Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

THIRD SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: ANALOG ELECTRONIC CIRCUITS [ICE 2104]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	Plot the transfer characteristics of a E-MOSFET indicating its salient features	**3**
1B.	With the constructional schematic of an n-type JFET explain its V-I characteristics.	**4**
1C.	List the advantageous of FET over BJT	**3**
2A.	For the circuit shown in Fig. Q2A compute the biasing parameters I_{DQ}, V_{DSQ}, V_{GSQ}, V_D, V_S	**3**
2B.	Derive the biasing conditions for a common gate circuit.	**3**
2C.	For the source follower circuit derive the expression for input impedance, output impedance, and gain considering the effect of signal and load resistance	**4**
3A.	For the circuit shown in Fig. Q3A compute the input impedance, output impedance, and gain.	**4**
3B.	Compute the input impedance, output impedance, and gain (with and without rd) for the circuit given in Fig. Q3B	**4**
3C.	Compare voltage series feedback and current series feedback amplifiers	**2**
4A.	Plot the low frequency response for the circuit shown in Fig. Q4A	**4**
4B.	Analyze the high frequency characteristics of the fixed bias circuit.	**3**
4C.	Derive the expressions for input impedance, output impedance, and gain for a current shunt feedback amplifier	**3**
5A.	Design a colpitts oscillator for the oscillatory frequency of 100kHz	**3**
5B.	Describe the working of RC phase shift oscillator	**2**
5C.	Discuss the working of Class B power amplifiers	**2**
5D.	Comment on frequency response characteristics of cascode circuits	**3**

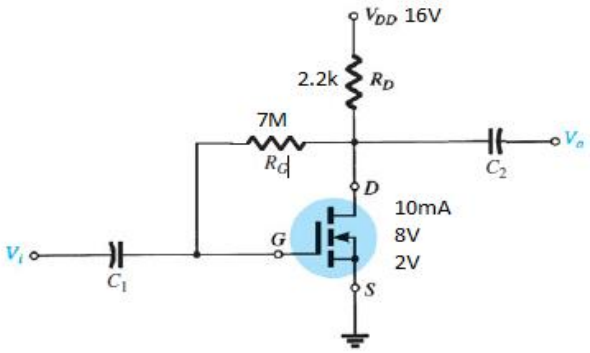

Fig. Q2A

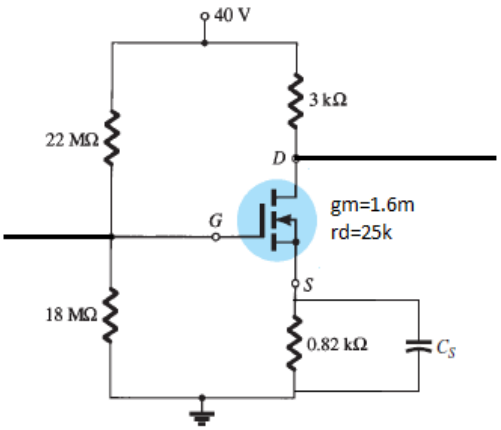

Fig. Q3A

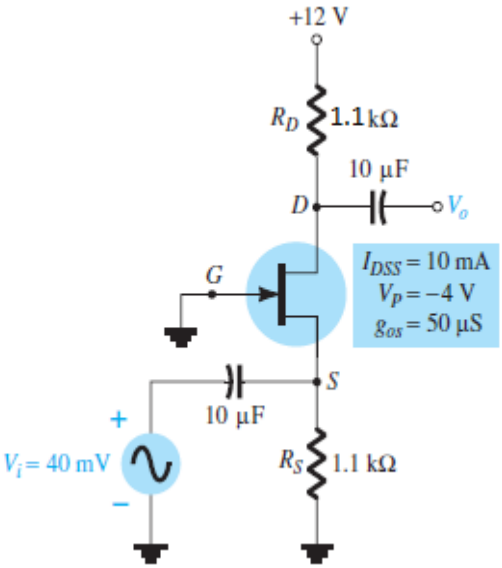

Fig. Q3B

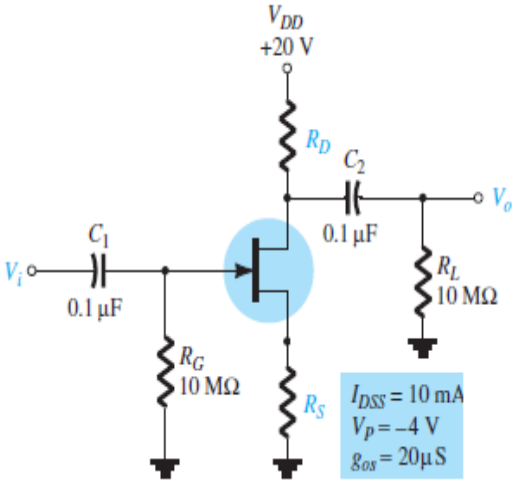

Fig. Q4A

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