

Sr. No. **060**

ENTRANCE TEST-2022

SCHOOL OF APPLIED SCIENCES & TECHNOLOGY

ELECTRONICS

Total Questions : 60

Time Allowed : 70 Minutes

Question Booklet Series

D

Roll No. :

--	--	--	--	--	--	--	--

Instructions for Candidates :

1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be 'Negative Marking' for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

SV-14755-D

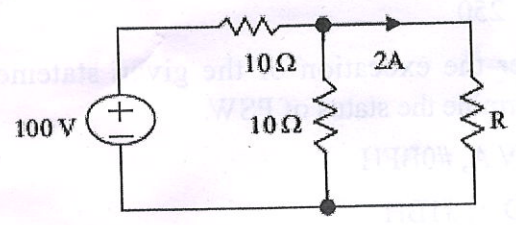
[Turn over

SEAL

1. A single ROM is used to design a combinational circuit described by a truth table. What is the number of address lines in the ROM ?
- (A) Number of input variables in the truth table
 (B) Number of output variables in the truth table
 (C) Number of input plus output variables in the truth table
 (D) Twice the number of output variables in the truth table
2. Which one of the following statements is correct ?
 A micro-controller differs from a microprocessor in that it has _____.
- (A) Both on-chip memory and on-chip ports
 (B) Only on-chip memory but not on-chip ports
 (C) Only on-chip ports but not on-chip memory
 (D) Neither on-chip memory nor on-chip ports
3. If the status of the control lines S_1 and S_0 is LOW, then 8085 microprocessor is performing :
- (A) Reset operation
 (B) Hold Operation
 (C) Halt Operation
 (D) Interrupt acknowledge
4. Consider the following statements :
 Assertion (A) : The data bus and address bus of 8085 microprocessor are multiplexed.
 Reason (R) : Multiplexing reduces the number of pins.
- Of the statements:
- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
 (B) Both (A) and (R) are true, but (R) is not correct explanation of (A)
 (C) (A) is true, but (R) is false
 (D) (A) is false, but (R) is true
5. Some of the pins of an 8085 CPU and their functions are listed below. Identify the correct answer that matches the pins to their respective functions :
- P. RST 7.5 1. Select IO or memory
 Q. HOLD 2. Demultiplexes the address and data bus
 R. $\text{IO}/\overline{\text{M}}$ 3. Is a vectored interrupt
 S. ALE 4. Facilitates direct memory access
 5. Is a clock
 6. Selects BCD mode of operation
- (A) P-3, Q-2, R-1, S-4
 (B) P-4, Q-1, R-5, S-3
 (C) P-3, Q-4, R-1, S-2
 (D) P-2, Q-3, R-6, S-1
6. Which signal of 8085 microprocessor is used to insert wait states ?
- (A) READY
 (B) ALE
 (C) HOLD
 (D) INTR
7. The program counter (PC) in a microprocessor _____.
- (A) Counts the number of programs being executed by the microprocessor
 (B) Counts the number of instructions being executed by the microprocessor
 (C) Counts the number of interrupts handled by the microprocessor
 (D) Keeps the address of the next instruction to be fetched

8. Which interrupt is having the highest priority ?
- RST 7.5
 - RST 6.5
 - RST 5.5
 - TRAP
9. Which of these is software interrupt ?
- RST 4.5
 - RST 5
 - RST 5.5
 - RST 6.5
10. How many instructions does microprocessor 8085 has ?
- 255
 - 256
 - 246
 - 250
11. After the execution of the given statements, determine the status of PSW.
- ```
MOV A, #0BFH
ADD A, #1BH
```
- 11010001
  - 01011011
  - 01000001
  - 10100001
12. The contents of accumulator after the execution of following instructions will be :
- ```
MVIA, B7H
ORA A
RAL
```
- 6EH
 - 6FH
 - EEH
 - EFH
13. The precision of an instrument indicates its ability to reproduce a certain reading with a given _____.
- Drift
 - Resolution
 - Shift
 - Consistency
14. De-Sauty bridge is more widely used because of _____.
- Simplicity
 - Perfect balance for imperfect capacitors
 - Perfect balance for air capacitors
 - Maximum Sensitivity
15. A dual trace oscilloscope usually offers two modes, chop and alternate. The alternate mode can be used for displaying _____.
- Any two waveforms
 - Two waveforms of relatively high frequency
 - Two waveforms of relatively low frequency
 - One low frequency and one high frequency waveform
16. Swamping resistance is a resistance which is added to the moving coil of a metre to _____.
- Reduce the full-scale current
 - Reduce the temperature error
 - Increase the sensitivity
 - Increase the field strength

