Unit-1

1. MO configuration ☆☆
2. Liquid crystal, Types of liquid crystal properties and application ☆☆☆☆
3. structure, properties and application of graphite and fullerene (icosahedran). ☆☆☆☆ (structure or properties)
4. Preparation of CNT and its application
5. Greenchemistry and its 12 principle ☆☆ ☆☆ → learn only reading of 12 principle
6. Green route for paracetamol synthesis
7. convertion method of adipic acid

Unit-3

1. Theory of wet corrosion (electrochemical corrosion)
   a) By hydrogen evolution medium
   b) By oxygen absorption method
   → diagram and anodic and cathodic reactions are important ☆ ☆☆☆☆ ☆☆
2. Prevention method of corrosion
3. Electrochemical cell
4. Dry cell (Primary Battery)
   Laclanche (Secondary Battery)
   → Reactions and diagram are most important focus on reaction and diagram.
5. Portland cement manfacturing.
6. Setting and hardening of the cement / Role of Gypsum

(1) Decay of cement (sub topic)

$$Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$$
$$CaCO_3 + H_2O + CO_2 \rightarrow Ca(HCO_3)_2$$
$$Ca(OH)_2 + Ca(HCO_3)_2 \rightarrow 2CaCO_3 + 2H_2O$$

→ Important reactions

Unit - 4

(1) Zeolite Method
(2) Ion exchange resin method / Demineralisation — I ☆☆☆ ☆.
(3) Lime Soda method] II co — choice 98%.

I, II above topic reactions and diagram important for 7 marks.
(avoid topic theory if topic seems lengthy).

(4) Bomb calorimeter and 1 numerical is attached with for 7 marks ☆☆ ☆☆ ☆.

$$GCV/HCV = \frac{(w+W)(t_2-t_1)}{m}$$

OR

$$HCV/GCV = \frac{(w+W)(t_2-t_1+t_c) - (C_A+C_F+C_T)}{m}$$

7 marks Necessary.

$$HCV = \frac{1}{100}\left[8080C + 34500\left(H-\frac{O}{8}\right) + 2240S\right]$$

$$NCV = HCV - 0.09 \times H \times \text{latent heat}$$

(5) BIO GAS.

In this unit - 4. Numericals part is 60%.
So don't focus to cover all unit firstly cover above topic.

(6) Calgon method (Internal method)

If ask in 2 marks written only reaction

$$Na_2[Na_4(PO_3)_6] \rightarrow 2Na^+ + [Na_4(PO_3)_6]^{2-}$$

$$[Na_4(PO_3)_6]^{2-} + 2Ca^{2+} \rightarrow [Ca_2(PO_3)_6]^{2-} + 4Na^{2+}$$

$$[Na_4(PO_3)_6]^{2-} + 2Mg^{2+} \rightarrow [Mg_2(PO_3)_6]^{2-} + 4Na^+$$

Unit-2

Unit - 5

(1) conducting polymer and its classification (easiest topic of unit)

Other topics of this unit is to hand.

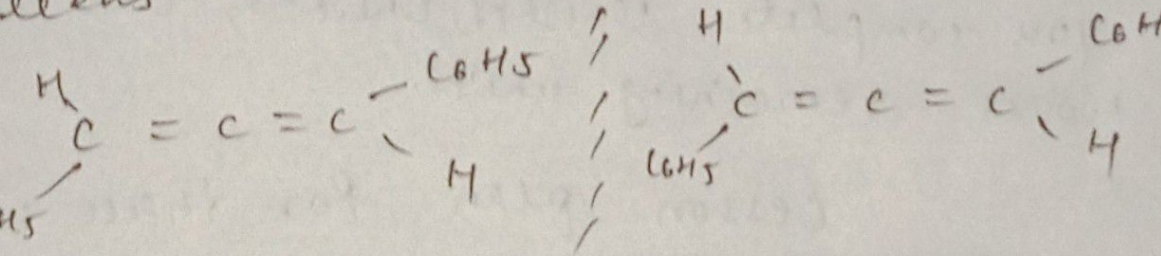
Unit - 2

(1) IR spectroscopy principle and theory. 7 marks Both.
* stretching and bending vibration

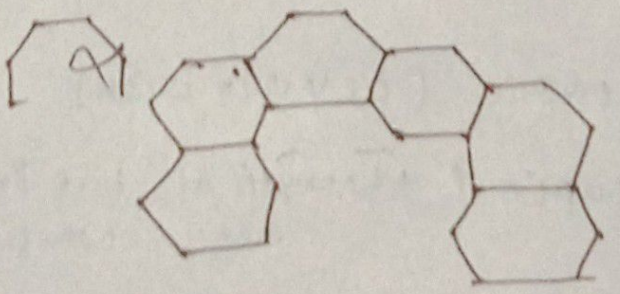
(2) NMR Spectrum
(a) Shielded Proton
(b) Deshielded Proton
(c) chemical Shift

(3) Atropisomers (showing optical isomerism in the absence of chiral carbon) and its five examples & solution.

