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ENT - 30

Total No. of Pages : 14

**Shivaji University, Kolhapur**  
**M.Sc. Electronics Entrance Question paper -2023**

**Sub. Code: 58298**

Day and Date : Tuesday, 08-08-2023

Total Marks : 100

Time : 10.30 a.m. to 12.00 noon

- 1. If reverse bias is applied to the PN junction diode, then its barrier width.....**  
A) increases  
B) decreases  
C) remains the same  
D) None of the above
- 2. .... diode is used for voltage regulation.**  
A) LED  
B) Varactor  
C) Zener  
D) Avalanche
- 3. Forward biased diode offers ..... resistance.**  
A) zero  
B) very low  
C) very high  
D) infinite
- 4. Capacitive reactance is given by  $X_c =$  .....**  
A)  $1/2\pi fC$   
B)  $1/\pi fC$   
C)  $2\pi fC$   
D)  $\pi fC$
- 5. Norton's theorem gives an equivalent circuit in .....form**  
A) voltage  
B) current  
C) resistance  
D) inductance
- 6. Base of the hexadecimal system is .....**  
A) 2  
B) 8  
C) 10  
D) 16



- 16. What does the term "bit" represent in digital electronics?**
- a) Binary number system                      b) Basic input terminal  
c) Binary digit                                      d) Base transistor
- 17. Which logic gate produces a low output when any of its inputs are high?**
- a) AND gate    b) OR gate  
c) NOT gate    d) XOR gate
- 18. What is the decimal equivalent of the binary number 1010?**
- a) 10    b) 5  
c) 8    d) 12
- 19. What is the purpose of a multiplexer in digital electronics?**
- a) Converts analog signals to digital  
b) Stores data temporarily  
c) Performs arithmetic calculations  
d) Selects one of many inputs to a single output
- 20. Which logic gate has an output that is the complement of its input?**
- a) AND gate    b) OR gate  
c) NOT gate    d) XOR gate
- 21. .... is the noise temperature of the sun?**
- A. 100000    B. 80001  
C. 100    D. 3000
- 22. .... is equivalent to Henry.**
- A. Volts/Ampere                                      B. Weber/Ampere  
C. Weber/Ampere<sup>2</sup>                                      D. None of these
- 23. .... number of a carrier in a semiconductor.**
- A. 2    B. 8  
C. 5    D. None of these

- 24. MICR stands for .....**
- A. Magnetic Ink Chart Receipt
  - B. Magnetic Ink Character Recognition
  - C. Magnetic Ink Chart Recognition
  - D. Magnetic Ink capacitor Reverse
- 25. one of the following semiconductor material?**
- A. copper
  - B. silicon
  - C. iron
  - D. None of these
- 26. In a Microprocessor, the address of the new next instruction to be executed is stored in**
- A. Stack pointer
  - B. address latch
  - C. Program counter
  - D. General purpose register
- 27. Following is a 16-bit register for 8085 microprocessor**
- A. Stack pointer
  - B. Accumulator
  - C. Register B
  - D. Register C
- 28. The register which holds the information about the nature of results of arithmetic of logic operations is called as**
- A. Accumulator
  - B. Condition code register
  - C. Flag register
  - D. Process status registers
- 29. The 8085 has interrupt pins:-**
- a) TRAP, RST7.3
  - b) RST6.5, RST5.5
  - c) TNTR(pin 10)
  - d) All of the above.
- 30. In 8085 microprocessor based system maximum possible number of input/output devices can be connected using I/O mapped I/O technique is**
- A. 64
  - B. 512
  - C. 256
  - D. 65536