17. Full form of LASER is _____.
- (A) Light Augmentation by Spontaneous Emission of Radiation
 - (B) Light Augmentation by Stimulated Emission of Radiation
 - (C) Light amplification by Spontaneous Emission of Radiation
 - (D) Light amplification by Stimulated Emission of Radiation
18. When the light increases, the reverse current in a photo-diode _____.
- (A) Increases
 - (B) Decreases
 - (C) First increases then decreases
 - (D) Is unaffected
19. A triac is equivalent to two SCRs _____.
- (A) In parallel
 - (B) In series
 - (C) In inverse-parallel
 - (D) In cascade
20. SCR can be turned on by
- (1) Applying anode voltage at a sufficiently fast rate
 - (2) Applying sufficiently large anode voltage
 - (3) Increasing the temperature of SCR to a sufficiently large value
 - (4) Applying sufficiently large gate current
- Of these statements :
- (A) (1), (2), (3) are correct
 - (B) (1), (3), are correct
 - (C) (1), (2), (4) are correct
 - (D) (2), (3), (4) are correct
21. Norton's theorem replaces a complicated circuit facing a load by an _____.
- (A) Ideal voltage source and parallel resistor
 - (B) Ideal current source and parallel resistor
 - (C) Ideal current source and series resistor
 - (D) Ideal voltage source and series resistor
22. An ideal current source consists of 5 mA in parallel with 1 k Ω resistance. The voltage magnitude of equivalent voltage source is _____.
- (A) 1 V
 - (B) 2.5 V
 - (C) 0.5 V
 - (D) 5 V
23. In the figure, the value of resistance R in Ω is _____.



- (A) 10
 - (B) 20
 - (C) 30
 - (D) 40
24. At what frequency will the current in a series RLC reach its maximum value for an applied voltage of 15 V with $R = 500 \Omega$, $L = 100 \mu\text{H}$, $C = 0.001 \mu\text{F}$.
- (A) 503 kHz
 - (B) 603 kHz
 - (C) 303 kHz
 - (D) 403 kHz

25. At room temperature, the current in an intrinsic semiconductor is due to _____.
- (A) Holes
(B) Holes and Electrons
(C) Electrons
(D) Ions
26. The ripple factor of a full-wave rectifier is _____.
- (A) 2
(B) 1.21
(C) 2.5
(D) 0.48
27. The infra-red LED is usually fabricated from _____.
- (A) Ge
(B) Si
(C) GaAs
(D) GaAsP
28. In a uniformly doped abrupt p-n junction, the doping level of the n-side is four (4) times the doping level of the p-side. The ratio of the depletion layer width (n-side to p-side) is _____.
- (A) 0.25
(B) 10
(C) 0.5
(D) 2.0
29. Which one of the following does not have a junction ?
- (A) Zener diode
(B) Tunnel Diode
(C) Avalanche Diode
(D) Gunn Diode
30. Which one of the following bipolar transistors has the highest current gain bandwidth product (f_T) for similar geometry ?
- (A) NPN Germanium transistor
(B) NPN Silicon transistor
(C) PNP Germanium transistor
(D) PNP Silicon Transistor
31. If both the emitter-base and the collector-base junction of a bipolar transistor are forward biased, the transistor is in the _____.
- (A) Active region
(B) Saturated region
(C) Cut-off region
(D) Inverse mode
32. Consider the following statements :
- Assertion (A) : The input impedance of insulated gate MOSFET is very high
- Reason (R) : The current in MOSFETs is due to majority carriers.
- Of the statements :
- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
(B) Both (A) and R are true, but (R) is not correct explanation of (A)
(C) (A) is true, but (R) is false
(D) (A) is false, but (R) is true