(a). Allens



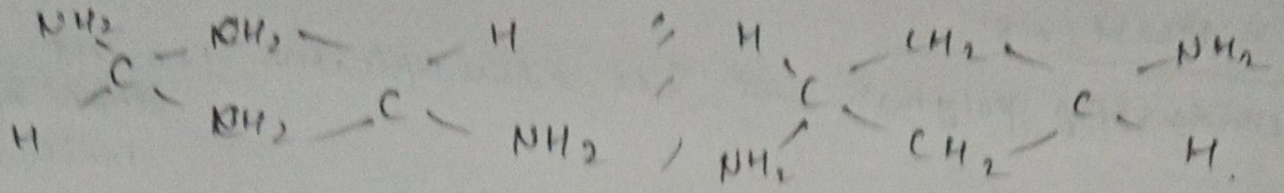
(b). Helicene.



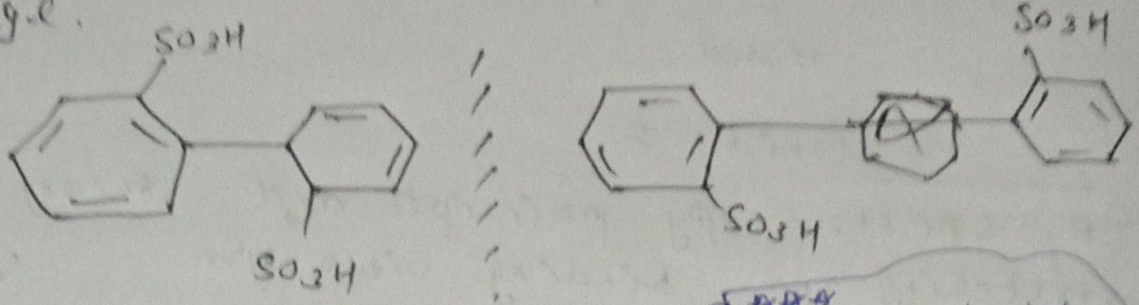
→ 6 Benzene Structure Search in google

becaus my drawing is not so good.

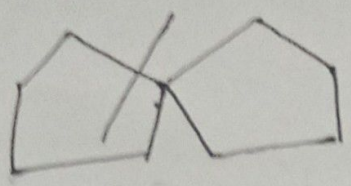
(iii) Spiro compounds



(iv) Biphenyl.



(v) trans cyclooctene



Notice

Jaise likha diye hai waise he padna dimag mt chalna jyada jithe dil bola ind ithe dim din me khtm hona chaiye

↓

faltu ka kuch kaam nh

Starting 20 topics are important
Don't avoid single topic.
firstly you complete Unit-1, Unit-3, Unit-4
then moves remaining units.

Lesson plan for three units

1) Unit - I
   - 3 topic (Morning).
   - 4 topic (as your wish)

   Day 1

2) Unit - 3
   - 5 topic (theoritical but important so read carefully
   - 2 topic. (when your mind energetic)

   Day 2

3) Unit - 4
   - total 4 topic. } (take 2 hours than finish)

   Day 3.

Electronics - One

Unit - 5

(1) ~~Complete Modulation~~ and
(2) Modulation techniques of AM wave
(3) De modulation techniques of AM wave.
(4) Complete AM wave derivation.
(5) Block diagram of Radar and Satellite communication with briefly explaination.
(6) Block diagram of communication system and need of Modulation.

Unit - 1

* Most important clipper ~~and~~, clamper and zener diode (Easy hai bs thoda koshis kriyo samajne ke. has bas jyada ata hai)

clipper, clamper = zener diode
choice.