- 31. Mobile telephones are ..... systems.**
- A. One to one
  - B. One to many
  - C. Many to many
  - D. None of the
- 32. FSK is abbreviated as .....**
- A. Frequency shift keying
  - B. Frequency side keying
  - C. Forward shift keying
  - D. All the above
- 33. GPS stands for .....**
- A. Global positioning systems
  - B. Global partial system
  - C. Geo-positioning system
  - D. All the above
- 34. Which of the following are multiplexing methods used in mobile communication?**
- A. TDMA
  - B. FDMA
  - C. CDMA
  - D. All the above
- 35. In a Cellular network, which of the following is used to use the same frequency for others?**
- A. Frequency hopping
  - B. Frequency reuse
  - C. Frequency planning
  - D. None of the above
- 36. There are ..... general purpose registers in 8085 processor**
- A. 5
  - B. 6
  - C. 7
  - D. 8
- 37. At what PIN number, there is a RESET pin, which is used to reset the microcontroller to its initial values?**
- A. PIN 9
  - B. PIN 20
  - C. PIN 30
  - D. PIN 35
- 38. Which IO Port can be used for higher address byte with addresses A8-A15?**
- A. PORT1
  - B. PORT0
  - C. PORT3
  - D. PORT2

- 39. Expand ALE full form ..... ?**
- A. Address latch enable                      B. Address light external  
 C. Address latch eternal                      D. None of these
- 40. If SM0=1, SM1=0, then the transceiver selected is**
- a) 8-bit synchronous                      b) 9-bit synchronous  
 c) 8-bit asynchronous                      d) 9-bit asynchronous
- 41. At what PIN number, there is EA pin which stands for External Access input?**
- A. PIN 28                                      B. PIN 29  
 C. PIN 30                                      D. PIN 31
- 42. When pins are configured as an output (i.e. logic 0), then the single port pins can receive a current of?**
- A. 5mA                                      B. 8mA  
 C. 15mA                                      D. 10mA
- 43. The instruction, ADD A, R7 is an example of**
- a) register addressing                      b) register specific instructions  
 c) indexed addressing                      d) none
- 44. Why do we need a ULN2803 in driving a relay?**
- a) for switching a motor                      b) for increasing the current  
 c) for increasing the power                      d) for switching the voltage
- 45. Proximity type sensor is a ..... type of sensor.**
- A. Contact type                              B. Noncontact type  
 C. Both a and b                              D. Partially contact
- 46. A sensor that detects the presence of an object without any contact is called ..... sensor.**
- A. Temperature                              B. Light  
 C. IR                                      D. Proximity

- 47. Self generating type transducers are ..... transducers.**
- a) Active
  - b) Passive
  - c) Secondary
  - d) Inverse
- 48. A strain gauge is a passive transducer and is employed for converting**
- a) Mechanical displacement into a change of resistance
  - b) Pressure into a change of resistance
  - c) Force into a displacement
  - d) Pressure into displacement
- 49. The principle of operation of LVDT is based on the variation of**
- a) Self inductance
  - b) Mutual inductance
  - c) Reluctance
  - d) Permanence
- 50. Op-Amp as current to voltage converter is also called as .....**
- A. trans-impedance amplifier
  - B. trans-conductance amplifier
  - C. inverting amplifier
  - D. all of the above
- 51. What are the features of instrumentation amplifier?**
- a) Low noise
  - b) High gain accuracy
  - c) Low thermal and time drift
  - d) All of the mentioned
- 52. The knowledge of which parameter is sufficient for deriving the time varying electromagnetic field?**
- a. Electric field intensity
  - b. Magnetic field intensity
  - c. Current density.
  - d. Power density
- 53. Under which conditions of charge does the radiation occur through wire antenna?**
- a. For a charge with no motion
  - b. For a charge moving with uniform velocity with straight & infinite wire
  - c. For a charge oscillating in time motion
  - d. All of the above

