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

B.Sc. Semester - 6 (*CBCS*) Examination
April/May-2022 (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 any **two** questions: (10)

(1) Explain direct coupled amplifier with neat circuit diagram.

(2) Explain transformer coupled amplifier with neat circuit diagram and also write the advantages and disadvantages.

(3) Show that the maximum collector efficiency of class A transformer coupled amplifier is 50%.

Q.1(B) Attempt any **one**: (04)

(1) Explain frequency response of R-C coupled amplifier.

(2) Explain heat sinks.

Q.2(A) Answer any **two** questions: (10)

(1) Explain working of bistable multivibrator with neat circuit diagram.

(2) What is clipper circuit? Explain the working of positive clipper with and without bias applied.

(3) What do you understand by clamping circuit? Explain the working of positive clamper.

Q.2(B) Attempt any **one**: (04)

(1) Explain switching action of transistor.

(2) Explain applications of clipping circuit.

Q.3(A) Answer any **two** questions: (10)

(1) Write a short note on transistor shunt voltage regulator.

(2) Explain the Zener diode as a voltage regulator.

(3) Explain in detail the classification of ICs based on structure.

Q.3(B) Attempt any **one**: (04)

(1) If the dc output is 30V with no-load attached to power supply but decreases to a 25V at full-load, calculate the percentages voltage regulation.

(2) Write advantages of ICs.

Q.4(A) Answer any **two** questions: (10)

(1) Explain the basic circuit of DA.

(2) Explain how an Op-Amp can be used as an adder.

(3) Explain the single-ended input operation of DA.

Q.4(B) Attempt any **one**: (04)

(1) Explain Op-Amp as a inverting amplifier.

(2) Explain Op-Amp as a integrator.

Q.5(A) Answer any **two** questions: (10)

(1) Explain the CRO with block diagram.

(2) Write a note on R-S flip-flop.

(3) Explain demultiplexer.

Q.5(B) Attempt any **one**: (04)

(1) Write applications of CRO.

(2) Determine the output pulse width for the monostable 555 timer, when R_A= 10 kΩ and C=0.22 μF.

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