18002141

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Reg. No.....

Name.....

M.Sc. DEGREE (C.S.S.) EXAMINATION, DECEMBER 2018

First Semester

Faculty of Science

Branch II : Physics (A)–Pure Physics

PHI C04—ELECTRONICS

(2012 Admission onwards)

Time : Three Hours Maximum Weight : 30

Part A

Answer any **six** *questions.*
Each question carries 1 *weight*

1. What do you meant by Differential amplifier ?
2. List the applications of FET.
3. Define CMRR.
4. What are the difference between input offset voltage and input offset current ?
5. Write short notes on AC amplifier and DC amplifier.
6. What do you mean by slew rate ?
7. Explain about VCO.
8. What are the difference between Schmitt trigger and zero crossing detector ?
9. Draw the pin out diagram of IC565-PLL.
10. What is AGC ?

(6 × 1= 6)

Part B

Answer any **four** *questions.*
Each question carries 2 *weight.*

11. Draw the circuit diagram of inverting amplifier. Derive the expression far output voltage.

    Design an inverting amplifier for a pass band gain of 5dB.
12. Design a peaking amplifier circuits to provide a gain of 5 at a peak frequency of 12 KHz.
13. What are the different classifications of filter ? With the help of circuit diagram and frequency response explain the working of Notch filter.

Turn over

14. With the help of suitable diagrams explain the working of Sample and Hold Circuit.

15. Design an 8 V output voltage with the help of 78XX.

16. Write notes on the working of super heterodyne receiver.

(4 × 2 = 8)

Part C

Answer **all** *questions.*
Each question carries 4 *weight.*

17. (a) With the help of suitable block diagram, explain the working and characteristics of OP amp.

Or

(b) List the characteristics of ideal op amp. Derive the expressions for (i) Bandwidth with feedback ; (ii) Closed loop voltage gain ; and (iii) input and output resistance.

18. (a) Draw the circuit diagram of instrumentation amplifier using transducer bridge and explain its working.

Or

(b) With the help of suitable circuit diagram and frequency response explain the working of op-amp differentiator. Derive the various expressions for op-amp differentiator.

19. (a) What do you mean by Oscillator ? Draw the circuit diagram of RC phase shift oscillator and explain its working with the help of output waveforms.

Or

(b) Explain the working of' any two types of D/A converter

20. (a) Draw the internal architecture of IC555 and draw the circuit diagram of any one application and design the circuit.

Or

(b) With the help of suitable diagrams explain about the working of FM receiver.

(4 × 4 = 16)