



Subject: Electronics
Branch: Applied physics
Examiner: Dr. Odai N. Salman

Class: Third class
Time: 3 hours
Date:

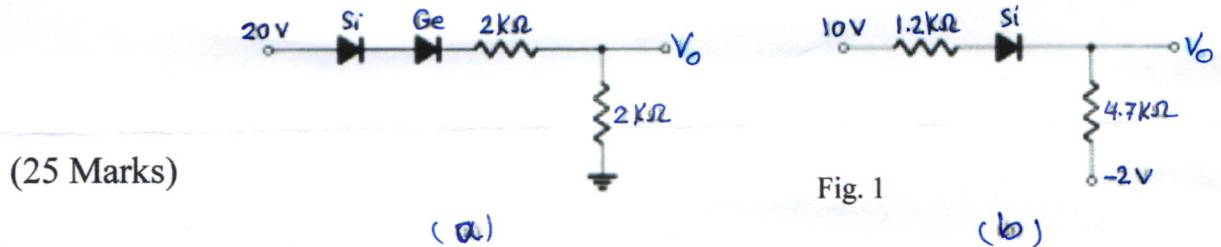
Note: answer **four** questions only. (25 Marks)

Q1: (a) Define **four** from the following:

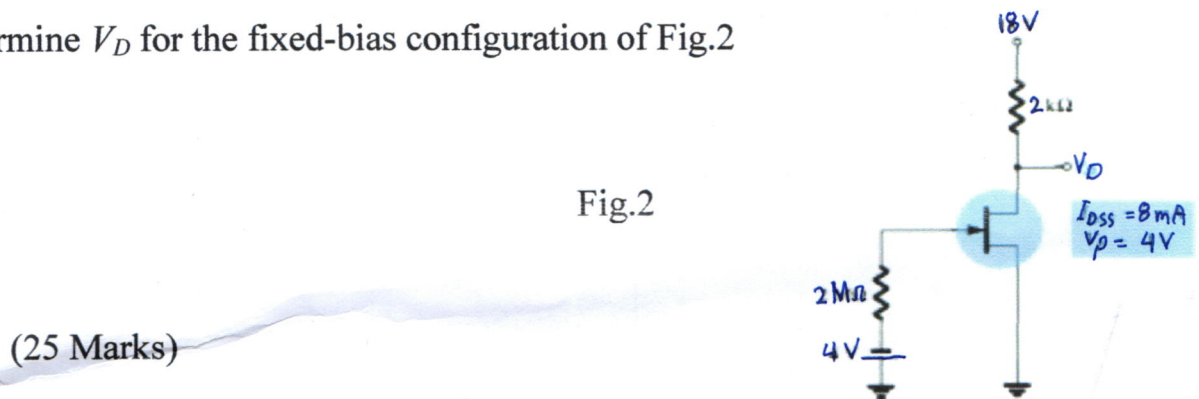
- 1) Tunnel diode 2) Photoresistor 3) Zener diode 4) junction transistor 5) Slew Rate

(b) What are the differences between the Schottky diode and p-n junction diode?

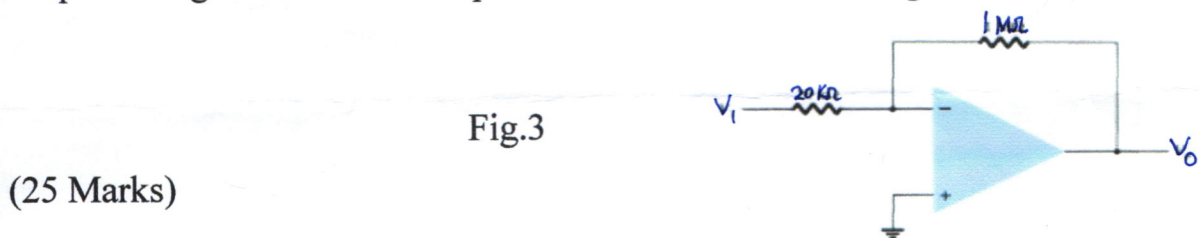
Q2: Determine the level of V_O for each network of Fig.1



