Hall Ticket No | | | | | | | | | | |

Question Paper Code: AECB11

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech IV Semester End Examinations (Regular), November – 2020

Regulation: IARE–R18

Analog and Pulse Circuits

Time: 2 Hours **(ECE)** **Max Marks: 70**

Answer any Four Questions from Part A
Answer any Five Questions from Part B

PART – A

1. Elaborate the working principle of RC coupled transistor amplifiers. **[5M]**
2. Obatin the expression for current series feedback amplifier. **[5M]**
3. Elucidate the operation of class B complementary-symmetry push pull power amplifier. **[5M]**
4. Elaborate the working principle of sampling gate. **[5M]**
5. Summarize the working principle of operation of symmetrical triggering of bistable circuit. **[5M]**
6. What will be the lower and upper cut-off frequencies of the multistage amplifier? **[5M]**
7. Describe the transformer coupled class A power amplifier. **[5M]**
8. Write about the working principle of bi-directional sampling gates. **[5M]**

PART – B

9. A multistage amplifier is to be constructed using four identical stages, each of which has a lower cut-off frequency, 15 kHz and upper cut-off frequency, 30 kHz. **[10M]**
10. Summaries the darlington pair amplifier. Interpret hybrid π common emitter transistor model. **[10M]**
11. Derive the input resistance of i)Voltage series feedback ii)Current series feedback iii)Current shunt feedback iv) Voltage shunt feedback **[10M]**
12. An amplifier with open loop voltage gain of 1000 delivers 10W of power output at 10% second harmonic distortion when i/p is 10 mV. If 40dB negative feedback is applied and output power is to remain at 10W, determine required input signal (V_s) and second harmonic distortion with feedback. **[10M]**
13. Draw the circuit of RC phase shift oscillator and explain its working. Also obtain the expression for frequency of oscillator and condition for damped oscillation. **[10M]**
14. Analyze the principle of operation and derive the expression for frequency of oscillation of wein bridge oscillator. **[10M]**
15. Draw the response of high pass RC circuit to the following input wave forms i)Step ii)Pulse iii)Square iv)Ramp **[10M]**
16. Obtain the response of low pass RC circuit and explain how low pass RC circuit acts as an integrator. **[10M]**
17. Analyze the working principle of monostable multivibrator and derive with the pulse width of collector. **[10M]**
18. Design an astable multivibrator to produce an unsymmetrical square wave of data T_A =0.5 msec and T_B=0.4 msec. The square wave amplitude is 15 V. Assume $(h_{fc})_{min}$ =20, (I_C)=5 mA and $(V_{CE})_{sat}$=0. **[10M]**

– ∘ ∘ ◯ ∘ ∘ –