Unit - 3 (A print out provided)

Unit - 2

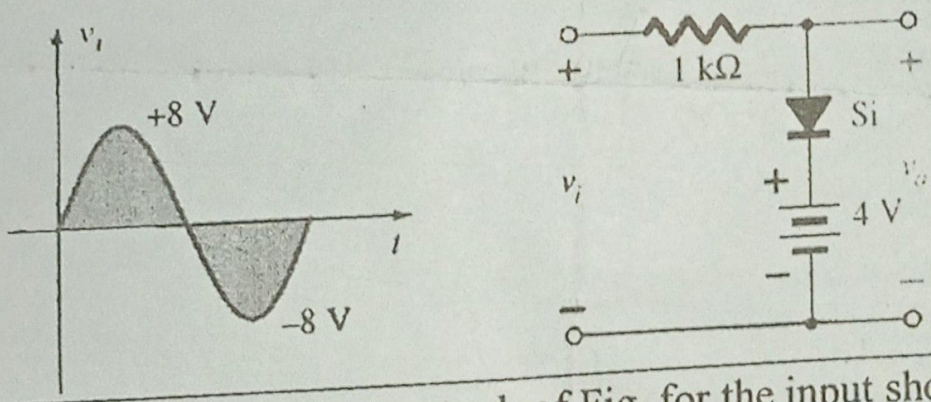
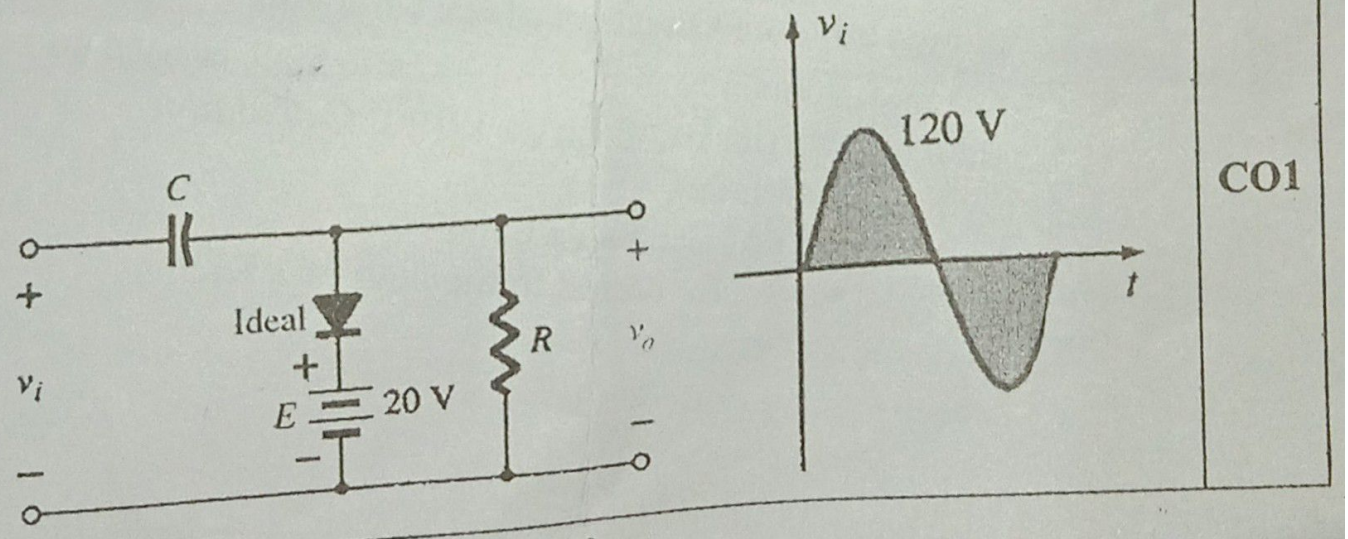
Easy hai bs diagram hai isme kuch important nhi hai ~~has~~ jb upr ke fin hojye tb o hi unit - 2 pr aana otherwise dimag khrb ho jayega.

