647510 **BSc6PhyC603x** **Seat No :_____**

B.Sc. Semester - 6 (*CBCS*) Examination
March/April-2023 (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.

Q.1(A) Answer the following questions. (Any Two) **(10)**

1. Write a note on R-C coupled amplifier.
2. Explain performance quantities of power amplifiers.
3. Explain class A power amplifier.

Q.1(B) Answer the following questions. (Any One) **(04)**

1. Write a note on direct coupled amplifier.
2. A power transistor has max. junction temperature (T_{jmax}) 90^0 C and a power dissipates 4 W then find out value of ambient temperature. ($\theta=10^0$C/W)

Q.2(A) Answer the following questions. (Any Two) **(10)**

1. Write a note on switching action of a transistor.
2. Explain astable multivibrator.
3. Write a note on differentiating circuit.

Q.2(B) Answer the following questions. (Any One) **(04)**

1. An astable having values $R_2 = R_3 = 10K\Omega$ and $C_1 = C_2 = 0.022\mu F$. Find the time period and frequency of the output waveform.
2. Explain positive clipper.

Q.3(A) Answer the following questions. (Any Two) **(10)**

1. Explain regulated power supply.
2. Describe series feedback voltage regulator.
3. Write a note on ICs with advantages and disadvantages.

Q.3(B) Answer the following questions. (Any One) **(04)**

1. Describe important terms of power supply.
2. Give the comparisons between different types of ICs.

Q.4(A) Answer the following questions. (Any Two) **(10)**

1. Write a note on differential amplifier.
2. Explain inverting amplifier.
3. Discuss how an OP-Amp can be used as an adder.

Q.4(B) Answer the following questions. (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 $R_1=10K$ and $R_f=2.2M\Omega$.

Q.5(A) Answer the following questions. (Any Two) **(10)**

1. Write note on CRT.
2. Explain demultiplexer.
3. Write a note on J-K flip-flop.

Q.5(B) Answer the following questions. (Any One) **(04)**

1. Write a short note on DVM.
2. Explain D flip-flop.

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