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| AIUB | **American International University- Bangladesh (AIUB)**  **Faculty of Engineering (EEE)** | | | | | | |
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| **Course Name :** | | Electronic Devices | | | **Course Code :** | | EEE 2103 |
| **Semester :** | | Spring 2023 | | | **Sec : K** | |  |
| **POI** | | **P.b.2.C4** | | | **Assignment No :** | | Non-OBE |
| **Student Name:** | |  | | | **Student ID:** |  | |
| **Submission Date:** | | |  | | **Due Date :** | **26 April 2023** | |
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**Assignment Problem**

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| 1 | ***Analyze*** the transfer characteristics curve of D-MOSFET and E-MOSFET (any one channel is ok) using the Shockley’s equation and shorthand method. Consider the pinch-off voltage is [use appropriate sign here] [three digits before the last digit of your ID] mV and IDSS is [three digits before the last digit of your ID] mA. | **[4]** |
| 2 | ***Analyze***the Q points (**IDQ**, **VGSQ**,) for different values of the **Rs** (220 Ω and 770 Ω) for the E-MOSFET voltage divider configuration given in Fig. 2. | [**4**] |
|  | Diagram, schematic  Description automatically generated  **Figure for Question 2** |  |

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| 3 | ***Analyze*** the gm at different dc bias points of (-0.90 V, -1.40 V and -2.2 V) both graphically and mathematically for a JFET having IDSS of 6 mA and Vp = -5 V and comment on it. | **[4**] |
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| 4 | For the network given in Fig. 4, ***analyze*** **Av** by determining the values **Zi**, **Zo** for **RD** = 3 kΩ and 5 kΩ.  Diagram, schematic  Description automatically generated  **Figure for Question 4** | **[4]** |
| 5 | Design a self-bias network using a JFET transistor with IDSS = 10 mA and VP = -4 V to have a Q -point at IDQ = 6 mA using a supply of 16 V. Assume that RD = 3RS and use standard values. | **[4]** |