- 54. In a non-isotropic directional antenna, which radiating lobe axis makes an angle of  $180^\circ$  w.r.t. major beam of an antenna?**
- a. Minor lobe
  - b. Side lobe
  - c. Back lobe
  - d. None of the above
- 55. At which angles does the front to back ratio specify an antenna gain?**
- a.  $0^\circ$  &  $180^\circ$
  - b.  $90^\circ$  &  $180^\circ$
  - c.  $180^\circ$  &  $270^\circ$
  - d.  $180^\circ$  &  $360^\circ$
- 56. If an observation point is closely located to the source, then the field is termed as .....**
- a. Induced
  - b. Radiated
  - c. Reflected
  - d. Far-field
- 57. The 8051 DPTR is ..... bit wide.**
- A) 4
  - B) 8
  - C) 14
  - D) 16
- 58. .... interrupt has highest priority in 8051.**
- A) INTO
  - B) TO overflow
  - C) INTI
  - D) Serial
- 59. .... is true about Parity flag of 8051.**
- A) There is no parity flag in 8051.
  - B) Parity flag is present in PSW SFR of 8051.
  - C) Parity flag is present in STATUS register of 8051.
  - D) None of these
- 60. The 8051 microcontroller supports ..... byte External RAM.**
- A) 32
  - B) 64
  - C) 128
  - D) 64K



- 61. Common-cathode/Common-anode configurations generally relate to ..... display.**
- A) 7-segment LED                      B) 16 2 LCD  
 C) graphic LCD                      D) all of the above
- 62. ADC0804 is .....**
- A) 8-channel 8-bit D-A Converter  
 B) 8-channel 8-bit A-D Converter  
 C) 1-channel 8-bit D-A Converter  
 D) 1-channel 8-bit A-D Converter
- 63. LM35 is a .....**
- A) analog temperature sensor  
 B) analog temperature and humidity sensor  
 C) digital temperature sensor  
 D) smart sensor
- 64. .... is used to monitor microcontroller the supply voltage level during operation.**
- A) INTO                      B) watch-dog timer  
 C) Brown-out detector                      D) RTC
- 65. What is the main advantage of using a soft-switching technique in power electronics?**
- a) Reduced switching losses      b) Higher efficiency  
 c) Lower EMI                      d) All of the above
- 66. Which power electronic device is commonly used for motor starting applications?**
- a) Diode                      b) MOSFET  
 c) IGBT                      d) VFD

- 67. Which power electronic device is used for grid-connected renewable energy systems?**
- a) Diode
  - b) MOSFET
  - c) IGBT
  - d) Grid-tie inverter
- 68. Which power electronic device is used for power factor correction in AC circuits?**
- a) Diode
  - b) MOSFET
  - c) IGBT
  - d) PFC controller
- 69. Which power electronic device is commonly used for AC voltage regulation?**
- a) Diode
  - b) MOSFET
  - c) IGBT
  - d) AC voltage regulator
- 70. What is the main advantage of using a resonant converter in power electronics?**
- a) Higher efficiency
  - b) Lower EMI
  - c) Reduced voltage stress
  - d) All of the above
- 71. Which power electronic device is commonly used for motor braking applications?**
- a) Diode
  - b) MOSFET
  - c) IGBT
  - d) Regenerative braking system
- 72. Which power electronic device is commonly used for uninterruptible power supply (UPS) systems?**
- a) Diode
  - b) MOSFET
  - c) IGBT
  - d) Battery
- 73. What is the main function of a function generator in electronic instrumentation?**
- a) Measure voltage levels
  - b) Generate different types of waveforms
  - c) Measure resistance
  - d) Measure current flow

**74. Which instrument is used to measure the temperature of an object?**

- a) Voltmeter
- b) Ammeter
- c) Thermometer
- d) Ohmmeter

**75. What is the purpose of a data acquisition system in electronic instrumentation?**

- a) Measure voltage levels
- b) Measure resistance
- c) Collect and analyze data from various sensors
- d) Measure current flow

**76. What is robotics?**

- a) The study of robotic insects
- b) The use of robots in manufacturing only
- c) The science and technology of robots
- d) The study of human-robot interaction

**77. What is the main purpose of a robotic arm?**

- a) To provide mobility to the robot
- b) To provide power to the robot
- c) To perform tasks and manipulate objects
- d) To provide communication capabilities to the robot

