END TERM EXAMINATION ODD SEMESTER 2022-23

COURSE CODE	CSET102	MAX. DURATION	2 HRS
COURSE TITLE	Introduction to Electrical and Electronics Engineering		
COURSE CREDIT	4	TOTAL MARKS	35

GENERAL INSTRUCTIONS: -

1. Do not write anything on the question paper except name, enrolment number and department/school.

2. Carrying mobile phone, smart watch and any other non-permissible materials in the examination hall is an act of UFM.

COURSE INSTRUCTIONS: Attempt all the questions.

Max Marks: 35 Marks

1) Assume a sinusoidal waveform with an amplitude of 5 V and 60 Hz is applied to the circuit shown in Fig. 1. Draw the output waveform across the resistor and diode by assuming the diode is made of silicon and cut-in voltage is 0.7 V.   4 Marks
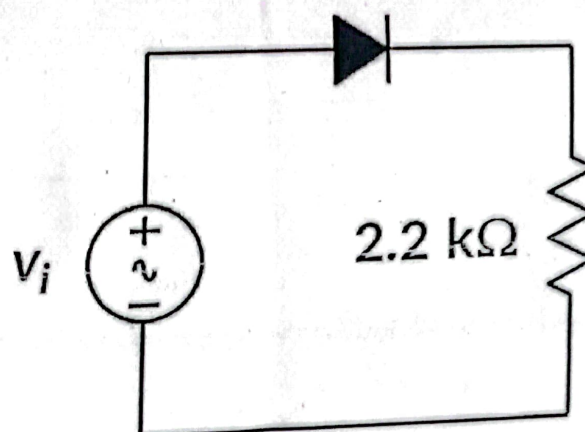

Fig. 1

Bennett University

2) For the circuit shown in Fig. 2, find the current through the 24V source.
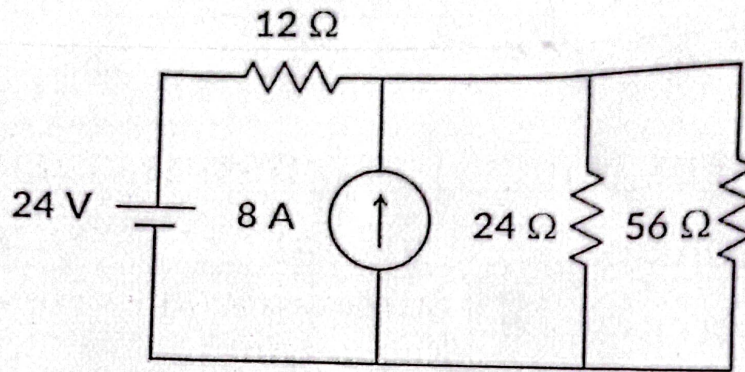
12 Ω

24 V   8 A   ↑   24 Ω   56 Ω

Fig. 2

3) Consider the circuit shown in Fig. 3. Calculate the resistance R_1 so that maximum power is delivered to the load resistor R_L. Calculate the power consumed by the resistor R_1. Given $R_2=9$ kΩ, $R_3=9$ kΩ, $R_L=3$ kΩ, $V_1=7$ V and $I_1=17$ mA.

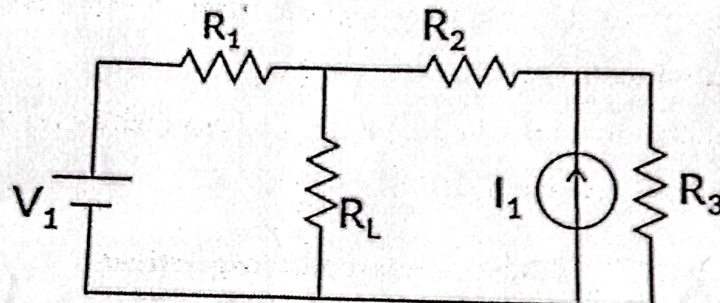5 Marks

R_1 R_2

V_1 R_L I_1 ↑ R_3

Fig. 3

4) Consider the circuit shown in Fig. 4, find the equivalent resistance between nodes A and B. Find the power consumed or delivered by the 24V voltage source.
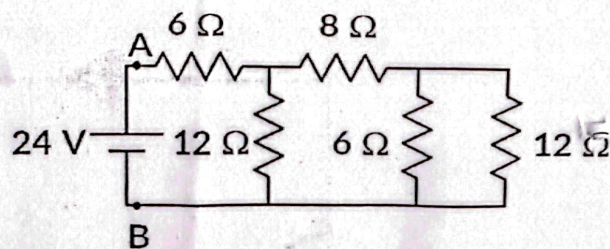
4 Marks