Q3: Determine V_D for the fixed-bias configuration of Fig.2

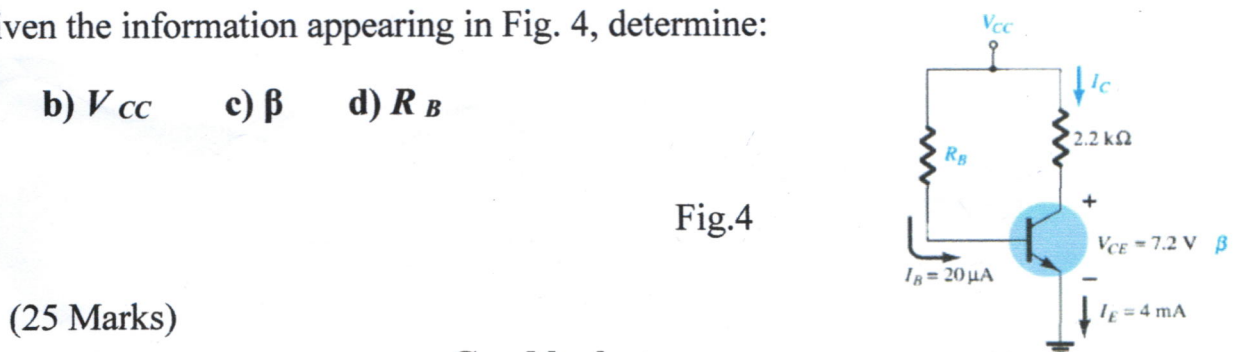


Q4: What input voltage results in an output of 2 V in the circuit of Fig.3

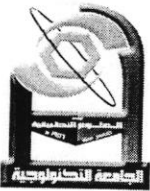


Q5: Given the information appearing in Fig. 4, determine:

- a) I_C b) V_{CC} c) β d) R_B



Good luck



University of Technology
Department of Applied Sciences
Final Examination 2015/2016



Subject: Electromagnetic
Branch: Applied physics branch
Examiner: Dr. Rabeah Q.Nafil

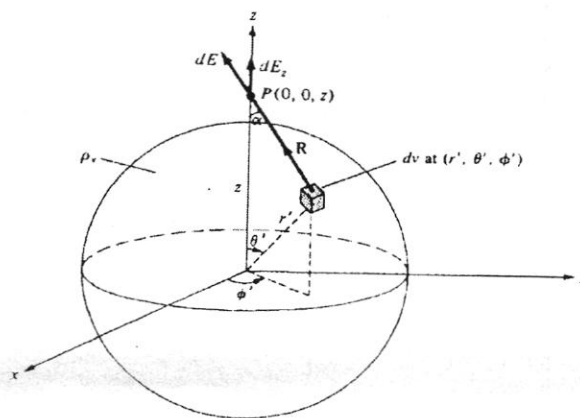
Class: 3 year
Time: 3 hour
Date: 2nd Attempt

Answer only four questions

Q1- The Charge dQ distributes in a volume dv with uniform density ρ_v as shown in in

the figure. Use Coulomb's law to prove that $\vec{E} = \frac{Q}{4\pi\epsilon_0 z^2} \vec{a}$.

(17.5 degree)



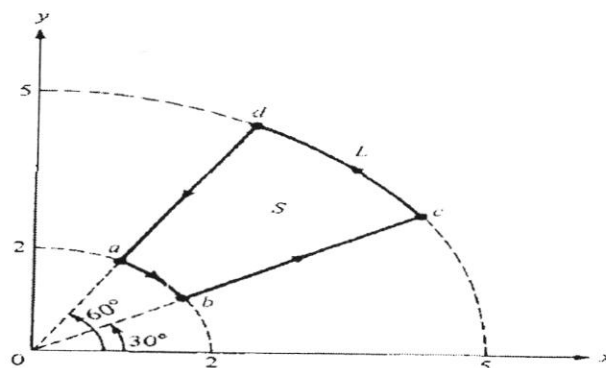
Q2- Classify dielectric materials depending on their permittivity.

(17.5 degree)

Q3- If $\vec{A} = \rho \cos \phi \vec{a}_\rho + \sin \phi \vec{a}_\phi$. Evaluate $\oint \vec{A} \cdot d\vec{l}$ around the path shown in the figure.

Confirm this using Stokes's theorem.

(17.5 degree)



Q4- Three point charges $-1nC$, $4nC$, and $3nC$ are located at $(0,0,0)$, $(0,0,1)$, and $(1,0,0)$ respectively, find the energy in the system.

(17.5 degree)



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Q5- Consider an infinite current sheet in the $z = 0$ plane. If the sheet has a uniform

current density $\vec{K} = K\vec{a}_y$, prove that $\vec{H} = \frac{1}{2}\vec{K} \times \vec{a}_n$.

(17.5 degree)

Good luck