**78. What is the importance of sensors in robotics?**

- a) Sensors are not used in robotics
- b) Sensors provide power to the robot
- c) Sensors provide mobility to the robot
- d) Sensors provide information about the environment to the robot

**79. What is the term used to describe a robot's ability to perceive and understand its environment?**

- a) Sensing
- b) Processing
- c) Actuating
- d) Programming

- 80. In single mode fibers, which is the most beneficial index profile ?**
- a) Step index
  - b) Graded index
  - c) Step and graded index
  - d) Coaxial cable
- 81. The fibers mostly not used now a days for optical fiber communication system are**
- a) Single mode fibers
  - b) Multimode step fibers
  - c) Coaxial cables
  - d) Multimode graded index fibers
- 82. Single mode fibers allow single mode propagation; the cladding diameter must be at least .....**
- a) Twice the core diameter
  - b) Thrice the core diameter
  - c) Five times the core diameter
  - d) Ten times the core diameter
- 83. Standard single mode fibers (SSMF) are utilized mainly for operation in.....**
- a) C-band
  - b) L-band
  - c) O-band
  - d) C-band and L-band
- 84. Fiber mostly suited in single-wavelength transmission in O-band is?**
- a) Low-water-peak non dispersion-shifted fibers
  - b) Standard single mode fibers
  - c) Low minimized fibers
  - d) Non-zero-dispersion-shifted fibers
- 85. What is a fundamental necessity in the fabrication of fibers for light transmission?**
- a) Same refractive index for both core and cladding
  - b) Pump source
  - c) Material composition of fiber
  - d) Variation of refractive index inside the optical fiber
- 86. Which materials are unsuitable for the fabrication of graded index fiber?**
- a) Glass-like-materials
  - b) Mono-crystalline structures
  - c) Amorphous material
  - d) Silica based material

- 87. PIC 16Cxxx family supports ..... instructions.**
- A) 16
  - B) 35
  - C) 64
  - D) 128
- 88. The instructions of PIC 18Cxxx or 18Fxxx family are ..... bit wide.**
- A) 8
  - B) 12
  - C) 14
  - D) 16
- 89. .... register of PIC microcontroller is used in indirect addressing.**
- A) WREG
  - B) FSR
  - C) INDREG
  - D) PTR
- 90. Most port pins of PIC microcontroller can drive ..... directly.**
- A) LED
  - B) RELAY
  - C) MOTOR
  - D) All of the above
- 91. PIC USART generates interrupt on .....**
- A) RX buffer empty and TX buffer full
  - B) TX buffer empty and RX buffer full
  - C) RI = 1 AND TI = 1
  - D) RI = 1 OR TI = 1
- 92. SPI is a .....**
- A) 1 wire interface
  - B) 2 wire interface
  - C) 3 wire interface
  - D) 4 wire interface
- 93. 12C offers ..... speed**
- A) <100 kbps
  - B) >400 kbps
  - C) >1 mbps
  - D) >100 mbps
- 94. .... is not true.**
- A) ON-OFF control is a closed-loop control system
  - B) proportional control is an open-loop control system
  - C) PI control is a closed-loop control system
  - D) None of these

- 95. .... is/are Continuous Control System.**
- A) ON-OFF control                      B) proportional control  
 C) PI control                              D) both B and C
- 96. The zero-crossing detector circuit typically uses .....**
- A) BJT                                      B) JFET  
 C) MOSFET                                D) Op-amp
- 97. Op-amp is used in .....**
- A) ON-OFF control                      B) proportional control  
 C) PI control                              D) all of the above
- 98. .... is an input device.**
- A) relay                                      B) solenoid  
 C) sensor                                    D) motor
- 99. .... is not an electric actuator.**
- A) reed relay                                B) triac  
 C) servo motor                              D) limit switch
- 100. .... is used in PLC programming.**
- A) Ladder diagram                        B) ALP  
 C) HLL                                        D) none of these