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| **Department of Electrical Engineering**  **Mid-term**  **Date: 24/08/2020**  **Course Details** | | | |
| **Course Title:** | Electronic Circuit Design | **Module:** |  |
| **Instructor:** |  | **Total Marks:** | 30 |
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**Student Details**

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| **Name:** |  | **Student ID:** |  |

**Student Signature:**

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| Q1. |  | For the circuit given in figure 1. Answer the following:   1. Which type of transistor is that? 2. Label the Drain, Source and Gate. 3. Determine the values of VDS and VGS     **Figure 1** | Marks 09 |
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| Q2. |  | **Explain** the drain characteristic curve of D-MOSFET given below in Fig. 2.    **Figure 2** | Marks 06 |
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| Q3. |  | **Sketch** the hybrid equivalent for common emitter transistor. Write equations for the transistor in common emitter configuration. | Marks 05 |
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| Q4. |  | **Explain** why both types of MOSFETs have an extremely high input resistance at the gate. (Marks 01)  In **what** mode an *n*-channel D-MOSFET with a positive *V*GS is operating? (Marks 01)  **Why** must the gate-to-source voltage of an *n*-channel JFET always be either 0 or negative? (Marks 01)  **Briefly discuss** that how BJT differs from FET? (Marks 04)  MOSFET is also called IGFET, give reason **why**? (Marks 01)  **Why** JFET is called Squared Law Device? (Marks 01)  **What** can be the main disadvantage of common-base amplifier as compared to the common-emitter and emitter-follower amplifiers? (Marks 01) | Marks 10 |
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