

B.Sc. Semester - 5 (CBCS) Examination**Oct/Nov. - 2018****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) With a neat circuit diagram, explain the working of transform coupled transistor amplifier.
 - (2) Explain the push-pull amplifier circuit with a neat diagram.
- Q-1(B) Answer any **one** question: (04)
- (1) Discuss comparison of different types of coupling.
 - (2) A power amplifier supplies 50W to an 8-ohm speaker. Find
 - i. Ac output voltage
 - ii. Ac output current
- Q-1(C) Fill in the blanks with proper answer (Any three) (03)
- (1) The best frequency response is of _____ coupling.
 - (2) _____ coupling provides the maximum voltage gain.
 - (3) If a transistor is operated in such a way that output current flows for 60° of the input signal then it is _____ operation.
 - (4) Class _____ power amplifier has the highest collector efficiency.
 - (5) The push-pull circuit must use _____ operation.
- Q-2(A) Answer any **one** question: (07)
- (1) Explain the switching action of a transistor with the help of output characteristics.
 - (2) With a neat circuit diagram, explain the working of astable multivibrator.
- Q-2(B) Answer any **one** question: (04)
- (1) Show that the output from an integrating circuit is the integral of the input.
 - (2) What is clipper? Describe positive clipper.
- Q-2(C) Fill in the blanks with proper answer (Any three) (03)
- (1) When a transistor is driven to saturation, ideally the output is _____.
 - (2) A negative clipper removes the _____ half cycles of the input voltage.
 - (3) A switch has _____ states.
 - (4) A monostable multivibrator has _____.
 - (5) The switch that has the fastest speed of operation is _____ switch.
- Q-3(A) Answer any **one** question: (07)
- (1) Explain the Zener diode as a voltage regulator.
 - (2) Explain use of Op-Amp as an adder.

- Q-3(B) Answer any **one** question: (04)
- (1) If the dc output is 400V with no-load attached to power supply but decreases to a 300V at full-load, calculate the percentage voltage regulation.
 - (2) Write the advantages of ICs.
- Q-3(C) Fill in the blanks with proper answer (Any three) (03)
- (1) A Zener diode utilizes _____ characteristic for voltage regulations.
 - (2) A Zener diode is used as a _____ voltage regulating device.
 - (3) An ideal Op-Amp has an input resistance of _____.
 - (4) Full form of IC is _____.
 - (5) An Op-Amp is a _____ IC.
- Q-4(A) Answer any **one** question: (07)
- (1) Explain construction and working of LVDT.
 - (2) Write a note on Piezoelectric transducer.
- Q-4(B) Answer any **one** question: (04)
- (1) Explain Strain gauge.
 - (2) Write a note on capacitive pressure transducer.
- Q-4(C) Fill in the blanks with proper answer (Any three) (03)
- (1) In LVDT one primary but _____ secondary coils.
 - (2) LVDT is a _____ inductive transducer.
 - (3) Thermistors have _____ temperature co-efficient of resistance.
 - (4) Strain gauge is a _____ transducer.
 - (5) Microphone converts acoustic energy into a varying _____.
- Q-5(A) Answer any **one** question: (07)
- (1) Explain CRO with proper block diagram.
 - (2) Write a note on J-K flip-flop.
- Q-5(B) Answer any **one** question: (04)
- (1) Explain electronic voltmeter for alternating current.
 - (2) Determine the free running frequency for an astable multivibrator using 555 timer.
($R_A = 4.7\text{ K}\Omega$, $R_B = 1\text{ K}\Omega$ and $C = 1\text{ }\mu\text{f}$)
- Q-5(C) Fill in the blanks with proper answer (Any three) (03)
- (1) The deflection type instruments with a scale and pointer are called _____ instruments.
 - (2) The main part of an oscilloscope is _____.
 - (3) An ammeter is connected in _____ with the circuit element whose current we wish to measure.
 - (4) _____ Flip-flop has only one input.
 - (5) A circuit with only one input but many outputs is called _____.
