22382

23124

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) Draw pin diagram of IC555.

b) State classification of Amplifiers.

c) Draw circuit diagram of basic integrator using Op-Amp.

d) Define :–

i) Input Bias Current

ii) CMRR

e) State specifications of 78XX series. Any two

f) State application of V to I Convertor. Any two

g) Define :–

i) Load Regulation

ii) Line Regulation.

P.T.O.

Marks

2. Attempt any THREE of the following: **12**

a) Draw the circuit diagram of I to V convertor and derive expression for its output.

b) Compare class A, class B, class AB and class C amplifiers with respect to –

i) Conduction angle

ii) Position of Q point on load line.

c) Draw and describe the block diagram of PLL.

d) Explain the concept of virtual ground and virtual short with reference to Op-Amp 741.

3. Attempt any THREE of the following: **12**

a) Draw circuit diagram of two stage transformer coupled amplifier. Draw its frequency response.

b) Sketch the astable multivibrator using IC741 and explain it.

c) Calculate the output voltage for the given circuit as shown in Figure No. 1

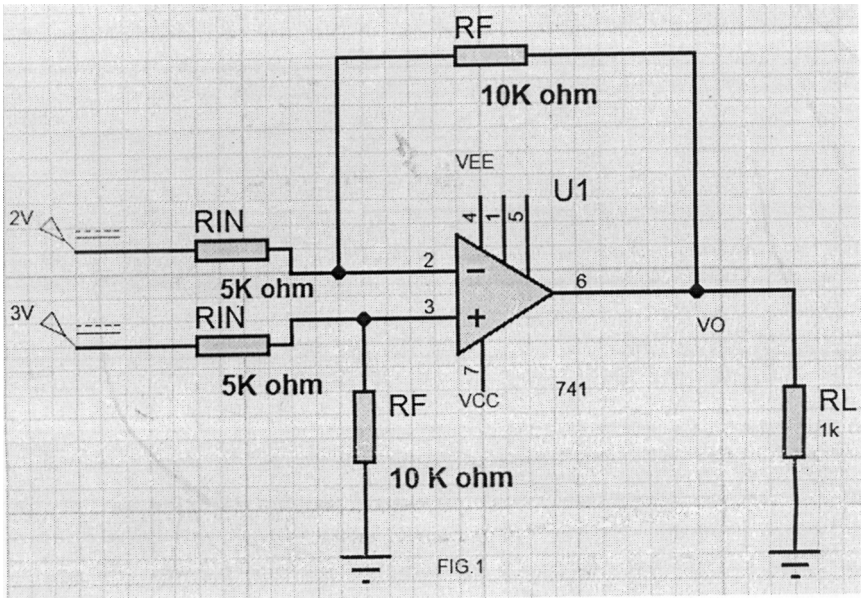

Fig. No. 1

d) Compare open loop and closed loop of configuration of operational amplifier. Any four points

Marks

4. Attempt any THREE of the following: **12**

a) Draw block diagram of SMPS. State its working principle.

b) Identify A and B in the block diagram for Figure No. 2 and write its function of PINS.

