(Pages : 4)

Maximum : 200 marks

Time : 1½ hours

PART I

(Each answer shall be limited to one sentence)

A.   Write the full form of the following acronyms :

1.   ASIC

2.   SPICE

3.   CCSDS

4.   MANET

5.   WiMAX

B.   Fill in the blanks :

6.   The maximum efficiency of a half wave rectifier without filter is ——————.

7.   Avalanche breakdown occurs when ——————.

8.   For high frequency response of a transistor amplifier suitable model to use is ——————.

9.   In the multiplier the effect used is called ——————.

10. Maxwell's curl equation for the static electric field E can be expressed as ——————.

11. The main difference between JK and SR flip flop is ——————.

12. A second order system is under damped if its damping factor is ——————.

13. The number of minimum clock cycles in a machine cycle for 8085 are ——————.

14. A wave guide is a ———————— filter.

15. The shortest wavelength having highest frequencies of the radio spectrum is in ———————— region.

16. The frequency deviation in an FM transmitter having modulation index of 6 is 60 KHz, its bandwidth is ————————.

17. The modulation system used for telegraphy is ————————.

18. Advantage of DSB over SSB full carrier AM is ————————.

19. The characteristic impedance of a lossless transmission line is ————————.

20. Operational amplifier operating in its non-linear saturation region can convert a sine wave in to a ————————.

C. Choose the correct answer :

21. SCR is a

    (a)   Current controlled device   (b)   Voltage controlled device

    (c)   Bilateral device   (d)   Both (a) and (b)

22. The Kirchhoff's Law fails in

    (a)   Linear circuits   (b)   Non-linear circuits

    (c)   Lumped parameter circuits   (d)   Distributed parameter circuits

23. Helical antennas are used for satellite tracking at VHF because of

    (a)   Super refraction   (b)   Ionospheric refraction

    (c)   Troposcatter   (d)   The Faraday effect

24. ECL exhibits fastest switching speed because the gates use

    (a)   Saturated transistors   (b)   Unsaturated transistors

    (c)   Saturated diodes   (d)   Thyristors

25. Spontaneous magnetization is observed in

    (a) Ferromagnetic material   (b) Diamagnetic material

    (c) Dielectric material   (d) Paramagnetic material

26. The input and output impedance of an operational amplifier is respectively

    (a) Zero and infinite   (b) Low and High

    (c) Very high and very small   (d) Very small and very high

27. The function of AVC filter is

    (a) Eliminate hum   (b) Eliminate intermediate frequency

    (c) Eliminate audio frequency   (d) Prevent voltage variation

28. The main disadvantage of JFET is relatively lower

    (a) Bandwidth   (b) Gain

    (c) Gain bandwidth product   (d) Input resistance

29. The eye pattern of PCM system gives information regarding

    (a) Eye   (b) Bandwidth

    (c) Noise   (d) Noise and Bandwidth

30. At high frequency the most important noise is

    (a) Partition noise   (b) Shot noise

    (c) Thermal noise   (d) Transit time noise

$(30 \times 4 = 120)$

PART II

(Answer the following questions shall be limited to one paragraph)

31. Gauss Law of Electrostatics.

32. Partitioning minimization procedure in FSM.

33. Disadvantage of tuned frequency receiver.

34. Arm processor.

35. Time multiplexed space switching.

36. Applications of PLL.

37. Moving Target Indicator.

38. Different biasing methods in Transistor.

$(8 \times 10 = 80)$

———————