33. How is inversion achieved using EX-OR gate ?
- Giving input signal to the two input lines of the gate tied together
 - Giving input to one input line and logic zero to the other line
 - Giving input to one input line and logic one to the other
 - Inversion cannot be achieved using EX OR gate
34. $Y=f(A, B)= \sum M(0, 1, 2, 3)$ represents (M is Maxterm) :
- NOR gate
 - NAND gate
 - OR gate
 - A situation where output is independent of input
35. Consider the following statements regarding IC :
- ECL has the least propagation delay
 - TTL has the largest fan-out
 - CMOS has the biggest noise margin
 - TTL has the lowest power consumption
- Which of these statements are correct ?
- (1) and (3)
 - (2) and (4)
 - (3) and (4)
 - (1) and (2)
36. The decimal equivalent of octal number $(1746)_8$ is _____.
- $(998)_{10}$
 - $(898)_{10}$
 - $(798)_{10}$
 - $(698)_{10}$
37. A master-slave flip-flop has the characteristic that _____.
- Change in the input is immediately reflected in the output
 - Change in the output occurs when the state of master is affected
 - Change in the output occurs when the state of the slave is affected
 - Both the master and the slave states are affected at the same time
38. A ring counter consisting of five flip-flop will have _____.
- 5 states
 - 10 states
 - 32 states
 - Infinite states
39. Which one of the following is equivalent to Boolean expression $Y = \overline{A}\overline{B} + \overline{B}\overline{C} + \overline{A}\overline{C}$?
- $\overline{AB+BC+CA}$
 - $(\overline{A} + \overline{B}) + (\overline{B} + \overline{C}) + (\overline{A} + \overline{C})$
 - $\overline{(A+B)(B+C)(A+C)}$
 - $\overline{(A+B)} \overline{(B+C)} \overline{(A+C)}$

40. The characteristic equation of the T-flip-flop is given by :
- (A) $Q^+ = \bar{T}Q + T\bar{Q}$
 (B) $Q^+ = TQ + \bar{T}\bar{Q}$
 (C) $Q^+ = TQ$
 (D) $Q^+ = \bar{T}Q$
41. The bandwidth of an RC-coupled amplifier is limited by _____.
- (A) Coupling capacitors at the low-frequency end and bypass capacitors at the high-frequency end
 (B) Coupling capacitors at the high frequency end and bypass capacitors at the low-frequency end
 (C) Bypass and coupling capacitors at the low frequency end and shunt capacitors at the high frequency end
 (D) Shunt capacitors at the low frequency end and bypass as well as coupling capacitors at the high frequency end
42. A Hartley oscillator is used for generation _____.
- (A) Very low frequency oscillation
 (B) Radio frequency oscillation
 (C) Microwave oscillation
 (D) Audio-frequency oscillation
43. Which one of the following power amplifiers has the maximum efficiency ?
- (A) Class-A
 (B) Class-B
 (C) Class-AB
 (D) Class-C
44. Given three amplifiers with each having a gain of 20 dB and are connected in cascade. How much is the overall gain in dBs ?
- (A) 8000
 (B) 60
 (C) 30
 (D) 20
45. The output of OP-amp increases maximum of 8 V in 12 μ s. The slew rate is _____.
- (A) 96 V/ μ s
 (B) 0.67 V/ μ s
 (C) 1.5 V/ μ s
 (D) 192 V/ μ s
46. What is the most popular IC used in timing circuits ?
- (A) 555 timer
 (B) 741
 (C) LM317
 (D) LM340
47. An op-amp based integrator circuit has a capacitor connected between _____.
- (A) Input and inverting terminal of op-amp
 (B) Output and non-inverting terminal of op-amp
 (C) Input and non-inverting terminal of op-amp
 (D) Output and inverting terminal of op-amp

