COURSE CODE (CREDITS): 18B11EC313(4)

MAX. MARKS: 35

COURSE NAME: Electronic Devices and Circuits

COURSE INSTRUCTORS: Er. Munish Sood

MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. The levels of V_{DS} and I_D are specified as $V_{DS}=1/2 V_{DD}$ and $ID = I_{D (on)}$ for the network of following Fig.(1). Determine the levels of V_{DD} and R_D. [5] CO4

Fig.(1)   Fig.(2)
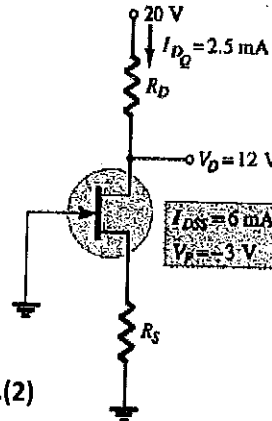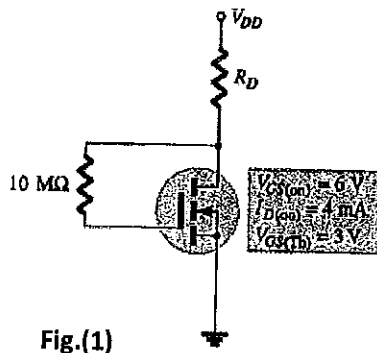
Q2) For the network of Fig.(2) the levels of V_D and I_{DQ} are specified. Determine the required values of R_D and R_S. [5]CO4

Q3) Determine the level of V_D and V_C for the network of Fig.(3). [5]CO2&CO3

Fig.(3)
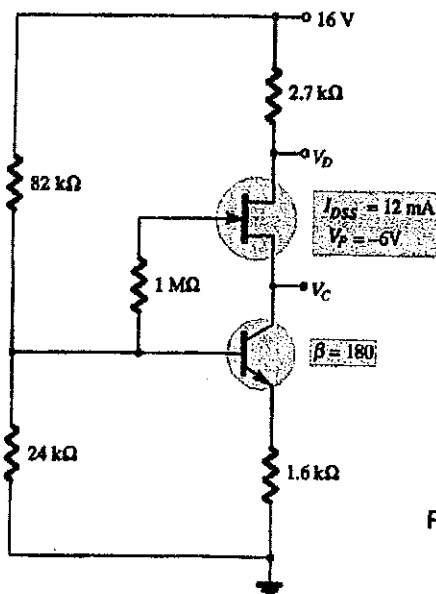
Q4) For the network of Fig.(4) determine V_{GSQ}, I_{DQ}, Z_i, Z_O and A_V. [5]CO5
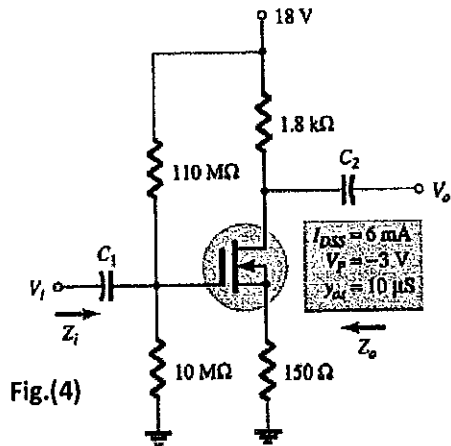
Fig.(4)

$I_{DSS} = 6\ mA$
$V_P = -3\ V$
$y_{os} = 10\ \mu S$

Fig.(5)

$h_{fb} = -0.99$
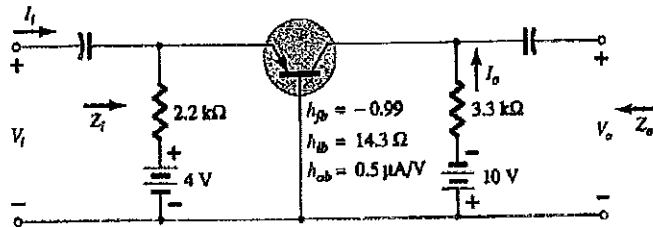$h_{ib} = 14.3\ \Omega$
$h_{ob} = 0.5\ \mu A/V$

Q5) For the network of Fig.(5), determine Z_i, Z_o, A_v and A_i.   [5]CO3

Q6) For the cascade amplifier of network of Fig.(5) calculate dc bias, input impedance, output impedance, voltage gain and output voltage.   [5]CO6
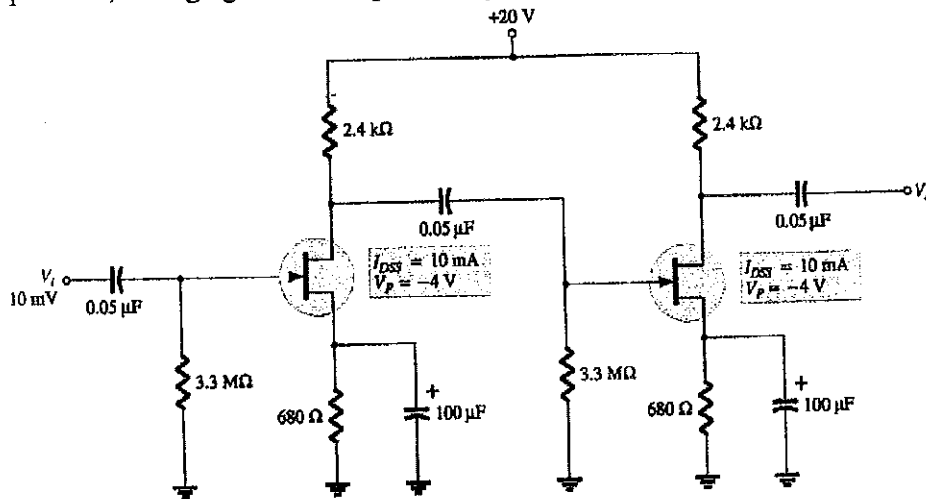

$I_{DSS} = 10\ mA$
$V_P = -4\ V$

$I_{DSS} = 10\ mA$
$V_P = -4\ V$

Fig.(6)

Q7) Determine for the network of Fig.(7)   [5]CO1

(i) V_L, I_L, I_Z and I_R for the following network with $R_L = 470$ ohms.
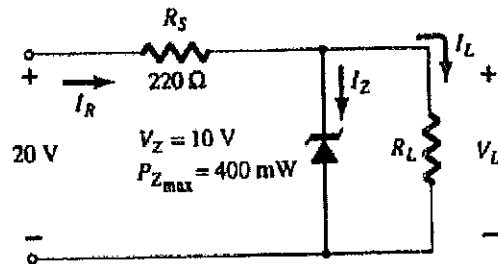(ii)   The minimum value of R_L to ensure that the Zener diode is in the on state.

R_S
$220\ \Omega$
$20\ V$
$V_Z = 10\ V$
$P_{Z_{max}} = 400\ mW$

Fig.(7)