

B.Sc. Semester - 5 (Remedial) (CBCS) Examination
March/April-2023(Old Course)
SOLID STATE ELECTRONICS (CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Q.1 (a) Answer any one question:** **07**
- (1) Explain direct coupled amplifier with neat circuit diagram and also write the advantages and disadvantages.
 - (2) Explain complementary-symmetry amplifier and give advantages and disadvantages.
- (b) Attempt any one:** **04**
- (1) Find the gain in dB in the following cases.
 - i. Power gain of 100.
 - ii. Voltage gain of 73.
 - (2) Explain heat sinks in brief.
- (c) Attempt any three:** **03**
- (1) 10 db. = _____ bel.
 - (2) The coupling capacitor is also known as _____.
 - (3) The push-pull circuit must use class _____ operation.
 - (4) In class B amplifier, conduction angle of collector current is _____.
 - (5) Power amplifier is meant to raise the _____ level of the input signal.
- Q.2 (a) Answer any one question:** **07**
- (1) Explain bistable multivibrator with neat circuit diagram.
 - (2) What is clipper circuit? Explain the working of negative clipper with and without bias applied.
- (b) Attempt any one:** **04**
- (1) Explain working of transistor as a switch.
 - (2) Explain differentiating circuit.
- (c) Attempt any three:** **03**
- (1) When a transistor is driven to _____, ideally the output is zero.
 - (2) _____ multivibrator is also known as flip-flop.
 - (3) Monostable multivibrator has _____ stable state.
 - (4) A n positive clipper removes the _____ half cycles of the input voltage.
 - (5) _____ circuit is used to generate saw tooth wave form from rectangular wave.
- Q.3 (a) Answer any one question:** **07**
- (1) Explain transistorised series feedback voltage regulator.
 - (2) Explain Op-Amp as adder.
- (b) Attempt any one:** **04**
- (1) If the DC output voltage is 50 with no-load attached to a power supply but decreases to 40V at full load, find the % of voltage regulation.
 - (2) Explain Op-Amp as a unity follower.
- (c) Attempt any three:** **03**
- (1) Zener diode utilises _____ characteristics for voltage regulation.
 - (2) The series regulator is placed in _____ with the load.
 - (3) The non-inverting input produces 180° phase shift. True / False
 - (4) The ideal bandwidth of an Op-Amp is _____.
 - (5) The full form of CMRR is _____.

Q.4	(a) Answer any one question:	07
	(1) What is transducer? Explain construction and working of LVDT.	
	(2) Write a note on thermocouple.	
	(b) Attempt any one:	04
	(1) Explain strain gauge.	
	(2) Write the applications of Thermocouple.	
	(c) Attempt any three:	03
	(1) Strain gauge is a _____ transducer.	
	(2) Microphone is an _____ transducer.	
	(3) _____ transducer is used in accelerometer.	
	(4) A _____ is device that converts energy in one form into energy in another form.	
	(5) Microphone converts acoustic energy into a varying _____ energy.	
Q.5	(a) Answer any one question:	07
	(1) Explain the CRO.	
	(2) Write a note on J-K flip flop.	
	(b) Attempt any one:	04
	(1) Write the applications of CRO.	
	(2) Describe multiplexer.	
	(c) Attempt any three:	03
	(1) The deflection type instruments with a scale and pointer are called analog instruments. True / False	
	(2) Full form of CRT is _____.	
	(3) Flip-flop has _____ stable states.	
	(4) _____ flip-flop has only one input.	
	(5) A circuit which has a number of inputs but only one output is called _____.	
