Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021

Course Name - Fundamental of Electronics
Course Code - DME401

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Answer all the questions. Each question carry one mark.

9.   1.Convert (0.345)10 into an octal number

Mark only one oval.

○ (0.16050)8

○ (0.26050)8

○ (0.19450)8

○ (0.24040)8

10. 2.Convert binary to octal: (110110001010)2 =?

Mark only one oval.

◯ (5512)8

◯ (6612)8

◯ (4532)8

◯ (6745)8

11. 3.Binary subtraction of 100101 − 011110 is

Mark only one oval.

◯ 111

◯ 10101

◯ 111000

◯ 101010

12. 4.Divide the binary numbers: 111101 ÷ 1001 and find the remainder

Mark only one oval.

◯ 10

◯ 1010

◯ 1100

◯ 11

13.　　5.On subtracting (01010)2 from (11110)2 using 1's complement, we get

Mark only one oval.

○ 1001

○ 11010

○ 10101

○ 10100

14.　　6.1's complement can be easily obtained by using

Mark only one oval.

○ Comparator

○ Inverter

○ Adder

○ Subtractor

15.　　7.For arithmetic operations which one is faster?

Mark only one oval.

○ 1's complement is used

○ 2's complement

○ 10's complement

○ 9's complement

16. 8.The digit F in Hexadecimal system is equivalent to .... in decimal system.

Mark only one oval.

$\bigcirc$ 13

$\bigcirc$ 14

$\bigcirc$ 15

$\bigcirc$ 17

17. 9.The value of base x is: (211) x = (152)8

Mark only one oval.

$\bigcirc$ 5

$\bigcirc$ 6

$\bigcirc$ 7

$\bigcirc$ 8

18. 10.The inverter can be produced with how many NAND gates?

Mark only one oval.

$\bigcirc$ 1

$\bigcirc$ 2

$\bigcirc$ 3

$\bigcirc$ 4

19. 11.Which is an incorrect rule of binary subtraction from the following?

Mark only one oval.

- 0 − 0 = 0
- 0 − 1 = -1
- 1 − 0 = 1
- 0 − 1 = 1 with borrow '1'

20. 12.The decimal equivalent of the binary number (1011.011)2 is

Mark only one oval.

- (11.375)10
- (10.123)10
- (11.175)10
- (9.23)10

21. 13.A three digit decimal number requires _____ for representation in the conventional BCD format.

Mark only one oval.

- 3 bits
- 6 bits
- 12 bits
- 24 bits

22.   14.The advantages of a junction transistor over the vacuum triode is_____.

Mark only one oval.

⬭ high power consumption

⬭ High efficiency

⬭ large size

⬭ Less doping

23.   15.In an NPN transistor, the arrow is pointed towards

Mark only one oval.

⬭ the collector

⬭ The base

⬭ the emitter

⬭ Depends on the configuration

24.   16.When does the transistor act like an open switch?

Mark only one oval.

⬭ cut off region

⬭ Active region

⬭ saturated region

⬭ None of these

25.   17.The transfer of a signal in a transistor is _____.

Mark only one oval.

⬭ low to high resistance

⬭ High to low resistance

⬭ collector to base junction

⬭ Emitter to base junction

26.   18.In a PNP transistor operating in active region, the main stream of current is__

Mark only one oval.

⬭ drift of holes

⬭ Drift of electrons

⬭ diffusion of holes

⬭ Diffusion of electrons

27.   19.The AC current gain in a common base configuration is_____.

Mark only one oval.

⬭ $-\Delta IC/\Delta IE$

⬭ $\Delta IC/\Delta IE$

⬭ $\Delta IE/\Delta IC$

⬭ $-\Delta IE/\Delta IC$

28. 20.The base current amplification factor β is given by-

Mark only one oval.

○ IC/IB

○ IB/IC

○ IE/IB

○ IB/IE

29. 21.In ICEO, what does the subscript 'CEO' mean?

Mark only one oval.

