Seat No.	

P.G. Entrance Examination, May - 2023
M.Sc. ELECTRONICS
Sub. Code : 58298

Day and Date : Tuesday, 09 - 05 - 2023   **Total Marks : 100**
Time : 03.30 p.m. to 05.00 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) The IC 7490 is a _____.
A) D flip Flop
B) T Flip Flop
C) Decade Counter
D) Both A & B

2) A multiplexer is also called as a
A) Coder
B) Parallel adder
C) Data selector
D) NOR gate

3) Binary ripple counter with 4 flip-Flops counts _____ states.
A) 16
B) 8
C) 4
D) 2

4) 8085 microprocessor has _____ bit data bus and _____ bit address bus.
A) 8, 64
B) 8, 16
C) 8, 32
D) 16, 32

5) Inductive reactance is given by X_L = _____.
A) $2\pi f L$
B) $4\pi f L$
C) $2 f L$
D) $2\pi f$

6) 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 these

7) _____ Diode is used for voltage regulation.

   A)   LED   B)   varactor

   C)   zener   D)   avalanche

8) Which of the following is universal gate?

   A)   AND   B)   NAND

   C)   OR   D)   XOR

9) The 8421 code is _____ code

   A)   Binary   B)   BCD

   C)   Gray   D)   Unweighted

10) The half adder adds _____ bits.

   A)   2   B)   3

   C)   4   D)   8

11) The boolean expression $A+AB$ = _____

   A)   AB   B)   A+B

   C)   A   D)   B

12) The ripple factor of a bridge rectifier is _____.

   A)   0.482   B)   0.812

   C)   1.11   D)   1.21

13) In full wave rectification, if the input frequency is 50 Hz, then output frequency is _____ Hz.

A) 25   B) 50

C) 100   D) 200

14) _____ amplifier is also called as emitter follower.

A) common emitter   B) common base

C) common collector   D) all of the above

15) Blocking capacitor blocks _____ signal.

A) a.c.   B) d.c.

C) both a.c. and d.c.   D) none of these

16) In _____ type of amplifier, transistor conducts for complete cycle of the input signal.

A) class-A   B) class-B

C) class-C   D) class AB

17) Forward biased diode offers _____ resistance.

A) zero   B) very low

C) very high   D) infinite

18) Transistor amplifier which gives current gain ≈ 1 is _____.

A) CE   B) CB

C) CC   D) none of these

19) The flip flop has two outputs which are _____ of each other.

A) Complements   B) Same

C) Opposite   D) Both A & C

20) In case of Kirchhoff's current law, currents meeting the junction point are considered _____.

A) positive   B) negative

C) zero   D) none of these

21) _____ region of the transistor is lightly doped.

A) Emitter   B) Base

C) Collector   D) None of these

22) Base of the hexadecimal system is _____.

A) 2   B) 8

C) 10   D) 16

23) Shift registers are used for

A) shifting   B) rotating

C) adding   D) both A and B

24) Power in electrical circuit is given by _____.

A) IV   B) $I^2 R_L$

C) $V^2 R_L$ D) All of these

25) Thevenin's network gives an equivalent network in _____ form

A) shunt   B) series

C) ladder   D) T

26) If R_s is the source resistance and R_L is the load resistance then according to maximum power transfer theorem, maximum power is delivered to the load if _____.

A) $R_s > R_L$ B) $R_s < R_L$

C) $R_s = R_L$ D) $R_s = R_L = 0$

27) The condition under which fourier series can be expanded is known as
_____.

    A) Convergence   B) Fourier

    C) Periodic   D) Dirichlet

28) Laplace transform of unit step function is _____.

    A) $1 / S$ B) $1 / S^2$

    C) $1 / S + \alpha$ D) $1 / S - \alpha$

29) To configure all ports of 8255 as output ports in mode 0, the control word
should be _____.

    A) 00 H   B) 1B H

    C) 80 H   D) 9B H

30) _____ is a non-maskable interrupt

    A) RST 5.5   B) RST 6.5

    C) RST 7.5   D) TRAP

31) Astable multivibrator has _____ stable states.

    A) One   B) Two

    C) No   D) None of these

32) In IC 555 pin no. 2 stands for _____.

    A) Threshold   B) Reset

    C) Discharge   D) Trigger

33) To interface EPROM IC 2764 with 8085, the minimum _____ address
lines are required.

    A) 11   B) 12

    C) 13   D) 14

34) _____ is a memory pointer register.

A) ACC

B) Flag

C) PC

D) IR

35) LXI H, 6000H is _____ instruction.

A) One byte

B) Two byte

C) Three byte

D) None of these

36) The Voltage to Current Converter is also called as a _____.

