

B.Sc. Semester - 6 (CBCS) Examination
March/April-2025 (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 the following question (any two). (10)**
(1) Write a note on transformer coupled amplifier.
(2) Explain performance quantities of power amplifiers.
(3) Derive expression for collector efficiency of series-fed class A amplifier.
- Que-1(B) Answer the following question (any one). (04)**
(1) Explain frequency response of R-C coupled amplifier.
(2) A power transistor has max. junction temperature (T_{jmax}) 90°C and a power dissipates 5 W then find out value of ambient temperature. ($\theta=10^{\circ}\text{C/W}$)
- Que-2(A) Answer the following question (any two). (10)**
(1) Write a note on switching action of a transistor.
(2) Explain monostable multivibrator.
(3) Write a note on integrating circuit.
- Que-2(B) Answer the following question (any one). (04)**
(1) An astable having values $R_2 = R_3 = 10\text{K}\Omega$ and $C_1 = C_2 = 0.01\mu\text{F}$. Find the time period and frequency of the output waveform.
(2) Explain differentiating circuit.
- Que-3(A) Answer the following question (any two). (10)**
(1) Explain regulated power supply.
(2) Describe series voltage regulator.
(3) Write a note on classification of ICs based on structure.
- Que-3(B) Answer the following question (any one). (04)**
(1) Describe important terms of power supply.
(2) Give advantages and disadvantages of ICs.
- Que-4(A) Answer the following question (any two). (10)**
(1) Explain the basic circuit of differential amplifier and write its important terms.
(2) Explain inverting amplifier.
(3) Discuss how an OP-Amp can be used as an adder.
- Que-4(B) Answer the following question (any one). (04)**
(1) Write a note on OP-Amp as an integrator.
(2) Determine the voltage gain of a non-inverting OP-AMP amplifier having $R_1=10\text{K}$ and $R_f=2.2\text{M}\Omega$.
- Que-5(A) Answer the following question (any two). (10)**
(1) Write note on CRO.
(2) Explain 16 to 1 multiplexer.
(3) Write a note on R-S flip-flop.
- Que-5(B) Answer the following question (any one). (04)**
(1) Write a short note on DVM.
(2) Explain D flip-flop.
