SKY IS THE	Shree H.N.Shukla group of colleges PHYSICS T.Y.B.Sc. (Sem. V) (CBCS) Preliminary Examination PAPER- 503 SOLID STATE ELECTRONICS	
Time : $2\frac{1}{2}$	Hours] [Total Marks : 70	0
Instructio	<ul> <li>(1) All the questions are compulsory.</li> <li>(2) Figures on the right indicate full marks.</li> <li>(3) Notations have their usual meaning.</li> </ul>	
(	Fill in the blanks with proper answer :       4         1) 1 bel = dB.       2) coupled amplifier is used for impedance	4
()	<ul> <li>matching.</li> <li>3) In class – A amplifier the conduction angle of collector current is</li> </ul>	
(4	4) The metal sheet that serve to dissipate the additional heat from the power transistor is known as	
(b) A	Answer any <b>one</b> question :	2
(	1) The voltage gain of an amplifier is 100. Find its decibel gain.	
()	2) A power transistor working in class – A operation has zero signal power dissipation of 10W. If the AC output power is 4W, find the collector efficiency.	
(c) A	Answer any one question :	3
, , , , , , , , , , , , , , , , , , ,	<ol> <li>Explain frequency response curve of transformer coupling amplifier.</li> <li>Evaluation thread to be a set of the s</li></ol>	
	2) Explain thermal runaway.	-
		5
	<ol> <li>Explain R-C coupled amplifier with neat diagram.</li> <li>Explain push-pull amplifier.</li> </ol>	

2	(a)	Fill in the blanks with proper answer :	4
		(1) Bistable Multivibrator is also known as	
		(2) The Multivibrator which generates square wave	
		of its own is known as	
		(3) A circuit that can ON and OFF power to an	
		electrical circuit is known as a	
		(4) Monostable multivibrator is also known as	
	(b)	Answer any <b>one</b> question :	2
		(1) Find the voltage across R, if input voltage with peak value of $-12V$ is applied to a negative clipper $(V_d = 0.7V)$ .	
		(2) If time period of a wave T is $0.336 \times 10^{-3}$ second, then find out the frequency of wave.	
	(c)	Answer any <b>one</b> question :	3
		(1) Explain thermal runaway.	
		(2) Explain complementary symmetry amplifier.	
	(d)	Answer any <b>one</b> question in detail :	5
		(1) Explain bistable multivibrator with neat circuit.	
		(2) Explain biased clipper.	
	(a)	Fill in the blanks with proper answer :	4
		(1) A zener diode utilizes characteristic for voltage regulation.	
		(2) A zener diode regulator has low efficiency for	
		(3) Full form of CMRR is	
		(4) The ideal bandwidth of an Op-Amp is	
	(b)	Answer any <b>one</b> question :	2
		(1) If the dc output voltage is 200V with no-load attached to power supply but decreases to a 150V at full-load, calculate the percentages voltage relation.	
		(2) Determine the voltage gain of non-inverting Op- Amp amplifier having $R_1 = 5 K\Omega$ and $R_f = 500 K\Omega$ .	

<ul> <li>(1) Explain transistor series voltage regulator.</li> <li>(2) Explain Op-Amp as voltage comparator.</li> <li>(d) Answer any one question in detail : 5</li> <li>(1) Write a short note on series feedback voltage regulator.</li> <li>(2) Explain an Op-Amp as differentiator.</li> <li>4 (a) Fill in the blanks with proper answer : 4</li> <li>(1) LVDT has primary but two secondary coils.</li> <li>(2) Microphone is an transducer.</li> <li>(3) A thermocouple is a most widely sensor used to measure the</li> <li>(4) The relation between temperature and resistance of the metallic wire is given by</li> <li>(b) Answer any one question : 2</li> <li>(c) A wire strain gauge bonded to an iron member which is subjected to a strain of 10<sup>-7</sup>. If strain resistance is 100Ω and change in gauge resistance is 50 µΩ, then calculate gauge factor.</li> <li>(c) Answer any one question : 3</li> <li>(d) Answer any one question : 3</li> <li>(e) Answer any one question : 3</li> <li>(f) Explain resistive position transducer.</li> <li>(g) Explain strain gauge.</li> <li>(g) Answer any one question in detail : 5</li> <li>(h) Describe the carbon microphone.</li> <li>(h) Write a note on classification of transducer.</li> </ul>		(c)	Answer any <b>one</b> question :	3
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		(d)	Answer any <b>one</b> question in detail :	5
(2) Write a note on classification of transducer.			(1) Describe the carbon microphone.	
			(2) Write a note on classification of transducer.	

5	(a)	Fill in the blanks with proper answer :	4
		(1) Full form of CRT is	
		(2) Full form of CRO is	
		(3) Flip-flop can be used as a device in	
		computer.	
		(4) flip-flop has only I input.	
	(b)	Answer any <b>one</b> question :	2
		(1) Determine the output pulse width for the	
		monostable 555 timer, when $R_A = 20 K\Omega$ and	
		$C = 0.1 \mu\text{F}.$	
		(2) Determine the frequency of oscillation for the	
		astable 555 timer for $R_A = R_B = 100 \text{ K}\Omega$ and	
		C = 1000 PF.	2
	(c)	Answer any <b>one</b> question :	3
		(1) Explain analog and digital instruments.	
		(2) Explain R-S flip-flop with truth table.	
	(d)	Answer any <b>one</b> question in detail :	5
		(1) Explain the rectifier type AC meter.	
		(2) Explain 1 of 16 decoder.	