A) Current - series negative feedback amplifier

B) Current - series positive feedback amplifier

C) Voltage - series positive feedback amplifier

D) Voltage - series negative feedback amplifier

37) The output voltage of a phase detector in PLL is a dc voltage and is often referred to as the _____ voltage.

A) actual

B) error

C) measured

D) both A) & B)

38) The output impedance of a voltage regulator is _____.

A) Very small

B) Very large

C) Equal to the load voltage divided by the load current

D) Equal to the input voltage divided by the output current

39) The instruction MVI C, 25 H has _____ addressing mode.

A) Direct

B) Register

C) Indirect

D) Immediate

40) In h - Parameter representation, the independent variables are _____.

A) I_1 and V_2

B) I_2 and V_1

C) V_1 and V_2

D) I_1 and I_2

41) Modulation is done at _____.

A) Transmitter

B) Receiver

C) Both receiver & transmitter

D) None of these

42) 8051 has _____ bytes of internal memory.

A) 128

B) 6K

C) 64K

D) 2K

43) _____ mode is called as auto reload mode

A) Mode 0

B) Mode 1

C) Mode 2

D) Mode 3

44) Interrupt priority can be changed using _____ register.

A) IE

B) IP

C) TCON

D) TMOD

45) An integrated circuit offers _____.

A) Improved performance

B) High speed

C) Low powers consumption

D) All the (A), (B) & (C)

46) The main advantages of differential amplifier is that it rejects _____.

A) Common - mode signal

B) Distortion

C) Differential mode signal

D) Noise

47) The ideal op-amp has _____ output resistance.

A) 75 Ω   B) 0 Ω

C) 2M Ω   D) Infinite Ω

48) Supply voltage rejection ratio(SVRR) of op-amp is the measure of _____.

A) voltage gain   B) I/P impedence

C) noise   D) o/p impedence

49) For an ideal Op-Amp slew rate is _____.

A) Zero   B) Infinite

C) 0.5 V/s   D) 0.5 u V/s

50) De-modulation is done at _____.

A) Transmitter   B) Receiver

C) Both receiver & transmitter   D) None of these

51) In Am, when Em = Ec then this condition is known as _____.

A) Under modulation   B) Over modulation

C) Ideal condition   D) None of these

52) In radio wave prorogation, the ground waves are also called as _____.

A) Space waves   B) Ionosphere wave

C) Sky waves   D) Surface wave

53) In TV sound is _____ modulated

A) Amplitude   B) Frequency

C) Angle   D) None of these

54) Lowest existing layer in an ionosphere is _____.

A) E-Layer   B) F1-Layer

C) D-Layer   D) F2-Layer

55) In any communication system the S/N ratio should be _____.

A) as low as possible   B) as hgih as possible

C) infinite   D) constant

56) Communication through walky-talky is a _____ system.

A) simplex   B) half duplex

C) full duplex   D) none of these

57) The crystal frequency extensively used for 8051 is 11.0592 MHz especially _____.

A) to match baud rate while using 8051 and IBM PCs for serial communication

B) due to these crystals are available at low cost

C) it is suitable for delay generation using timers

D) it is suitable for Interrupt handling

58) For the baud rate of 4800, the value of TH1 is _____.

A) –3   B) –6

C) –12   D) –24

59) In 8051 serial communication _____ bit of SCON register raises to High indicating that the last character was transmitted.

A) TI   B) RI

C) REN   D) All above

60) The meaning of sbitmybit=P2^7 is _____

    A)   P2s EXORed with P2.7   B)   7 bits are XORed with P2

    C)   P2.7 bit is labeled as mybit   D)   None of these

61) If unsigned character x = 0x 0F and A=0x 55 After executing instruction A & x Contents of A becomes _____.

    A)   0x F0   B)   0x FF

    C)   0x 05   D)   0x 55

62) If unsigned character x=0x 0F, After executing instruction A=x >>2 Contents of A becomes _____.

    A)   0x F0   B)   0x 00

    C)   0x 03   D)   0x 55

63) In microcontroller and LCD interface _____ line will instruct the LCD that microcontroller is sending data.

    A)   RW   B)   RS

    C)   EN   D)   D0

64) If a stepper motor takes 45 steps to make one complete revolution then step is _____.

    A)   4   B)   12

    C)   8   D)   90

65) The power transistor has a _____ breakdown voltage than conventional transistor due to the presence of the drift layer.

    A)   higher   B)   moderate

    C)   lower   D)   none of these

66) The reverse recovery current in power diode depends upon _____.

    A)   storage charge   B)   forward current

    C)   temperature   D)   PIV

67) The IGBT has the following terminals _____.

