Seat No.

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OCT-NOV 2025 WINTER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Analog Circuit Design

Sub. Code: 114444/112434

Day and Date: Thursday ,18-12-2025 **Total Marks: 60**

Time: 02:30 PM To 05:00 PM

Instructions:
1. **All questions are compulsory**
2. **Assume suitable data wherever necessary and mention it boldly**
3. **Draw neat labelled diagrams wherever necessary**
4. **Figures to the right indicate full marks**
5. **Use of Scientific calculator is allowed**

Special Inst.: **Use of Data Sheet is allowed**

Q1) Solve following MCQ. **[10]**

i. TUF of FWR is related to ___
- A. Transformer Utilization
- B. load Resistance
- C. Both A & B
- D. None of the above

ii. The Clipper Circuit used to -------.
- A. Increase Voltage
- B. remove unwanted portion of waveform
- C. Both of the above
- D. All of the above

iii. In positive feedback Phase Shift is .....
- A. Less than 1
- B. greater than 1
- C. 0 or 360 Degree
- D. None of above

iv. In Wein bridge oscillator, Value of β is --------
- A. 1/3
- B. 56
- C. 0
- D. None of the above

v. Monostable Multivibrator is also called as ----------Multivibrator
- A. One Shot
- B. monostable circuit
- C. Free Running
- D. none of the above

Q2) Attempt any TWO of the following. (2*6=12) **[12]**

a. Design an unregulated power supply using L filter to give output 12V at load current 100 mA. Assume ripple factor r= 6% **[6]**

b. Draw and explain Negative clamper circuits **[6]**

c. Draw & Explain Hybrid equivalent model for CB amplifier. **[6]**

Q3) Attempt any TWO of the following. (2*7=14) **[14]**

a. Why feedback is necessary? With help of expressions explain advantages of negative feedback. **[7]**

b. Design RC Phase shift oscillator for following specifications- VCC=10 V, fosc=1 kHz, hfe=200/300, hie=4.5 k, IC(max)=200mA, PD(max)=250mW, s=10. **[7]**

c. Design Astable multivibrator for 5KHz frequency, duty cycle = 50%, VBE (sat)= 0.7V, Vcc=12V, Ic(sat) = 10mA, VCE (sat)= 0.3V, hfe(min) = 100 and OF = 2. Assume suitable data if necessary. **[7]**

Q4) Attempt any TWO of the following. (2*7=14) **[14]**

a. Derive expressions for Av, Ai, Ri, Ro for Current series feedback amplifier **[7]**

b. Design a Colpitt oscillator for fo= 10MHz,Vcc= 10V,RL=2KΩ, Rs=600 ohm, hie=4.5, RFC=0.6 H. **[7]**

c. Explain switching parameters of transistors. **[7]**

Q5) Attempt any TWO of the following. (2*5=10) **[10]**

a. Write note on Voltage Shunt feedback topology. **[5]**

b. Draw a neat circuit diagram of monostable multivibrator. Explain its operation by suitable waveforms at Base and collector. **[5]**

c. What is Oscillator? State and explain Barkhausen's criteria for oscillator. **[5]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (1154) B.Tech. CBCS (114444) Analog Circuit Design Part 2 SEM 3

2] (11731) Bachelor of Technology (NEP-2.0) (112434) Analog Circuit Design Part 2 SEM 3