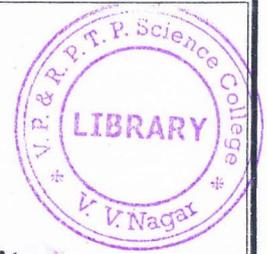


V. P. & R. P. T. P. SCIENCE COLLEGE  
VALLABH VIDYANAGAR  
B. Sc. SEMESTER - V



Subject: PHYSICS Course Code: US05CPHY05  
Subject/Course Title: Analog Devices and Circuits

First Internal Test: 2019-2020

Date: 09 / 10 / 2019, Wednesday

Time: 11:00 am to 12:15 pm

[Max Marks: 25]

**Q-1 Multiple Choice Questions: [Attempt all] [5]**

- (1) A JFET has  $V_P = 8 \text{ V}$  and  $I_{DSS} = 100 \text{ mA}$ . The ohmic resistance = \_\_\_\_\_ ohm and the gate-source cutoff voltage = \_\_\_\_\_ volt.  
(a) 80, 8 (b) 80, -8 (c) 8, 80 (d) 8, -80
- (2) The JFET buffer has advantage of \_\_\_\_\_ input impedance and \_\_\_\_\_ output impedance.  
(a) High, Low (b) Low, High (c) High, High (d) Low, Low
- (3) In CE configuration of a transistor amplifier  $h_{fe}$  is \_\_\_\_\_ and current gain  $A_i$  is \_\_\_\_\_ .  
(a) Positive, Negative (b) Negative, Positive (c) Positive, Positive (d) Negative, Negative
- (4) Class \_\_\_\_\_ push pull amplifier removes the cross-over distortion.  
(a) A (b) B (c) AB (d) All of these
- (5) The OpAmp parameter \_\_\_\_\_ changes with temperature.  
(a)  $I_{os}$  (b)  $V_{os}$  (c) Both (a) and (b) (d) CMRR

**Q-2 Discuss: (i) Gate Bias and (ii) Two Supply Source Bias a JFET. [5]**

**OR**

**Q-2 Discuss JFET applications: (i) Chopper and (ii) Multiplexing. [5]**

**Q-3 Derive amplifier equations of (i) current gain and (ii) voltage gain. [5]**

**OR**

**Q-3 Describe hybrid  $\pi$  model to study the high frequency response of CE amplifier. [5]**

**Q-4 Describe class A push pull amplifier. [5]**

**OR**

**Q-4 Describe class B push pull amplifier. [5]**

**Q-5 Describe use of Op-Amp as summing amplifier (inverting mode only). [5]**

**OR**

**Q-5 Write a note on ideal inverting OpAmp. [5]**

+++++ALL THE BEST