Seat No.	

ENT - 46

Total No. of Pages : 22

P. G. Re-Entrance Examination, 2024
M. Sc. (ELECTRONICS)
Subject Code : 58298

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Day and Date : Friday, 28-06-2024 **Total Marks : 100**

Time : 02.30 p.m. to 04.00 p.m.

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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.

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1. The resistance of copper wire decreases as ..... increases.

   A) resistivity of wire

   B) Area of the cross-section of the wire

   C) length of wire

   D) None of the above

2. Norton's Theorem can be applied to .....

   A) Linear networks

   B) Nonlinear networks

   C) Both linear and nonlinear networks

   D) None of the above

3. In diode, PIV means .....

   A) Peak Internal Voltage B) Peak Inverse Voltage

   C) Peak Inferior Voltage D) None of the above

4. What is line regulation?

   A) The process of keeping the load voltage constant irrespective of any change in AC supply

   B) The process of keeping the load voltage constant irrespective of variations in load current

   C) The process of keeping zener diode voltage constant inspite of changes in AC supply

   D) The process of keeping zener current constant irrespective of fluctuation in AC supply

5. A photo diode is normally

   A) forward biased

   B) reverse biased

   C) neither forward nor reverse biased

   D) emitting light

6. What will be the decimal equivalent for binary number 0111?

   A) 5 B) 6

   C) 7 D) 8

7. Which of the following logic gate is also known as equivalence gate.

   A) OR B) AND

   C) XOR D) XNOR

8. A logic circuit for converting BCD code to 7 segment code is known as

   A) Multiplexer B) Demultiplexer

   C) Decoder D) Encoder

9. A binary full-subtractor:

   A) consists of two cascaded half-subtractors

   B) consists of two cascaded half-subtractors and one OR gate

   C) consists of two cascaded half-subtractors and one AND gate

   D) None of the above

10. The boolean expression A'B+AB = ...

    A) AB B) B+B

    C) A D) B

11. An emitter follower has a voltage gain that is .....

    A) much less than one B) approximately equal to one

    C) greater than one D) zero

12. A JFET ..... .

    A) is a voltage controlled device.

    B) is a current controlled device

    C) has a low input resistance

    D) has a very large voltage gain

13. If two amplifiers are connected in cascade form then the overall gain:

    A) Addition of individual gains

    B) Subtraction of individual gains

    C) Product of individual gains

    D) None of the above

14. The Wien-bridge oscillator is useful .....

    A) at lower frequencies B) at higher frequencies

    C) with LC tank circuits D) None of the above

15. ..... device is used to design saw tooth oscillator.

    A) SCR B) BJT

    C) UJT D) FET

16. In a JK flip-flop, what is the state of the output Q when both J and K inputs are reset (0)?

    A) Q is set to 1 B) Q is reset to 0

    C) Q toggles D) Q remains unchanged

17. Which characteristic differentiates a latch from a flip-flop?

    A) Latches are edge-triggered, while flip-flops are level-triggered.

    B) Latches are level-triggered, while flip-flops are edge-triggered.

    C) Latches can store multiple bits of data, while flip-flops store only one bit.

    D) Latches have asynchronous inputs, while flip-flops have synchronous inputs.

18. Which type of flip-flop is known for its ability to store one bit of data?

    A) D Flip-Flop B) T Flip-Flop

    C) JK Flip-Flop D) SR Flip-Flop

19. What is the primary function of a flip-flop in digital circuits?

    A) Data transmission

    B) Memory storage

    C) Arithmetic computation.

    D) Signal amplification

20. What is the minimum number of NAND gates required to implement a basic SR flip-flop?

    A) 2 B) 3

    C) 4 D) 5

21. ..... capacitor store a higher amount of energy.

    A. Mica capacitor B. Air capacitor

    C. plastic D. None of these

22. IGBT stands for ..... .

    A. Inductive gate bipolar transistor

    B. Insulated gate bidirectional transistor

    C. Insulated gate bipolar transistor

    D. Insulator gate best tranformer

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. Which one of the following is not a vectored interrupt in 8085?

A) TRAP B) INTR

C) RST 7.5 D) RST 6.5

27. The address bus width of a microprocessor which is capable of addressing 64 Kbytes of the memory is ..... ?

A) 8 bit B) 16 bit

C) 64 bit D) 4 bit

28. The number of status flags present in 8085 microprocessor are?

A) 8 B) 16

C) 5 D) none of above

29. Which type of stack in 8085?

A) FIFO B) LIFO

C) LILO D) FIFO

30. Which special function register in 8051 play a vital role in the timer/counter mode selection process by allocating the bits in it?