48. A certain noninverting amplifier has R_i of $1\text{ k}\Omega$ and R_f of $100\text{ k}\Omega$. The closed-loop voltage gain is _____.
- (A) 100
(B) 101
(C) 102
(D) 103
49. The most common detector used in an AM radio broadcast receiver is _____.
- (A) Envelope detector
(B) Discriminator
(C) Coherent detector
(D) Ratio detector
50. In an AM wave, useful power is carried by _____.
- (A) Carrier
(B) Sidebands
(C) Both sidebands and carrier
(D) None of the above
51. In superhetrodyne receiver, the inputs of the mixer stage are _____.
- (A) IF and RF
(B) RF and AF
(C) IF and AF
(D) RF and local oscillator signals
52. The major advantage of FM over AM is _____.
- (A) Reception is less noisy
(B) Higher carrier frequency
(C) Smaller bandwidth
(D) Small frequency deviation
53. A 10 MHz carrier is frequency modulated by a sinusoidal signal of 1 kHz , the maximum frequency deviation being 1000 kHz . The bandwidth required as given by the Carson's rule is _____.
- (A) 901 kHz
(B) 1001 kHz
(C) 1102 kHz
(D) 2002 kHz
54. The PAM signal can be detected by _____.
- (A) Bandpass filter
(B) Bandstop filter
(C) Highpass filter
(D) Lowpass filter
55. In TDM non-essential components of the modulating signal are removed by _____.
- (A) Sampler
(B) Attenuator
(C) Pre-alias Filter
(D) Modulator

56. Companding is used _____.
- (A) To overcome quantising noise in PCM
 - (B) In PWM receivers to reduce impulse noise
 - (C) To protect small signals in PCM from quantising noise
 - (D) None of the above
57. IMEI stands for :
- (A) International Mobile Electronic Information
 - (B) International Mobile Electronic Identity
 - (C) International Mobile Equipment Information
 - (D) International Mobile Equipment Identity
58. Which system allows the entire bandwidth to be available to each user at the same time ?
- (A) CSMA
 - (B) GSM
 - (C) FDMA
 - (D) CDMA
59. The main objective of CELL in a cellular mobile system is _____.
- (A) Handoff
 - (B) Modulation
 - (C) Frequency reuse
 - (D) Coding
60. Which one of the following statements is correct ?
- (A) RAM is non-volatile memory whereas ROM is a volatile memory
 - (B) RAM is volatile memory whereas ROM is a non-volatile memory
 - (C) Both RAM and ROM are volatile memories but in ROM data is not lost when power is switched off
 - (D) Both RAM and ROM are non-volatile memories but in RAM data is lost when power is switched off

ROUGH WORK

56. Which one of the following statements is correct?
 (A) Handoff
 (B) Modulation
 (C) Frequency reuse
 (D) Coding

57. Which system is used to overcome quantizing noise in PCM?
 (A) Handoff
 (B) Modulation
 (C) Frequency reuse
 (D) Coding
58. In P/M receiver to reduce impulse noise
 (A) To protect small signals in PCM from
 (B) To protect small signals in PCM from
 (C) To protect small signals in PCM from
 (D) To protect small signals in PCM from
59. IMT stands for:
 (A) International Mobile Electronic Information
 (B) International Mobile Electronic Identity
 (C) International Mobile Equipment Information
 (D) International Mobile Equipment Identity
60. Which system allows the entire bandwidth to be available to each user at the same time?
 (A) GSM
 (B) GSM
 (C) FDMA
 (D) CDMA
61. Both RAM and ROM are volatile memories but in ROM data is not lost when power is switched off.
 (A) Both RAM and ROM are non-volatile memories but in RAM data is lost when power is switched off.
 (B) Both RAM and ROM are non-volatile memories but in RAM data is lost when power is switched off.
 (C) Both RAM and ROM are volatile memories but in ROM data is not lost when power is switched off.
 (D) Both RAM and ROM are non-volatile memories but in RAM data is lost when power is switched off.