

B.Sc. Semester - 6 (CBCS) Examination
March/April-2026 (NEW COURSE)
Solid State Electronics (Core (New))

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

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

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- Que.1(A) Answer any two questions: (10)
- (1) Explain R-C coupled amplifier with circuit diagram.
 - (2) Explain transformer coupled amplifier with circuit diagram.
 - (3) Explain circuit operation and frequency response of direct coupled amplifier with circuit diagram.
- Que.1(B) Attempt any one: (04)
- (1) A power transistor has max. junction temperature (T_{jmax}) 90°C and ambient temperature (T_{amb}) 50°C then find out value of total power dissipate. ($\theta=10^{\circ}\text{C/W}$)
 - (2) Discuss the complementary-symmetry amplifier with circuit diagram.
- Que.2(A) Answer any two questions: (10)
- (1) Explain working of Astable Multivibrator with circuit diagram.
 - (2) What do you understand by a clamping circuit? With the help of circuit diagram, explain the working of negative clamper.
 - (3) What is clipper circuit? Explain the working of positive clipper with and without bias applied.
- Que.2(B) Attempt any one: (04)
- (1) Explain bistable multivibrator.
 - (2) Show that the output of a differentiating circuit is differentiation of the input of voltage.
- Que.3(A) Answer any two questions: (10)
- (1) Explain Zener diode as voltage regulator.
 - (2) Write a note on series voltage regulator.
 - (3) Write a note on classification of ICs based on structure.
- Que.3(B) Attempt any one: (04)
- (1) Discuss the regulated power supply in brief.
 - (2) Describe series feedback voltage regulator.
- Que.4(A) Answer any two questions: (10)
- (1) Discuss how an OP-Amp can be used as an adder.
 - (2) Explain the basic circuit of differential amplifier.
 - (3) A differential amplifier (DA) having a voltage gain (A_{DM}) is 200 and a CMRR of 80 dB. The input signals are 20 mV and 30 mV with 1mV of noise on each input. Find the output signal and the noise on the output.
- Que.4(B) Attempt any one: (04)
- (1) Explain Op-Amp as a non-inverting amplifier.
 - (2) Explain Op-Amp as an integrator.
- Que.5(A) Answer any two questions: (10)
- (1) Write a note on R-S flip-flop.
 - (2) Explain 1- 16 demultiplexer in details.
 - (3) Explain DVM with proper block diagram.
- Que.5(B) Attempt any one: (04)
- (1) Write applications of CRO.
 - (2) Explain D flip-flop.