A) TMOD B) TCON

C) SCON D) PCON

31. TDMA is a multiple access technique that has

A) Different users in different time slots

B) Each user is assigned unique frequency slots

C) Each user is assigned a unique code sequence

D) Each signal is modulated with frequency modulation tech

32. Frequency division multiple access (FDMA) assigns ... channels to .... users.

A) Individual, individual B) Many, individual

C) Individual, many D) Many, many

33. FSK is abbreviated as .....

A) Frequency shift keying

B) Frequency side keying

C) Forward shift keying

D) All the above

34. GPS stands for .....

A) Global positioning systems

B) Global partial system

C) Geo-positioning system

D) All the above

35. Analog cellular phone is generation technology.

A) IG B) 2G

C) 3G D) 4G

36. Auto reload mode is allowed in which mode of the timer?

A) Mode 0 B) Mode 1

C) Mode 2 D) Mode 3

37. TFI, TRI, TFO, TRO bits are of which register?

A) TMOD B) SCON

C) TCON D) SMOD

38. With what frequency UART operates (where f denoted the crystal frequency) ?

A) 1/12 B) 1/32

C) f/144 D) 1/384

39. How many data lines are there in a 16*2 alphanumeric LCD?

A) 16 B) 8

C) 1 D) 0

40. For writing commands on an LCD, RS bit is

A) Set B) Reset

C) Set and Reset D) None of the above

41. Thermocouple generate output voltage according to .....

A) Circuit parameters B) Humidity

C) Temperature D) Voltage

42. Sensor provides output signal depending on ..... .

A) Input

B) Physical quantity

C) Both a and b

D) None of the above

43. Which of the following is an example of an active transducer?

A) Strain gauge B) LVDT

C) Thermocouple D) Photodetector

44. What type of transducer is used to convert force into electrical signals?

A) LVDT B) Potentiometer

C) Load cell D) Thermocouple

45. What is the principle of operation of LVDT?

A) Mutual inductance B) Self-inductance

C) Permanence D) d) Reluctance

46. 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

47. With the increase in the intensity of light, the resistance of a photovoltaic cell

    A) Increases B) Decreases

    C) Remains same D) D. None of these

48. Change in resistance is measured using a

    A) Anderson's bridge

    B) Wheatstone's bridge

    C) Hay's bridge

    D) Maxwell's bridge

49. The output generated by the piezoelectric sensor is

    A. Mechanical B. Electric charge

    C. Chemical D. All the above

50. Which of the following is applications of IR sensor?

    A. TV remote B. Burglar alarm

    C. Robotics D. All the above

51. LM35 sensor IC is an example of .....sensor.

    A. Temperature B. Light

    C. IR D. PIR

52. Which among the following is an application of high frequency?

    a. SONAR b. Subsurface communication

    c. Radio navigation d. Facsimile

53. Wavefront is basically a locus of points acquiring similar

    a. Phase b. Frequency

    c. Amplitude d. Wave equation

54. In which kind of waveform is the phase velocity defined?

    a. Sinusoidal b. Rectangular

    c. Square d. Triangular

55. Power density is basically termed as power per unit area

    a. Reflected b. Refracted

    c. Radiated d. Diffracted.

56. Which ionization layer exists during day time & usually vanishes at night due to highest recombination rate?

    a. D-region b. Normal E-region

    c. Sporadic E-region d. Appleton region

57. ..... is the vector address of INTO ISR in 8051 microcontroller.

A) 0000H B) 0003H

C) 000BH D) 0023H

58. On RESET the stack pointer of 8051 microcontroller points to .....

A) 00H B) 07H

C) 7FH D) FFH

59. A freewheeling diode is required while interfacing with a microcontroller.

A) LED B) relay

C) optocoupler D) thumb wheel switch

60. DAC0808 has ..... inputs.

A) eight inverting analog B) eight non-inverting analog

C) eight inverting digital D) eight non-inverting digital

61. 8051 timer register mode ..... configures timer as 8-bit counter with auto-reload feature.

A) 1 B) 2

C) 3 D) 4

62. In mode ..... the 8051 serial port is configured as shift register with baud rate-f/12.

A) 0 B) 1

C) 2 D) 3

63. ..... cannot be connected to 8051 port pins directly.

A) relay B) thumbwheel switch

C) ADC D) all of these

64. ADC is required to develop ..... application with 8051 microcontroller.

A) Water level controller B) Traffic light controller

C) Digital Voltmeter D) all of these

65. Three phase line voltage is ..... volts

A) 230 B) 300

C) 440 D) 120

66. holding current ..... latching current.