○ collector to base emitter open

○ Emitter to base collector open

○ collector to emitter base open

○ Emitter to collector base open

30. 22.The application of a CC configured transistor is_____.

Mark only one oval.

○ voltage multiplier

○ Level shifter

○ rectification

○ Impedance matching

31.   23.The output resistance of transistor is given by-

Mark only one oval.

◯ $\Delta VCE/\Delta IB$

◯ $\Delta VBE/\Delta IB$

◯ $\Delta VBE/\Delta IC$

◯ $\Delta VCE/\Delta IC$

32.   24.How many NAND circuits are contained in a 7400 NAND IC?

Mark only one oval.

◯ 2

◯ 4

◯ 8

◯ 6

33.   25.In which operation carry is obtained?

Mark only one oval.

◯ Subtraction

◯ Addition

◯ Multiplication

◯ Both addition and subtraction

34. 26.If A, B and C are the inputs of a full adder then the carry is given by–

Mark only one oval.

⬭ A AND B OR (A OR B) AND C

⬭ A OR B OR (A AND B) C

⬭ (A AND B) OR (A AND B)C

⬭ A XOR B XOR (A XOR B) AND C

35. 27.How many AND, OR and EXOR gates are required for the configuration of full adder?

Mark only one oval.

⬭ 1, 2, 2

⬭ 2, 1, 2

⬭ 3, 1, 2

⬭ 4, 0, 1

36. 28.Let the input of a subtractor is A and B then what the output will be if A = B?

Mark only one oval.

⬭ 0

⬭ 1

⬭ A

⬭ B

37.   29.The output of a subtractor is given by (if A, B and X are the inputs)–

Mark only one oval.

◯ A AND B XOR X

◯ A XOR B XOR X

◯ A OR B NOR X

◯ A NOR B XOR X

38.   30.A differential amplifier–

Mark only one oval.

◯ is a part of an Op-amp

◯ has one input and one output

◯ has two outputs

◯ is a part of an Op-amp, has one input and one output

39.   31.In the common mode

Mark only one oval.

◯ both inputs are grounded

◯ the outputs are connected together

◯ an identical signal appears on both the inputs

◯ the output signal are in-phase

40.   32.If ADM = 3500 and ACM = 0.35, the CMRR is _____.

Mark only one oval.

○ 1225

○ 80 dB

○ 10000

○ Both 1225 and 80 dB

41.   33.With zero volts on both inputs, an OP-amp ideally should have an output-

Mark only one oval.

○ equal to the positive supply voltage

○ equal to the negative supply voltage

○ equal to zero

○ equal to CMRR

42.   34.A certain OP-amp has bias currents of 50 μA. The input offset current is_____.

Mark only one oval.

○ 700 nA

○ 99.3 μA

○ 49.7 μA

○ None of these

43. 35.The output of a particular Op-amp increases 8V in 12µs. The slew rate is_____.

Mark only one oval.

○ 90 V/µs

○ 0.67 V/µs

○ 1.5 V/µs

○ None of these

44. 36.For an Op-amp with negative feedback, the output is_____.

Mark only one oval.

○ equal to the input

○ increased

○ feedback to the inverting input

○ feedback to the non-inverting input

45. 37.Negative feedback-

Mark only one oval.

○ increases the input and output impedances

○ increases the input impedance and bandwidth

○ decreases the output impedance and bandwidth

○ does not affect impedance or bandwidth

46. 38.A certain non-inverting amplifier has Ri of 1 kΩ and Rf of 100 kΩ. The closed-loop voltage gain is_____.

Mark only one oval.

○ 10000

○ 1000

○ 101

○ 100

47. 39.A voltage follower:

Mark only one oval.

○ has a voltage gain of 1

○ is non-inverting

○ has no feedback resisto

○ All of these

48. 40.The Op-amp can amplify:

Mark only one oval.

○ a.c. signals only

○ d.c. signals only

○ both a.c. and d.c. signals

○ None of these

49. 41.The input offset current equals the–

Mark only one oval.

