Asknon I

A) O outed 20ths Siedeu ons Evos nder apoviou Siveral and Tou

Tho: T= To e-lac

Vo: Upos evergenator poopeatos
m: para ndertooviou
a: sipos poopeatos JAON TO = 16 E ( VO-E)

 $T_{0} = \frac{16E(V_{0}-E)}{V_{0}^{2}} = \frac{16 \cdot 0.1(1-0.1)}{12} = \frac{1.44}{12}$   $C = \frac{2m(V_{0}-E)}{5} = \frac{12 \cdot 9.11 \cdot 10^{-31}(1-9.1) \cdot 1.6 \cdot 10^{-19}}{1.05 \cdot 10^{-34}} = \frac{1.05 \cdot 10^{-34}}{1.05 \cdot 10^{-34}} = \frac{1.05 \cdot 10^{-3$ 

Apa: T= 1,44e-2.4,87.109.4-10-10 = 1,44e =>

T= 0,02926

B) Ta To, c Sev snapsaforzal and zav allogni apa: a'= 12 A = 12.10-10 m ral: T'= 1,44 e-2.4,07.103.12.10-10 = 1,49 e =>

T'= 0,00001208

1) loxin nus Jegóbon = T. Jero = Jero = Jero = 1,2 = 0,41011

Apo n Grecipern nucultura más reportur. 0,41011 = 0,256.1019 mA/
(m².C)

Aornon I

· Opiopos pipos fiosos: Esteu STI Ta polito ten auditipar repropir p, n Eiros perdia DE Steen RE to Him Scatuons tow popular in te. Etn Sloso Hispor finition to pure tur oude tepour neproxiby sival proportion and to pinku Sidjusis zur popleur, Endadni: lp = L cai lu eth

· Anoder Ens 10x JEP nas pn (x=Wn) = pno ear den (x=Wn)=0

Apr (x=0) = Apr (0) = A+B

Spn (x=Wn) = A e -Wn/4 + Be Wn/4 = 0

 $\Delta p_n(x) = \Delta p_n(0) \left( \frac{e^{W_n - x/L_p} - e^{-(W_n - x)/L_p}}{e^{W_n/L_p} - e^{-(W_n - x)/L_p}} \right) \Delta p_n(0) \frac{S/nh(\frac{W_n - x}{L_p})}{e^{W_n/L_p} - e^{-(W_n - x)/L_p}} = \frac{S/nh(\frac{W_n}{L_p})}{s/nh(\frac{W_n}{L_p})}$ 

H συχτέντρωση ρεύρατος των οπών είναι: Τρ(κ)= q. Dp βno (e q. νε/ετ -1) τος h (wn-κ/4ρ)

γρ (σ) (ωη/4ρ)

 $J_{\rho}(0) = 4 D_{\rho} \rho_{00} \left( e^{4V_{5}/kT} - 1 \right) \frac{1}{t_{an} h \left( \frac{w_{h}}{t_{\rho}} \right)}$ 

Euraha naparapaipa nos a oudornon Aprik) Elvas polivousa. Apa a oujelvousa. zuv popéan assondances polivis spalapsied.

## Ascusa III

8) 
$$\phi_{Bn} = V_{Di} + V_{Di} = \phi_{Bn} - V_{Di} = \phi_{Bn} - \frac{27}{9} \frac{2nN_{Di}}{N_{Di}} = 0,49 - \frac{8,62.10^{-5}.300}{1,6.10^{-19}} \frac{\ln(2,8.10^{19})}{3.10^{13}} = 0,49 - 0,2369 = 0,254 V$$

$$\frac{\Gamma}{V} = \frac{2(V_{bi} - V)}{V} = \frac{2(V_{bi}$$

$$=\frac{2(0,254-(-5))}{[2\cdot11,7\cdot8,85\cdot10^{-19}(0,254-(-5))]}=\frac{6,9\cdot10^{-19}}{1,6\cdot10^{-19}-310^{15}}$$

$$\Delta) C = \frac{\xi_{S}}{W} = -\frac{\xi_{O} \cdot \xi_{F}}{\sqrt{\frac{2 \cdot \xi_{O} \cdot \xi_{F}}{V_{O} \cdot V_{O}}}} = \frac{6,87 \cdot 10^{-9} \, \text{F}}{(V_{O} - V_{O})}$$

Asknon IV

A) Da  $E_1^2$  Eta 600/4E to parrofitro on Sio xporisés repidéous: 1. Por inv apo ontwon to puties 6200 negroyago:  $\frac{dn}{dt} = \frac{d\Omega_n}{dt} - G_L + G_{th} - R = 0 \Rightarrow G_L = G_{nopeo}$ 

I. Meta in nod on avon 1 0 x ve 1:

R= (po (no+ An) kai apa Gth-R= (po An = -An

 $\frac{d(\Delta n)}{dt} = G_L - \Delta n = 0 \quad \text{, we } \Delta n = G_L \cdot \tau_h = g' z_h = 5 \cdot 10^{14} \text{cm}^{-3}$ 

Apa d(On) - An => On(+) = In(0) e - t/zh = 5-104 (- 6/5-10-6) Mu kalder

 $b_{\text{ray}} t = 9.10^{-6} \text{ sec} \quad \frac{7}{4} \text{ aravoyage } = \frac{7}{4} \text{ nngh } \text{ possions} = \frac{7}{4} \text{ sec} = \frac{7}{4} \text{ nngh} = \frac{7}{4} \text{ nng$ 

EZIONONS EQUAL OFFINE OFFIN JOM: Dn(t')= Ge + g'In

Opus  $\Delta h(0) = 3.35 - 10^{14} = 0$   $C_1 = -1, 65 - 10^{14}$  kar doa:  $\Delta h(t^1) = 5 - 10^{14} - 1,65 - 10^{14} e^{(-t^1/5 - 10^{14})}$ 

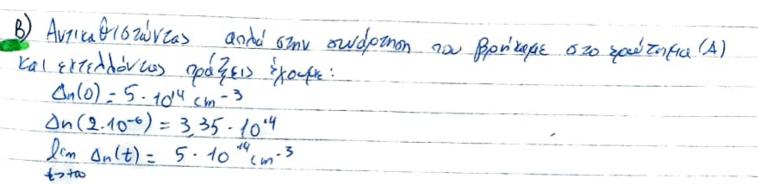
TEXIEN, N GWOZINI OWAPENON SIVAL:

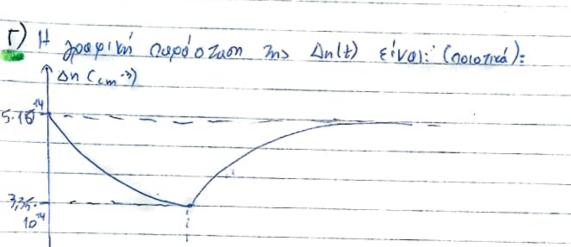
(5.10" e(-t/5.10-6), av te [0, 2.10-6] sec

An(+) = 

(5.10" - 1,65.10" e(-t-2.10-6/5.10-0), av t 7, 2.10-6 sec







2.10-6