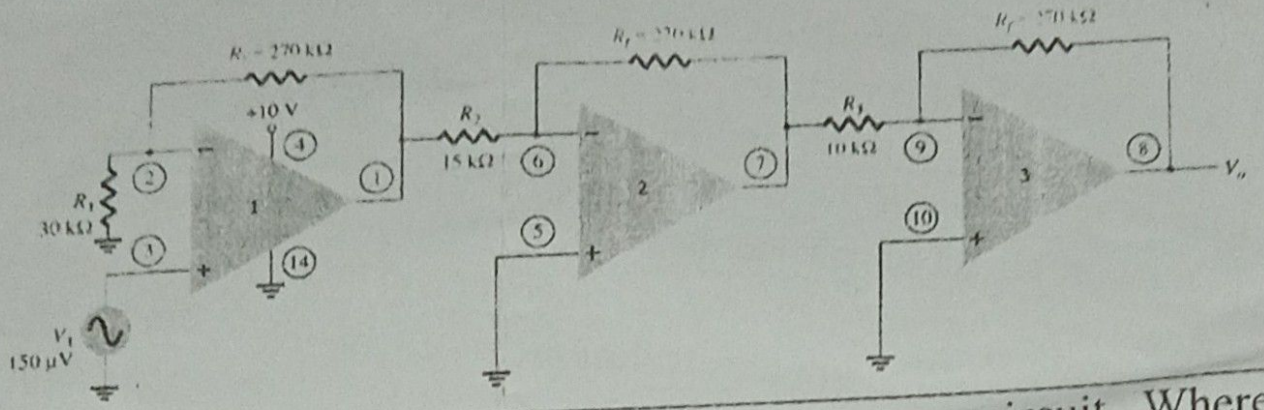
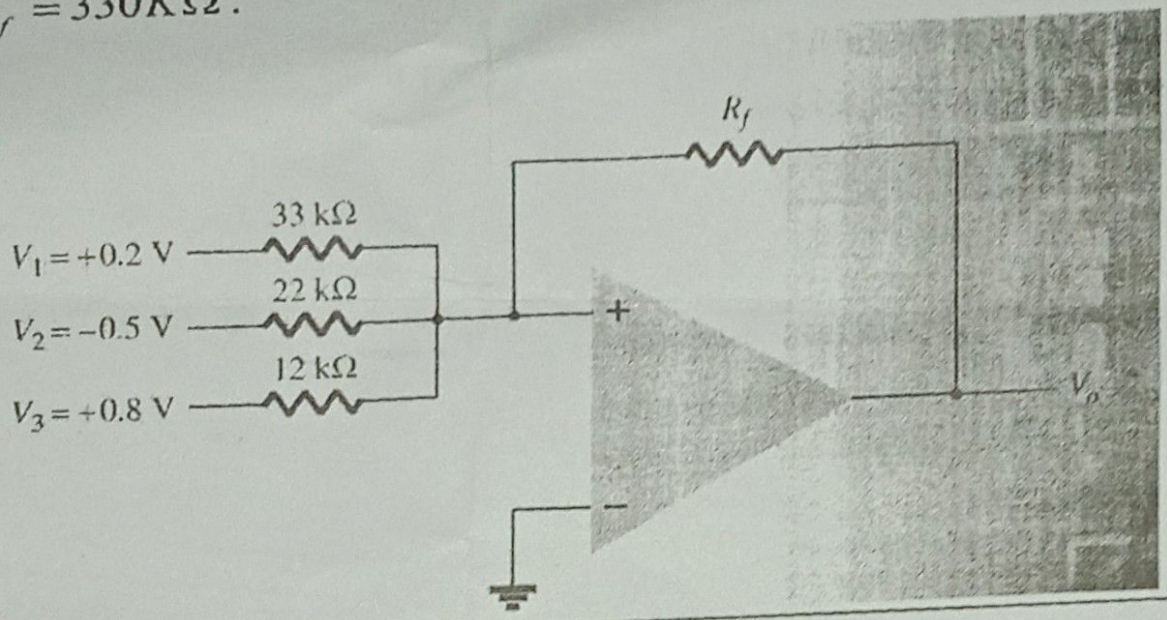
	power in modulated wave.	

SECTION-B

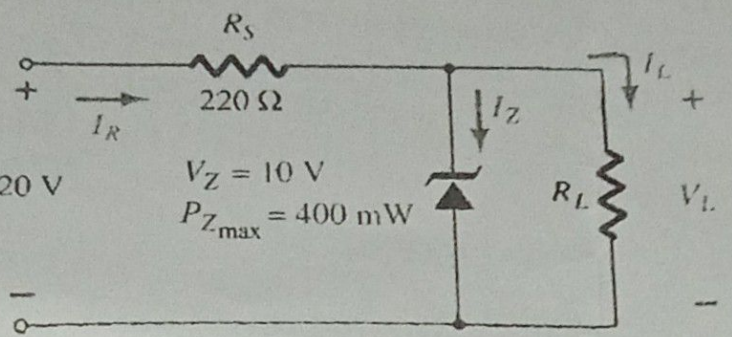
Q.2	Attempt any three Questions (7x3=21)	CO
a.	***Why*** bridge type full wave rectifier is preferred over center tapped full wave rectifier. State two reasons. Also, ***explain*** the working of bridge rectifier. ***Derive*** the expression for rectification efficiency and ripple factor for the same.	CO1
b.	Draw and ***explain*** the working of full wave voltage doubler.	CO1
c.	Draw the circuit of an adder using op-amp and ***explain*** its working.	CO3
d.	***Explain*** the circuit of op-amp as integrator and differentiator.	CO3
e.	***Describe*** AM modulation techniques with adequate diagrams.	CO5