◯ difference between two base currents

◯ average of two base currents

◯ collector current divided by current gain

◯ None of these

50. 42.The common-mode voltage gain is _____.

Mark only one oval.

◯ smaller than differential voltage gain

◯ equal to differential voltage gain

◯ greater than differential voltage gain

◯ None of these

51. 43.Current cannot flow to ground through:

Mark only one oval.

◯ a mechanical ground

◯ an a.c. ground

◯ a virtual ground

◯ an ordinary ground

52. 44.In the design of a biasing circuit, the value of collector load RC is determined by

Mark only one oval.

- ⬭ VCE consideration
- ⬭ VBE consideration
- ⬭ IB consideration
- ⬭ None of these

53. 45.If the temperature increases, the value of VCE:

Mark only one oval.

- ⬭ Remains the same
- ⬭ Decreases
- ⬭ Increases
- ⬭ None of these

54. 46.The inputs of a NAND gate are connected together. The resulting circuit is

Mark only one oval.

- ⬭ OR gate
- ⬭ AND gate
- ⬭ NOT gate
- ⬭ None of these

55.   47.The only function of NOT gate is to

Mark only one oval.

⬭ Top signal

⬭ Invert input signal

⬭ Act as a universal gate

⬭ None of these

56.   48.In which of the following base systems is 123 not a valid number?

Mark only one oval.

⬭ Base 10

⬭ Base 16

⬭ Base 8

⬭ Base 3

57.   49.A diode whose terminal characteristics are related as i = Is eV/VT(Is is the reverse saturation current, and VT is the thermal voltage(=25mV)) is biased at i = 2mA. Its dynamic resistance is

Mark only one oval.

⬭ 25Ω

⬭ 12.5Ω

⬭ 50Ω

⬭ 50 kΩ

58.   50.Storage of 1KB means the following number of bytes

Mark only one oval.

⬭ 1000

⬭ 964

⬭ 1024

⬭ 1064

59.   51.The number 1000 would appear just immediately after

Mark only one oval.

⬭ FFFF(Hex)

⬭ 1111(binary)

⬭ 7777(octal)

⬭ All of these

60.   52.Most of the digital computers do not have floating point hardware because

Mark only one oval.

⬭ floating point hardware is costly

⬭ It is slower than software

⬭ It is not possible to perform floating point addition by hardware

⬭ No specific reason

61. 53.Which of the following gate is a two-level logic gate

Mark only one oval.

⬭ OR gate

⬭ NAND gate

⬭ EX-OR gate

⬭ NOT gate

62. 54.An OR gate ha 6 input The number Of input words in its truth table are

Mark only one oval.

⬭ 6

⬭ 32

⬭ 64

⬭ 128

63. 55.When an input signal 1 is applied to a NOT gate, the output is

Mark only one oval.

⬭ "0"

⬭ "1"

⬭ Either "0" or "1"

⬭ None of these

64.   56.When a P-N junction is reverse-biased

Mark only one oval.

⬭ Its depletion layer become narrow

⬭ Its barrier potential decreased

⬭ Its breaks

⬭ It offers high resistance

65.   57.he conduction band of a semi-conductor material may be ....

Mark only one oval.

⬭ Completely-filled

⬭ Empty

⬭ Partially-filled

⬭ Either Empty or Partially-filled

66.   58.An atom is said to be ionized when any one of its orbiting electron

Mark only one oval.

⬭ Jumps from one orbit to another

⬭ Is raised to a higher orbit

⬭ Comes to the ground state

⬭ Is completely removed

67. 59.The main reason why electrons can tunnel through a P-N junction is that

Mark only one oval.

- ◯ They have high energy
- ◯ Barrier potential is very low
- ◯ Depletion layer is extremely thin
- ◯ Impurity level is low

68. 60.The d.c. output voltage of a bridge rectifier having a total secondary peak voltage of 100 V is .... volt.

Mark only one oval.

- ◯ 63.6
- ◯ 31.8
- ◯ 90
- ◯ 70.7