**Total No. of Question : [4]**     **Registration No. :** | | | | | | | | |

**Programme Name : Bachelor of Electronics and Telecommunication Engineering**
**Regular S.Y.B.Tech.Sem.IV ESE May / June 2023**
**IV SEMESTER ( 2021 BATCH)**
**201ETL215- Linear Integrated circuit**

**Duration :**                                          **Marks : 50**
**Instructions :**

(Q1) All questions are compulsory                                          [20.0]

(1.1) Draw AC Equivalent circuit diagram of DIBO Differential amplifier & Derive the       [5.0]
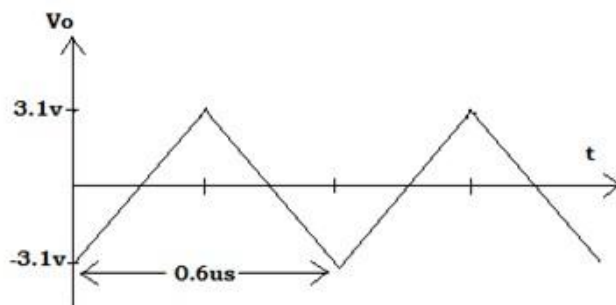equation for Voltage gain Ad.

**CO :-** CO1
**Blooms Taxonomy :-** Remember

(1.2) Find the slew rate of op-amp from the output waveform given below?                    [5.0]
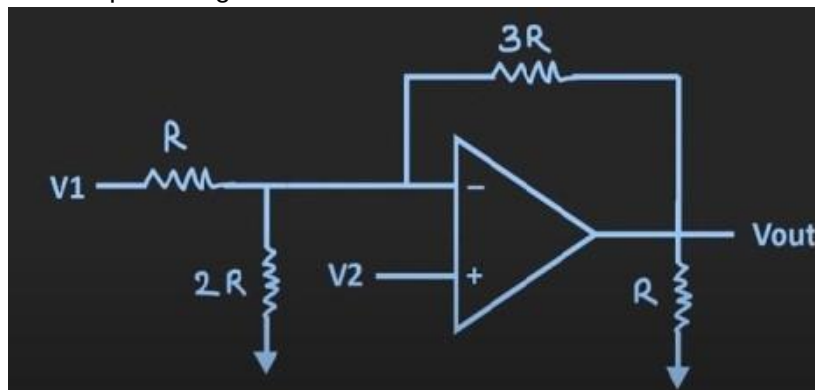


**CO :-** CO1
**Blooms Taxonomy :-** Remember

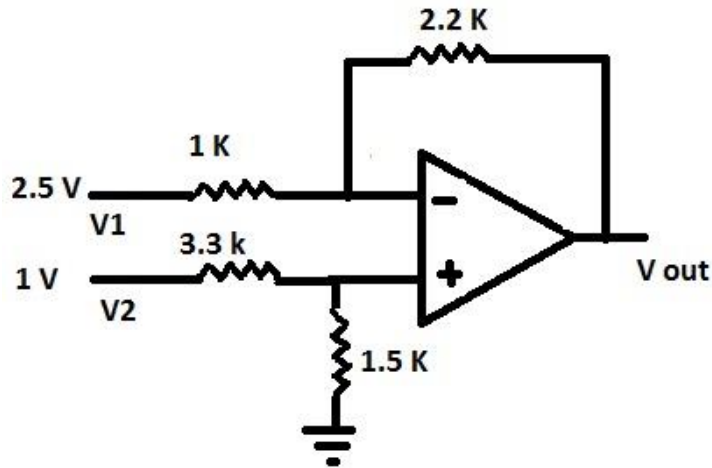(1.3) Find output voltage when V1= V2 = 2V                                          [5.0]



**CO :-** CO2
**Blooms Taxonomy :-** Apply

(1.4) **Find the output voltage of following circuit** [5.0]



**CO :-** CO3
**Blooms Taxonomy :-** Understand

(Q2) **Attempt the following** [10.0]

(2.1) Draw and explain second order high pass Butterworth filter. [5.0]

**CO :-** CO4
**Blooms Taxonomy :-** Apply

(2.2) Design a second order low pass filter at a high cutoff frequency of 10kHz [5.0]

**CO :-** CO4
**Blooms Taxonomy :-** Apply

**OR [ 2.2 / 2.3 ]**

(2.3) Design a second order High pass filter at a low cutoff frequency of 10kHz. [5.0]

(Q3) **Attempt the following** [10.0]

(3.1) Draw & explain saw-tooth wave generator circuits [5.0]

**CO :-** CO5
**Blooms Taxonomy :-** Understand

(3.2) With neat diagram explain Wien bridge oscillator. [5.0]

**CO :-** CO5
**Blooms Taxonomy :-** Understand

**OR [ 3.2 / 3.3 ]**

(3.3) Draw square wave generator circuit using op amp. Derive equation for frequency of oscillation. [5.0]

**CO :-** CO5
**Blooms Taxonomy :-** Understand

(Q4)

**Attempt the following** [10.0]

(4.1) Draw & Explain the block diagram of IC 8038 [5.0]

**CO :-** CO6
**Blooms Taxonomy :-** Apply

(4.2) Draw and explain the block diagram of 555 Timer [5.0]

**CO :-** CO6
**Blooms Taxonomy :-** Apply

**OR [ 4.2 / 4.3 ]**

(4.3) Draw and explain the Monostable multivibrator using 555 Timer [5.0]

**CO :-** CO6
**Blooms Taxonomy :-** Apply

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