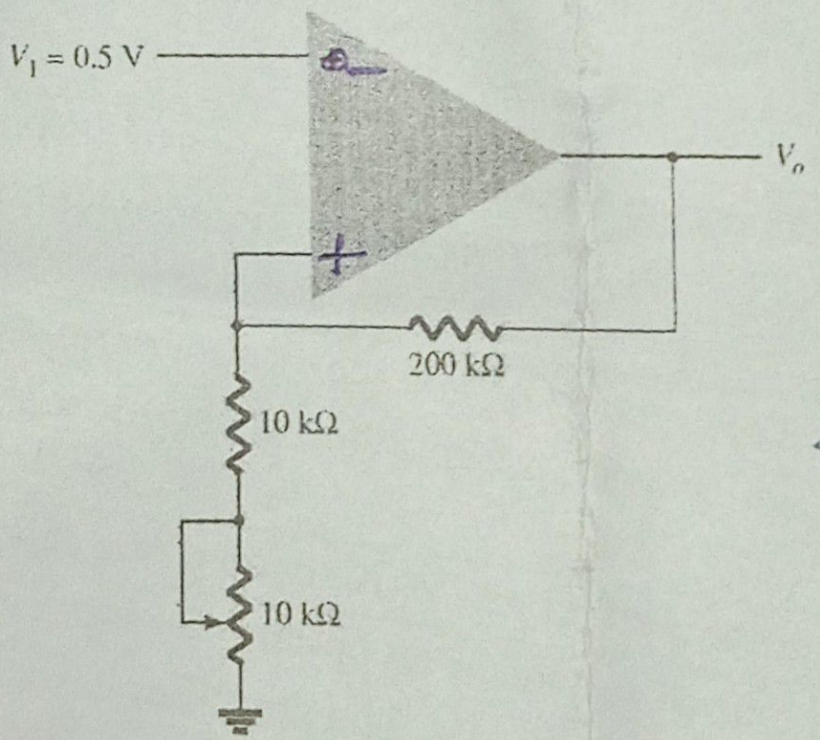
SECTION-C

Q.3	Attempt any one Question of the following (7 x 1= 7)	CO
a.	***Determine*** V_0 for the network of Fig. for the input shown. 	CO1
b.	***Determine*** V_0 for the network of Fig. for the input shown. 	CO1

Attempt any one Question of the following (7 x 1= 7)	CO
Determine the output voltage for given op-amp circuit:  	CO3
Determine the output voltage for given op-amp circuit. Where $R_f = 330K\Omega$:  	CO3

Attempt any one Question of the following (7 x 1= 7)	CO
An audio frequency signal $30\text{Sin}2\pi \times 500t$ is used to amplitude modulate a carrier of $40\text{Sin}\ 2\pi \times 10^5 t$. ***Calculate***: (i) Modulation index (ii) Amplitude of Each side band (iii) Total power delivered to the load of 2 KΩ. (iv) Bandwidth (v) Sideband frequencies (vi) Sideband Power (vii) Modulation efficiency	CO5
Draw and ***explain*** elements of communication system. Also explain why modulation is required for communication?	CO5

Attempt any one Question of the following (7 x 1= 7)	CO
Determine the range of R_L *and* I_L to ensure that the Zener diode is in the "on" state.  	CO1
Design a voltage regulator that will maintain an output voltage of 20 V across a 1 $K\Omega$ load with an input that will vary between 30 V and 50 V. That is, ***determine*** the proper value of R_S and the maximum current I_{ZM}.	CO1

Attempt any one Question of the following (7 x 1= 7)	CO
Determine the range of output voltage for given op-amp circuit:  	CO3
Design an op-amp circuit to justify the given output: $V_0 = -15V_1 + 20V_2 - 6V_3$	CO3

Q.6	Attempt any one Question of the following	(7 x 1=
a.	Perform following operation as indicated. (i) ***Determine*** 2's complement of (10101011O)2. (ii) ***Find*** x: $(211)_x = (152)_8$. (iii) Using 2's complement, subtract binary number (101 $(1111)_2$. (iv) ***State*** De Morgan's Law. (v) ***Define*** minterm and maxterm.	