6 Ω   8 Ω
A

24 V   12 Ω   6 Ω   12 Ω

B

Fig. 4

5) Find the current I_D (in mA) flowing through the diode D1. Given $V_1=10$ V, $R_1=1$ kΩ, $R_L=1$ kΩ and the diodes are made of silicon and similar V-I characteristics. The cut-in voltage of the diode is 0.7 V.
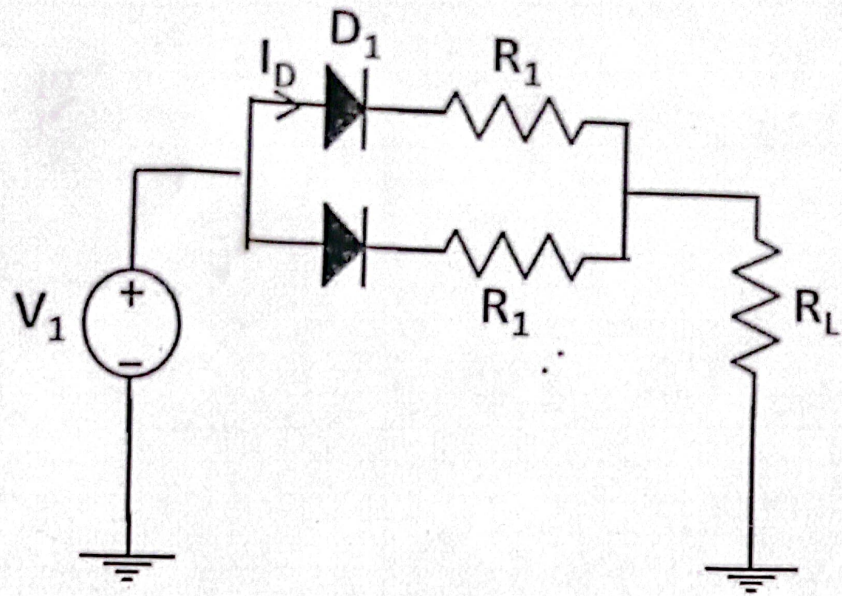
4 Marks

Fig. 5

6) For the circuit shown in Fig. 6, identify the filter type, find the transfer function and cut-off frequency of the filter. The output of the filter is taken between nodes C and D.   5 Marks
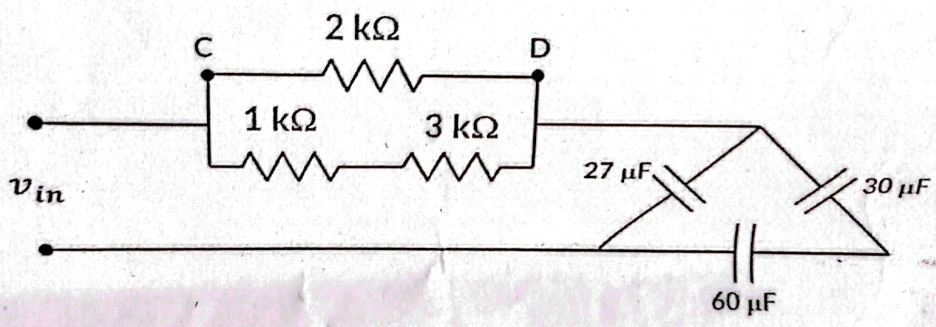

Fig. 6

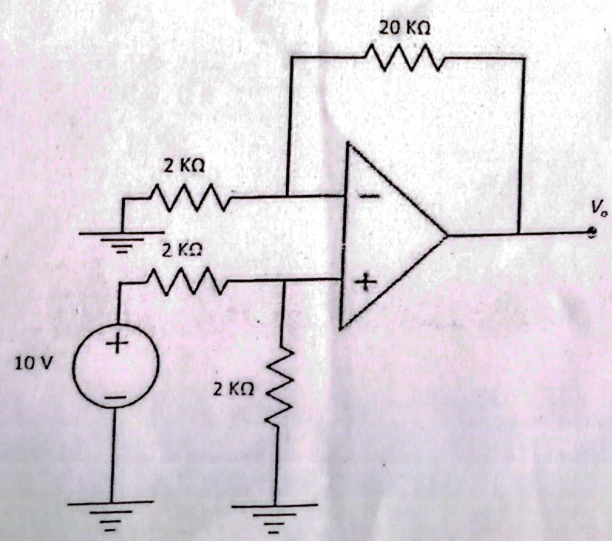7) Find the output voltage V_o shown in Fig. 7.   4 Marks

Fig. 7

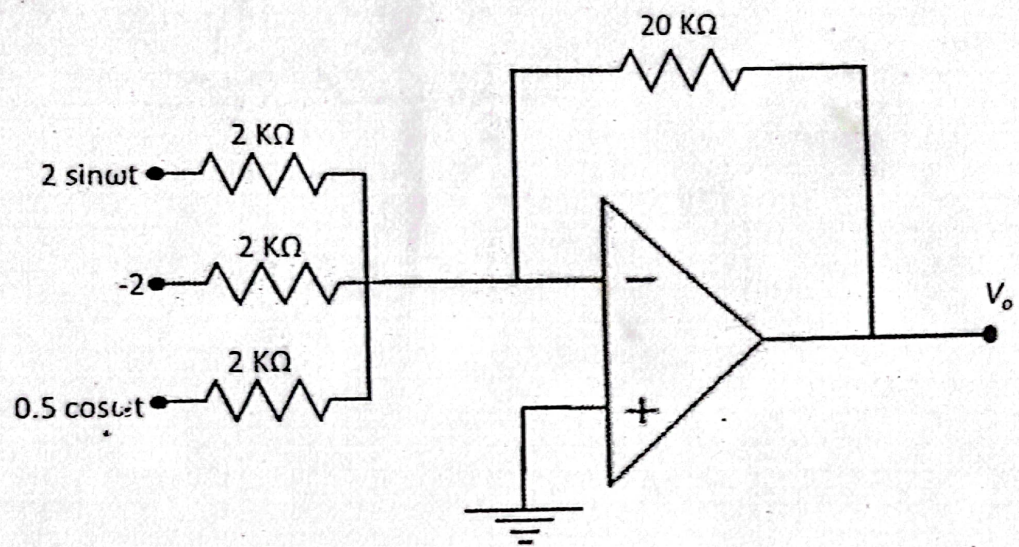8) Find the output voltage V_o of the circuit shown in Fig. 8.   4 Marks

20 KΩ

2 KΩ

2 sinωt

2 KΩ

-2

2 KΩ

0.5 cosωt

V_o

Fig. 8