    A)   emitter, base, gate   B)   emitter, base, collector

    C)   emitter, base, drift   D)   emitter, collector, gate

68) _____ is a unidirectional device with three terminals

    A)   Diac   B)   BJT

    C)   SCR   D)   Triac

69) The voltage measured between any two phases is called as _____ voltage.

    A)   line   B)   phase

    C)   both A & B   D)   none of these

70) SMPS are superior to linear power supplies in respect of _____.

    A)   efficiency and regulation   B)   size and efficiency

    C)   regulation and noise   D)   noise and cost

71) The problem of dc input current can be prevented by using _____ control and a single phase full wave controller with resistive load.

    A)   constant   B)   unidirectional

    C)   bidirectional   D)   none of these

72) The Power MOSPET is a _____ carrier device

    A)   majority   B)   minority

    C)   both A & B   D)   none of these

73) In two position control two different set point are used and the gap between these set points is called ____.

    A)   hysteresis   B)   neutral zone

    C)   inter set point gap   D)   error

74) _____ controller cannot minimize the sudden error.

   A) Multi-position control   B) Proportional control

   C) Proportional Integral control   D) PID control

75) _____ communication protocol used in automation systems

   A) RS232   B) IEEE 801.1

   C) RS-485   D) RS-486

76) _____ control loop are used in large industrial plants.

   A) Feed forward   B) Feedback

   C) Local   D) Direct

77) _____ switches are not accessible for the operator.

   A) SPDT   B) Limit

   C) Push button   D) Rotary

78) PLCs can be _____ in plant to change the sequence of operation.

   A) only programmed

   B) programmed and reprogrammed

   C) only reprogrammed

   D) to give a set point table

79) Which of the following cannot be an input that is given to the PLC

   A) Manual Switches   B) Relays

   C) Senors   D) None of these

80) Which one of the following communication system is digital?

   A) FM   B) AM

   C) PCM   D) PAM

81) RFID stands for _____.

    A)   Radio Frequency Infrared Detector

    B)   Radio Frequency Integrated Data

    C)   Radio Frequency Intrinsic Data

    D)   Radio Frequency Identification

82) Cellular phone is a _____ system.

    A)   simplex   B)   full duplex

    C)   half duplex   D)   multiplex

83) The propagation of light through OFC cable is based on the principle of_____

    A)   dispersion   B)   refraction

    C)   reflection   D)   absorption

84) Mark and space refers respectively to _____.

    A)   dot and dash   B)   binary '1' and '0'

    C)   message and interval   D)   on and off

85) The ringing voltage supplied by the telephone exchange is _____.

    A)   an internal ac power supply   B)   a battery

    C)   48 Vdc by the telephone exchange D)   230 Vac from ac mains

86) A Known accurate measure of physical quantity is termed as a _____.

    A)   accuracy   B)   standard

    C)   resolution   D)   error

87) Alkaline solution have a pH value _____ than 7

   A)   greater   B)   less

   C)   equal   D)   none of these

88) To measure the _____ of a rotating shaft tachometer is used.

   A)   current   B)   voltage

   C)   speed   D)   power

89) The transmit and receive frequencies of Cell phone are selected by _____.

   A)   MTSO   B)   handset manufacturer

   C)   the calling subscriber   D)   called subscriber

90) PIC 18f458 will reset when its pin _____.

   A)   MCLR is low   B)   MCLR is high

   C)   MCLR is open   D)   OSC1 is low

91) PIC 18f458 is _____ bit controller.

   A)   8   B)   16

   C)   32   D)   64

92) If 16 Mhz external quartz crystal is connected to PIC 18f458, then internal clock frequency will be _____ Mhz.

   A)   8   B)   16

   C)   4   D)   32

93) PIC 18f458 has _____, 8 bit I/O PORTS.

   A)   3   B)   5

   C)   4   D)   2

94) After execution of an instruction ADDWF f,d,aifd=0, the result will be stored in _____ register.

   A)   File
             B)   WREG

   C)   Both A and B
       D)   None of the above

95) The degree of exactness of measurement compared to the expected value is called as _____.

   A)   Accuracy
       B)   Resolution

   C)   Precision
        D)   Error

96) _____ is not an active transducer.

   A)   Photodiode
      B)   Thermister

   C)   Phototransistor
    D)   None of these

97) The LVDT is a _____ type of transducer.

   A)   Capacitive
      B)   Resistive

   C)   Active
        D)   Passive

98) The differential amplifier can be biased by using _____.

   A)   emitter bias
      B)   current mirror bias

   C)   constant current bias
  D)   all of these

99) PIC 18f458 has _____ I/O PINS.

   A)   32
              B)   34

   C)   40
             D)   36

100) To replay the recorded data many times _____ Recorder is used.

   A)   X-T
          B)   Magnetic tape

   C)   X-Y
          D)   None of these

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Rough Work