



SF-8188

B. E. - II (Sem. IV) (ECC/IC) Examination

May / June - 2011

Advance Electronics

(New Syllabus)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दर्शायेले निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. - 2 (Sem. 4) (ECC/IC)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Advance Electronics (NEW)"/>	<input type="text"/>
Subject Code No. : <input type="text" value="8"/> <input type="text" value="1"/> <input type="text" value="8"/> <input type="text" value="8"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="Nil"/>	
Student's Signature	

- (2) Attempt all questions.
- (3) Make suitable assumption wherever necessary.
- (4) Figures to the right indicate full marks.

1 (a) Answer the following : 10

- (1) The equation for desensitivity $D =$ _____.
- (2) Negative feedback is used by _____.
- (3) The type of negative feedback for emitter follower is _____.
- (4) The RF amplifiers operates in the range of _____.
- (5) The sag represents _____ frequency distortion.
- (6) In order to avoid phase distortion, the phase shift of an amplifier should be _____ to frequency.
- (7) The f_{μ} of emitter follower is _____ than that of a CE amplifier.

- (8) Define f_{μ} and f_{β} .
- (9) At $f = f_H$, the gain reduces to _____ of its midfrequency value.
- (b) What is GB product ? What is its importance ? **5**
- (c) State and explain various resistances in hybrid π -model. **5**
- 2** (a) Draw and explain two cascaded CE transistor stage. Derive the required equation. **8**
- (b) Draw and explain multi-stage amplifier with voltage series feedback. Derive the necessary equations. **7**
- OR**
- 2** (a) Draw and explain the negative feedback current shunt configuration. Derive the necessary equations. **8**
- (b) Define base spreading resistance. Also derive its equation using hybrid π model. **7**
- 3** Answer the following : (any **three**) **15**
- (1) Barkhausen's criteria
- (2) Comparison of negative and positive feedback
- (3) Typical frequency response of an amplifier
- (4) Current gain using resistance load for single stage CE configuration.
- 4** (a) Fill in the blanks : **10**
- (1) _____ is defined as the no. of inputs a gate has.
- (2) The tristate o/p has _____ possible states.
- (3) The logic gate, which dissipates max. power is _____.
- (4) The bandwidth of an ideal op-amp is _____.
- (5) The slew rate of an ideal op-amp is _____.
- (6) For RC phase shift oscillator value of B at oscillator freq. is _____.
- (7) _____ oscillator have the highest stability.

- (8) In oscillator the product of AB is called as _____ gain.
- (9) For over damping K is _____.
- (10) An oscillator is an amplifier with _____ feedback.
- (b) Calculate the frequency of oscillation of a Colpitt's oscillator with $C_1 = C_2 = 500$ PF and $L = 1$ mH. **5**
- (c) A quartz crystal has following constants $L = 0.06$ H, $C_1 = 0.01$ pF, $C_2 = 10$ pF and $R = 500$ Ω . Calculate the values of series and parallel resonant frequencies. **5**
- 5** Attempt any **three** : **15**
- (1) Explain transistorized Hartley oscillator.
 - (2) Write down the comparison between Totem pole and open collector TTL.
 - (3) Explain DCTL with it's advantages and disadvantages.
 - (4) Prove $A_{VF} = 1 + \frac{R_F}{R_1}$ for operation-Amp.
- 6** Attempt any **three** : **15**
- (1) Explain $R-2R$ ladder type DAC.
 - (2) Explain Counter type ADC.
 - (3) Explain TTL in detail.
 - (4) Give the comparison between different ADC.
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