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Total No. of Pages : 24

**PG ENTRANCE EXAMINATION, 2024**  
**ELECTRONICS**  
**Subject Code : 58298**

Day and Date : Thursday, 16-05-2024

Total Marks : 100

Time : 1.00 p.m. to 2.30 p.m.

**Instructions :**

- 1) All questions are compulsory.
- 2) Each question carries 1 mark.
- 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
- 4) Follow the instructions given on OMR sheet.
- 5) Rough work shall be done on the sheet provided at the end of question paper.

1. .... oppose the change in circuit current.

A) Resistor

B) Capacitor

C) Inductor

D) None of the above

2. Application of Norton's Theorem in a circuit results in .....

A) a current source and an impedance in parallel

B) a voltage source and an impedance in series

C) a current source and an impedance in series

D) a voltage source and an impedance in parallel









22. .... is equivalent to Henry.

- A. Volts/Ampere
- B. Weber/Ampere
- C. Weber/Ampere<sup>2</sup>
- D. None of these

23. In octal system ..... numbers is used.

- A. 8
- B. 9
- C. 16
- D. None of these

24. one of the following semiconductor material?

- A. copper
- B. silicon
- C. iron
- D. None of these

25. PAC stands for .....

- A. Permanent angle converter
- B. Phase angle converter
- C. Phase angle components
- D. Phase angle capacitor

26. MOV A, @R1 will:

- A) copy RI to the accumulator
- B) copy the accumulator to R1
- C) copy the contents of memory whose address is in R1 to the accumulator
- D) copy the accumulator to the contents of memory whose address is in R1

27. The number of hardware interrupts present in 8085 microprocessor are?

- A) 6
- B) 5
- C) 8
- D) 16

28. The interrupt vector address for TRAP is?

- A) 0000H
- B) 0024H
- C) 0018H
- D) 002CH

29. The stack pointer register in a microprocessor ?

- A) counts the number of programs being executing on the microprocessor
- B) counts the number of instructions being executing on the microprocessor
- C) keeps the address of the next instruction to be fetched
- D) holds the address of the top of the stack

30. The number of bits needed to address 4K memory is?

- A) 6
- B) 8
- C) 12
- D) 16

31. GPRS stands for .....

- A) General packet radio receiver
- B) Geo packet radio receiver
- C) Gradient packet radio receiver
- D) None of the above







42. Strain gauge is a .....
- A) inductive transducer
  - B) resistive transducer
  - C) capacitive transducer
  - D) mechanical transducer
43. Change in resistance is measured using a
- A) Anderson's bridge
  - B) Wheatstone's bridge
  - C) Hay's bridge
  - D) Maxwell's bridge
44. Which of the following is a digital transducer?
- A) A Strain gauge
  - B) Encoder
  - C) Thermistor
  - D) LVDT
45. If at one end, the two wires made of different metals are joined together then a voltage will get produced between the two wires due to difference of temp between the two ends of wires. This effect is observed in
- A) Thermocouples
  - B) Thermistors
  - C) RTD
  - D) Ultrasonics

46. Which type of temperature sensor works by measuring the change in electrical resistance of a metal wire as its temperature changes?
- A) Thermocouple
  - B) Resistance Temperature Detector (RTD)
  - C) Thermistor
  - D) Mercury thermometer
47. The resistance of LDR ..... when exposed to radiant energy.
- A) Remains unaltered
  - B) Increases
  - C) Reaches maximum
  - D) Decreases
48. Sensor provides output signal depending on .....
- A) Input
  - B) Physical quantity
  - C) Both a and b
  - D) None of the above
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.l. 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 most appropriate way of generating accurate delays using 8051 is....

- A) using a software counter.
- B) using timer in polling mode.
- C) using timer in interrupt mode.
- D) all of the above.

58. .... interrupt of 8051 has the highest priority.

- A) Serial
- B) TO overflow
- C) External Interrupt 0
- D) T1 overflow

59. For PUSH operation, the stack of 8051 operates in mode.

- A) pre-increment
- B) post-increment
- C) pre-decrement
- D) post decrement

60. .... is interfaced with 8051 microcontroller as an input device.

- A) LED
- B) relay
- C) optocoupler
- D) thumb wheel switch

61. The feature 'monotonicity relates to .....

- A) relay
- B) thumb wheel switch
- C) DAC
- D) seven segment display,

62. Serial baud rate modify bit (SMOD) is present in register of 8051.

- A) SCON
- B) TCON
- C) YTMOD
- D) PCON

63. 8051 microcontroller can control speed of DC motor by.....

- A) connecting relay to DC motor.
- B) generating PWM to control power delivered to DC motor.
- C) generating PAM to control power delivered to DC motor.
- D) generating PPM to control power delivered to DC motor.

64. ....can be connected to 8051 port pins directly.

- A) relay
- B) DC motor
- C) stepper motor
- D) none of these

65. The di/dt rating of an SCR is specified for its current.

- A) rising gate
- B) rising anode
- C) decaying abode
- D) decaying gate.

