			
actic				
ıalpr	•	4	Module-1	
olank pages. 50, will be treated as malpractice.	1	a.	Explain the operation of PN - junction diode under forward and reverse bias cond	lition.
ated		b.	Explain how zener diode can be used as voltage regulator.	(08 Marks)
s. e tre		c.	A silicon diode has $I_S = 10$ nA, operating at 25°C. Calculate diode current I_D for	(06 Marks)
page ill b			bias of 0.6V.	(06 Marks)
ank 0, w				(001.1111)
lg bl	2	0	With part single discount of the control of the con	
compulsorily draw diagonal cross lines on the remaining blank pages. , appeal to evaluator and /or equations written eg, $42+8=50$, will be	2	a.	With neat circuit diagram, explain the operation of center tapped full wave recinput and output waveforms.	
rem eg,		b.	Explain photo diode and LED in brief.	(08 Marks) (06 Marks)
the itten		c.	Explain LM7805 fixed voltage regulator.	(06 Marks)
es or				(
s lin ation	3	-	Module-2	
cros	3	a.	Explain construction and operation of n-channel JFET. Draw transfer characteristic.	
onal 1/or		b.	Explain the operation of CMOS inverter.	(08 Marks)
diago r ano		C.	A n-channel JFET has $I_{Dss} = 8 \text{mA}$, $V_p = -4 \text{V}$. Determine I_D for $V_{GS} = -1 \text{V}$ and	(06 Marks) $V_{GG} = -2V$
raw uato			p p p p p p p p p p p p p p p p p p p	(06 Marks)
ily d eval				
ulsor al to	4	2	OR Explain construction and analytics of the state of th	
ompulsorily draw diagonal cross lines on the ren appeal to evaluator and /or equations written eg.	4	a. b.	Explain construction and operation of n – channel depletion MOSFET. Explain the operation of SCR using 2 – Transistor model.	(08 Marks)
3,		c.	Explain natural and forced commutation turn off methods of SCR.	(06 Marks) (06 Marks)
swer				(oo marks)
ır an lenti			Module-3	
you of ic	5	a.	Define following terms with respect to OP -Amp: i) CMRR ii) Input off	
eting		b	iii) Slew rate. Also mention op-amp ideal characteristics. A certain on-amp has an open loop differentials yielders aring a figure of 100 per loop.	(08 Marks)
evea		0.	A certain op-amp has an open loop differentials voltage gain of 1,0 CMRR = 4,00,000. Determine common mode gain and express CMRR in decibels	0,000 and
On completing your answers, Any revealing of identification		0	The second secon	(06 Marks)
1. C 2. A		C.	Explain op-amp as integrator.	(06 Marks)
ote: 1.			OP	

- With neat circuit, explain the operation of three input adder circuit. Derive expression for V_0 .
 - b. A non inverting amplifier has closed loop gain of 25. If input voltage V_i = 10mv, R_f = 10K Ω determine the value of R₁ and output voltage V₀. (06 Marks) Explain difference amplifier using op-amp.

(08 Marks)

(06 Marks) (06 Marks)

Module-4 With neat circuit, explain transistor as an amplifier. Derive expression for voltage gain. Mention types of feedback amplifier. With block diagram, explain voltage series feedback (06 Marks) amplifier. A negative feedback amplifier has gain A = 1000 and bandwidth of 200KHz. Calculate gain and bandwidth with feedback if feedback factor $\beta = 20\%$. What is phase shift oscillator? Explain with circuit, RC phase shift oscillator. (08 Marks) (06 Marks) Explain with circuit, Astable multivibrator using IC 555. b. An Astable multivibrator circuit has $R_1 = 6.8 \text{K}\Omega$, $R_2 = 4.7 \text{K}\Omega$, $C = 0.1 \mu\text{F}$. Calculate (06 Marks) frequency of oscillation and duty cycle. Convert: 9 a. $(2467.125)_{10} = (?)_2 = (?)_{16}$ ii) $(765.16)_8 = (?)_{10} = (?)_2$ iii) $(101111.101)_2 = (?)_8 = (?)_{10}$. (08 Marks) b. Explain full adder using truth table and expression. Implement sum and carry expressions. (06 Marks) (06 Marks) Implement half adder using NAND gates.

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With the help of logic diagram and truth table, explain the working of clocked SR - Flip

State and prove De-Morgan's theorems for two variables.

Explain the basic block diagram of communication system.