A) greater than B) equal to

C) less than D) none of these

67. The secondary breakdown occurs in .....

A) MOSFET B) BJT

C) MOSFET and BJT D) SCR

68. Three phase voltages are phase shifted from each other by ..... degree.

A) 90 B) 120

C) 150 D) 180

69. The reverse recovery current in power diode depends upon .....

A) temperature B) forward current

C) PIV D) storage charge

70. The voltage measured between any two phases is called as ..... voltage.

A) neutral B) line and phase

C) phase D) line

71. The power BJT is a controlled device.

A) current B) voltage

C) power D) none of these

72. The minimum current required to make SCR in On state is called

A) induction current B) holding current

C) line current D) heating current

73. Which of the following is NOT a type of feedback sensor commonly used in robotics?

A) Encoder

B) Gyroscope

C) Spectrometer

D) Potentiometer

74. What is the primary function of a gyroscope in robotics?

A) To measure temperature

B) To detect gravitational force

C) To measure angular velocity or orientation

D) To amplify electrical signals

75. Which type of sensor is commonly used in electronic instrumentation for measuring temperature?

A) Strain gauge B) Thermocouple

C) Photodetector D) Capacitive sensor

76. What does the acronym PLC stand for in the context of robotics and automation?

A) Programmable Logic Controller

B) Power Line Communication

C) Personal Laser Cutter

D) Programmable Learning Computer

77. Which of the following statements about stepper motors used in robotics is true?

A) Stepper motors do not require a driver circuit for control.

B) Stepper motors provide precise control without the need for feedback sensors.

C) Stepper motors are typically used in applications requiring continuous rotation.

D) Stepper motors move in discrete steps, making them suitable for precise positioning.

78. In electronic instrumentation, what does the acronym DMM stand for?

A) Digital Manufacturing Module

B) Digital Multimeter

C) Dynamic Measurement Mechanism

D) Data Management Module

79. Which of the following is NOT a common application of robotic arms?

    A) Manufacturing

    B) Surgery

    C) Agriculture

    D) Weather forecasting

80. Which power electronic device is used for voltage regulation and reactive power compensation in power systems?

    a) Diode b) MOSFET

    c) IGBT d) NVC

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 glans multimode stop index fiber shows as variation of attenuation in range of .....

    a) 1.2 to 90 dB km^{-1} at wavelength 0.69um

    b) 3.2 to 30 dB km^{-1} at wavelength 0.59µm

    C) 2.6 to 50 dB km^{-1} at wavelength 0.85µm

    d) 1.6 to 60 dB kM^{-1} at wavelength 0.90µm

83. Multimode step index fiber has a large core diameter of range is .....

a) 100 to 300 um b) 100 to 300 mm

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 indes fibers are ....

a) Better than multimode imode step index fibem

b) Same as multimode step index fibers

c) Lesser than multimode step index fibers

d)Negligible

86. Multimode graded index fibers with wavelength of 0.85µm have numerical aperture of 0.29 have core/cladding diameter of .....

a) 62.5 µm/125 µm b) 100 µm/140 µm

c) 85 µm/125 µm d) 50 µm/125 µm

87. PIC 160xxx or 16Fxxx family has ..... instructiong

A) 14 B) 35

C) 65 D) 120

88. PIC 16Cxxx or 16Fxxx family han ..... bit instructions.

A) 8 B) 10

C) 12 D) 14

89. ..... register of PIC microcontroller sets input or output direction for each port pin.

A) PORTS B) DDRX

C) TRISX D) LATX

90. Most port pins of PIC microcontroller have .....source/sink capability

A) 500 µA B) 1.6 uA

C)1.6 mA D) 25 mA

91. In PIC18 all high priority interrupts are directed to the interrupt vector location ..... H.

A) 000006 B) 000008

C) 000016 D) 000018

92 PIC18 reset sources include .....

A) Power-on reset

B) Programmable Brown-out reset

C) Watchdog Timer reset

D) All of the above

93. Timer 0 of PIC18 microcontroller is .....

A) down counter that can be set up as 8-bit timer.

B) down counter that can be set up as 8-bit or 16-bit timer.

C) up counter that can be set up as 8-bit or 16-bit timer.

D) up/down counter that can be set up as 8-bit timer.

94. Hysteresis is associated with ..... controller.

A) ON-OFF B) Proportional

C) PI D) PID

95. What is the full form of PID?

A) Programmable Integral Device

B) Programmable Logic Device

C) Proportional Integral Device

D) Proportional Integral Derivative

96. ..... supports high angular precision.

A) DC motor B) servo motor

C) stepper motor D) AC motor

97. Ladder diagrams are associated with .....

A) PID controller

B) Programmable Logic controller

C) microcontroller

D) Peripheral Interface controller

98. analog device can perform arithmetic operations.

a) ALU b) Op-amp

c) Transistor d) Transformer

99. Op-amp is used in .....

A) ON-OFF control B) proportional control

C) PI control D) all of the above

100. The zero-crossing detector circuit typically uses .....

A) BJT B) JFET

C) MOSFET D) Op-amp

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- Rough Work - **ENT - 46**

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