Reg. No. :

Question Paper Code: **93405**

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Electronics and Communication Engineering

19UEC305- ANALOG CIRCUITS

(Regulation 2015)

Duration: One hour   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The cut in voltage or V_{BE} of silicon diode or transistor is ----   CO1- R

    (a) 0.7v   (b) 0.3v   (c) 0.4v   (d) none of the above

2. In microphone amplifiers which configuration is used   CO1- R

    (a) CB   (b) CE   (c) CC   (d) none of the above

3. In a FET amplifier , the source follower is a ---------   CO2-App

    (a) CS amplifier   (b) CG amplifier   (c) CD amplifier   (d) none of the above

4. The voltage gain of an decreases at 20dB/octave above 100KHz. If the   CO2-App
    mid frequency gain is 80dB. What is the value of voltage gain at 2MHz

    (a) 60dB   (b) 52dB   (c) 54dB   (d) 64dB

5. This is an example of the output swing for a class---------amplifier.   CO4- R
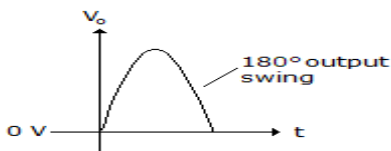
    (a) A   (b) AB   (c) C   (d) B

6. In class B amplifier,VCE(min)=2V and supply voltage Vcc=15V.Find   CO4- U
    the collector circuits efficiency.

    (a) 68.06%   (b) 45%   (a) 68.06%   (d) sine wave signals

7. When voltage feedback (negative) is applied to an amplifier, its input   CO5- U
   impedance ………….

   (a) Is decreased   (b) Is increased   (c) Remains the same   (d) None of the above

8. Negative feedback is employed in ……………..   CO5- U

   (a) Oscillators   (b) Rectifiers   (c) Amplifiers   (d) None of the above

9. The feedback signal in a(n)---------oscillator is derived from an inductive   CO6- R
   voltage divider in the LC circuit

   (a) Hartley   (b) Armstrong   (c) colpitts   (d) wien bridge

10. For a phase shift oscillator,the gain of the amplifier stage must be   CO6- R
    greater than--------

    (a) 19   (b) 29   (c) 30   (d) 1

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Consider the self bias circuit where Vcc=15V,Rc=3KΩ,R2=10KΩ,R1=90KΩ,   CO1- Ana   (8)
    hfe=55(β), VBE=0.6V. The transistor operates in active region. Determine (i)
    operating point (ii) stability factor (iii) D.C load line Analyze and suggest ,
    whether the circuit is suitable to get faithful amplification

12. Design an amplifier for the following specifications: Mid band gain(Av)   CO3- Ana   (8)
    should be 20 & base voltage should be 2v . Given: h_{ie}=1100 Ω ,

    h_{re}=10x10^-4, h_{fe}=100 , and h_{oe}=4x10^-4 mho

13. Design and explain the power amplifier circuit using power transistor to use as   CO4-Ana   (8)
    final stage in receiver for AF application.

14. Design an feedback amplifiers to use as local negative feedback to increase   CO5- Ana   (8)
    input resistance, linearize the transfer curve, and stabilize bias. Assume
    necessary data

15. Design a LC oscillator for the frequency of 10KHz in which tank circuit has   CO5- Ana   (8)
    two inductive reactance's and one capacitive reactance and derive the
    expression for frequency of oscillation and condition for oscillation.

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