66. .... is a bidirectional device with three terminals.
- A) SCR
  - B) DIAC
  - C) TRIAC
  - D) IGBT
67. For heating metals ..... heating method is used.
- A) dielectric
  - B) induction
  - C) transformer
  - D) resistance
68. The output voltage of an uncontrolled rectifier is always .....
- A) positive
  - B) negative
  - C) constant
  - D) none of these
69. Which of the following device has the terminals collector, emitter, gate?
- A) BJT
  - B) SCR
  - C) MOSFET
  - D) IGBT
70. A ..... is an equivalent to two thyristor in antiparallel.
- A) diode
  - B) SCR
  - C) BJT
  - D) TRIAC
71. If the firing angle of SCR is 30 degree then its conduction angle ....degree.
- A) 45
  - B) 90
  - C) 150
  - D) 135

72. The SMPS are superior to linear power supplies in respect of .....
- A) noise and regulation
  - B) noise and cost
  - C) efficiency and regulation
  - D) size and efficiency
73. In electronic instrumentation, what is the function of a transducer?
- A) To amplify electrical signals
  - B) To convert one form of energy into another
  - C) To measure temperature
  - D) To generate electrical signals
74. Which of the following is NOT a primary component of a robotic arm?
- A) Actuator
  - B) Sensor
  - C) Controller
  - D) Amplifier
75. What is the purpose of a strain gauge in electronic instrumentation?
- A) To measure pressure
  - B) To measure temperature
  - C) To measure strain or deformation in a material
  - D) To measure light intensity



76. Which type of sensor is commonly used in robotics to detect obstacles or proximity?
- A) Ultrasonic sensor                      B) Thermocouple sensor  
C) pH sensor                                  D) Accelerometer sensor
77. In electronic instrumentation, what does ADC stand for?
- A) Analog Data Conversion  
B) Analog-to-Digital Converter  
C) Automated Data Collection  
D) Advanced Digital Circuitry
78. Which of the following is NOT a type of actuator commonly used in robotics?
- A) DC motor  
B) Pneumatic cylinder  
C) Laser diode  
D) Servo motor
79. What is the purpose of PID control in robotics?
- A) To measure pressure  
B) To regulate temperature  
C) To control motion with precision by adjusting Proportional, Integral, and Derivative parameters  
D) To detect light intensity

80. Which power electronic device is used for voltage regulation and reactive power compensation in power systems?
- a) Diode
  - b) MOSFET
  - c) IGBT
  - d) SVC
81. Multimode step index fiber has
- a) Large core diameter & large numerical aperture
  - b) Large core diameter and small numerical aperture
  - c) Small core diameter and large numerical aperture
  - d) Small core diameter & small numerical aperture
82. A typically structured glass multimode step index fiber shows as variation of attenuation in range of
- a) 1.2 to 90 dB km<sup>-1</sup> at wavelength 0.69μm
  - b) 3.2 to 30 dB km<sup>-1</sup> at wavelength 0.59μm
  - c) 2.6 to 50 dB km<sup>-1</sup> at wavelength 0.85μm
  - d) 1.6 to 60 dB km<sup>-1</sup> at wavelength 0.90μm
83. Multimode step index fiber has a large core diameter of range is.....
- a) 100 to 300 μm
  - b) 100 to 300 nm
  - c) 200 to 500 μm
  - d) 200 to 500 nm

84. Multimode graded index fibers are manufactured from materials with.....

- a) Lower purity
- b) Higher purity than multimode step index fibers.
- c) No impurity
- d) Impurity as same as multimode step index fibers.

85. The performance characteristics of multimode graded index fibers are.....

- a) Better than multimode step index fibers
- b) Same as multimode step index fibers
- c) Lesser than multimode step index fibers
- d) Negligible

86. Multimode graded index fibers with wavelength of  $0.85\mu\text{m}$  have numerical aperture of 0.29 have core/cladding diameter of .....

- a)  $62.5\mu\text{m}/125\mu\text{m}$
- b)  $100\mu\text{m}/140\mu\text{m}$
- c)  $85\mu\text{m}/125\mu\text{m}$
- d)  $50\mu\text{m}/125\mu\text{m}$

87. PIC 16Cxxx family supports ..... instructions.

- A) 8
- B) 35
- C) 64
- D) 128

88. The instructions of PIC 18Cxxx or 18Fxxx family are .....bit wide.

- A) 8
- B) 14
- C) 16
- D) 24

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) TX buffer empty and RX buffer full
- B) RX buffer empty and TX 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) 8 wire interface

93. I<sup>2</sup>C offers ..... speed.

- A) < 100 kbps
- B) >400 kbps
- C) > 1 mbps
- D) > 100 mbps

94. .... is not true.
- A) ON-OFF control is a open-loop control system
  - B) proportional control is an open-loop control system
  - C) PI control is a open-loop control system
  - D) all of these
95. ....is/are Continuous Control System.
- A) Proportional control
  - B) ON-OFF control
  - C) PID control
  - D) both A and C
96. The zero-crossing detector circuit typically uses.....
- A) BJT
  - B) JFET
  - C) MOSFET
  - D) Op-amp
97. Op-amp is useful in .....
- A) ON-OFF control
  - B) proportional control
  - C) PI control
  - D) all of the above
98. .... is not an output device.
- A) relay
  - B) solenoid
  - C) sensor
  - D) motor

99. ....is an electric actuator.

A) reed relay

B) triac

C) servo motor

D) all of these

100. PLC programming uses .....

A) HLL

B) low level ALP

C) Ladder diagram

D) none of these

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**- Rough Work -**

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