Extra

V. P. & R. P. T. P. SCIENCE COLLEGE

Vallabh Vidyanagar

Internal Test

BSc [Semester - V] Subject: Physics Course: US05CPHY05

Title: Analog Devices and Circuits

Date: 05-10-2016, Wednesday **Time: 11 am to 12.30 pm**

Total Marks 25

Q-1 **Multiple Choice Questions: [One mark each]** 3

[i] Transconductance is measured in _____.

(a) Ohm (b) Mho (c) Siemen (d) both (b) and (c)

[ii] The correct relationship is _____.

(a) $f_\beta < f_T < f_\alpha$ (b) $f_\beta < f_\alpha < f_T$ (c) $f_\alpha < f_\beta < f_T$ (d) $f_\beta = f_T = f_\alpha$

[iii] The number of biasing resistor(s) used in a pure class B push pull amplifier is/are _____.

(a) One (b) Two (c) Three (d) Zero

Q-2 **Answer any two questions in short. [Two marks each]** 4

[A] The JFET has I_{DSS} = 10 mA and V_P = 2 V, then R_{DS}=_____Ω.

[B] List four h-parameters of CE transistor amplifier.

[C] If D_2 = 4%, D_3 = 0%, D_4 = 3% and D_5 = 9%, calculate total harmonic distortion (D_T) of the power amplifier.

Q-3 Discuss any two biasing circuits of JFET amplifier. **6**

OR

Q-3 Discuss any two applications of JFET. **6**

Q-4 Discuss hybrid π-model to study the high frequency response of CE amplifier. **6**

OR

Q-4 Discuss effect of coupling capacitor and bypass capacitor on low-frequency response of the CE transistor amplifier. **6**

Q-5 Explain design theory for power amplifier. **6**

OR

Q-5 Define conversion efficiency of an amplifier. Prove that conversion efficiency of class B push pull amplifier is equal to 78.5%. **6**

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