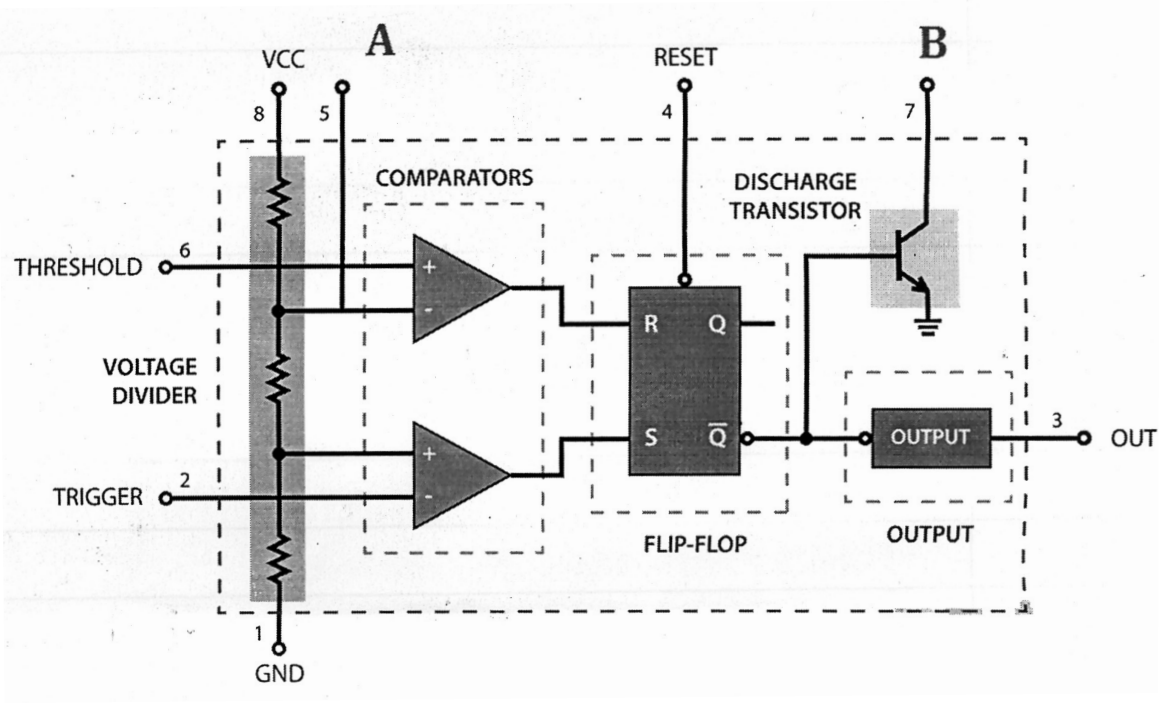

Fig. No. 2

c) Draw circuit diagram of non-inverting amplifier in open loop configuration and also draw its input output waveform.

d) Draw the circuit for getting output voltage using IC 741.
$Vo = -3(Va + Vb + Vc)$

e) Explain the circuit diagram of logarithmic amplifier using op-amp.

Marks

5. Attempt any TWO of the following: **12**

a) i) Explain the working of PLL as Multiplier using block diagram.

ii) Draw pin diagram of IC 565.

b) Identify the waveform for following circuit in Figure No. 3. Explain its operation using IC 741 and mention its application. (Any two)

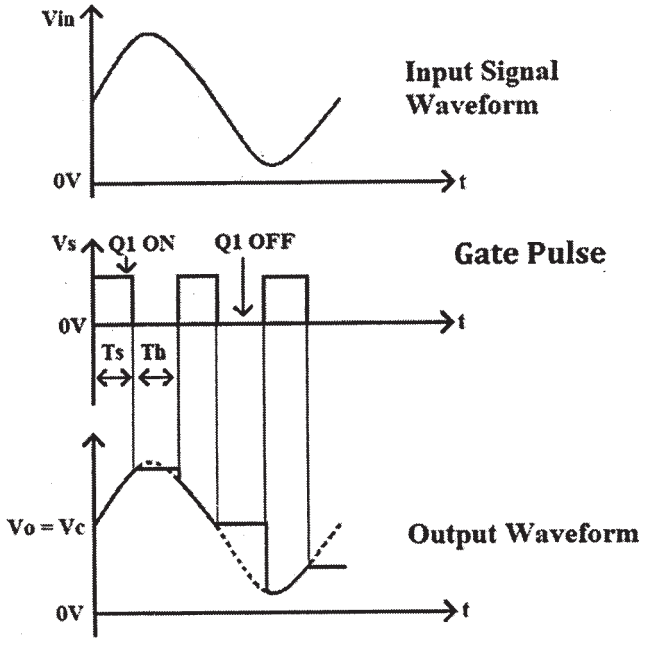

Fig. No. 3

c) Draw the circuit diagram of class AB power amplifier and describe its working with waveform, and also draw its DC Load Line.

6. Attempt any TWO of the following: **12**

a) Design a dual voltage regulated power supply for output voltage + 12V and –12V using IC 78XX and IC 79XX.

b) Explain Inverting Schematic trigger using op-amp with near circuit and waveform and also draw its transfer characteristics.

c) i) Draw and explain circuit diagram of monostable multivibrator using op-amp.

ii) Mention any two features of IC 555.