AUTOMATION 1
7150

GENERAL CERTIFICATE OF EDUCATION BOARD

Technical and Vocational Education Examination

JUNE 2022 **ADVANCED LEVEL**

Specialty Name and Acronym	**AUTOMOBILE CONSTRUCTION AND MAINTENANCE (AM-LV & AM-HD)**
Centre No.	
Centre Name	
Candidate No.	
Candidate Name	

Mobile phones are **NOT** allowed in the examination room

7150 AUTOMATION 1: MULTIPLE CHOICE QUESTION PAPER 1

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed **Advanced Level – 7150 AUTOMATION 1**
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided on the answer sheet using your HB pencil: **Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number.** Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.
6. **Answer ALL questions**
7. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide on which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
   For example, if **C** is your correct answer, mark **C** as shown below:
   [A] [B] ~~[C]~~ [D]
8. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
9. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
10. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
11. Texts, notes and pre-prepared materials of any kind are also **NOT** allowed in the examination room.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet after. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

Turn Over

1. It is defined as a bit
   A 0 and 1
   B 1,
   C 0
   D 0 or 1

2. The evolution in a GRAFCET between two steps is
   A The link
   B The transition
   C The receptivity
   D The action

3. The initial condition of a SFC is represented by?
   A A square
   B A rectangle
   C A double square
   D An arrow head

4. What is a byte?
   A 8 bits
   B 4 bits
   C 2 bits
   D 16 bits

5. The numbers (0, 1, 2, 3 ….8) are in
   A Base 9
   B Base 10
   C Base 8
   D Base 7

6. This number is a byte
   A 10101011
   B 1101
   C 1000110001
   D 1110011

7. It is define as a word, in a microprocessor
   A 2 bytes,
   B 4bits
   C 8bits
   D 2bits

8. Add in binary 1+1=
   A 2
   B 11
   C 10
   D 11

9. It is not an octal number
   A 75
   B 57
   C 77
   D 18

10. The modulus of the counter (N) is given by the formula?
    A $N=2^n$
    B N=2n
    C N=2n-1
    D N=2n+1

11. A.B.C.D is
    A product
    B Sum
    C quotient
    D Demorgan theory

12. (A+B). (C+D) is
    A Product of sum
    B Sum of product
    C Sum
    D Product.

13. $\overline{A+B}$ is.
    A logic AND gate
    B logic OR gate
    C logic NAND gate
    D logic NOR gate

14. $\overline{A.B}$ is
    A Logic AND gate
    B Logic OR gate
    C Logic NAND gate
    D Logic NOR gate

15. $\overline{A}.\overline{B} + B.A$ is a
    A Logic AND gate
    B Logic EX-OR gate
    C Logic NAND complementary gate
    D Logic EX-NOR gate

16. A multiplexer is an electronic device that
    A Accepts input serial data and send out parallel data,
    B Accepts input serial data and send out serial data,
    C Accepts input parallel data and send out parallel data,
    D Accepts input parallel data and send out serial data,

17. The Demorgan theorem $\overline{A+B+C}=$
    A $\overline{A+B+C}$
    B $\overline{A}.\overline{B}.\overline{C}$,
    C A.B.C
    D A+B+C

Go on to the next page

18. A Demultiplexer is an electronic device that

A Accept input serial data and send out parallel data,
B B) Accept input serial data and send out serial data
C Accept input parallel data and send out parallel data
D Accept input parallel data and send out serial data

Answer questions 19 -22 by studying the GRAFCET of figure 1

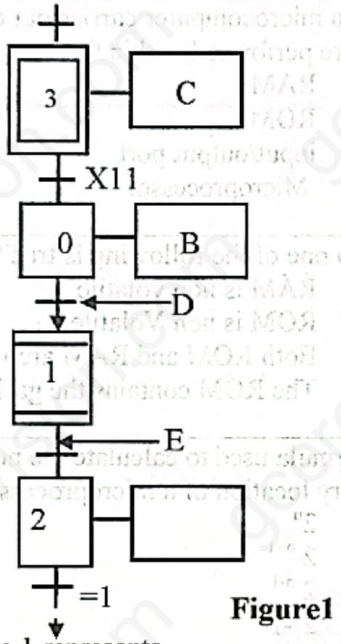

Figure1

19. The stage 1 represents
A macro stage
B sub-program
C waiting stage
D initial stage

20. The point labeled D shows
A Transition
B Receptivity
C Start of cycle
D Action link

21. The step 2 represents
A Waiting stage
B active stage
C action stage
D starting stage

22. The stage 3 is an illustration of
A double Square
B initial stage
C macro stage
D waiting stage

23. How many flipflops are needed to realize a counter that can count from 1 to 10?
A 4Flip-flops
B 5Flip-flops
C 2 Flip-flops
D 3Flip-flops

24. It is the part of an automated system
A Double acting cylinder
B Operative part
C service unit
D Single acting cylinder

25. The condition to activate a step in SFC is

A The previous step active and receptivity true
B The previous step active and the action active
C The previous step active and the link active
D The previous step active and the output active

26. SFC signifies
A Select function controller
B Sequential function chart
C Section function chart
D Sequential function controller

27. It is not a part of cable logic
A Thermally relay
B Contactor
C Isolated fuse,
D Programmable logic controller.

28. It is a PLC interface
A Switch
B Distributer
C Double acting Cylinder
D Actuator.

The question 29- 32 is with reference to figure 2

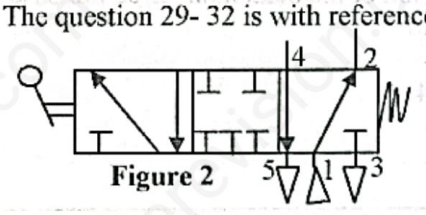

Figure 2

29. The Valve of figure1 is a
A 5/2 valve
B 4/2 valve
C 5/3 valve
D 4/3 valve.

30. The valve of figure1 is controlled by?
    A Mechanically
    B Pneumatically)
    C Manually)
    D Hydraulically.

31. The number 2 is always connected to
    A sensor
    B Actuator
    C Pressure
    D Exhaust

32. The number 1 is always connected to
    A Sensor
    B Actuator
    C Pressure
    D Exhaust

33. On a 4/3 valve, 3 refers to
    A Number of ports
    B Number of positions
    C Number of arrows
    D Exhaust ports

34. The addition of 1+1+1 in binary is
    A 3
    B 111
    C 11
    D 1

35. The conversion of the binary number 110101101 to base 10 is equal to
    A 439
    B 459
    C 429
    D 449

36. The conversion of the octal number 624 to base 10 is equal to
    A 304
    B 404
    C 504
    D 204

37. The conversion of the hexadecimal number 1A7 to base 10 10 is equal to
    A 523
    B 223
    C 323
    D 423

38. What is a nibble?
    A 2bits
    B 4bits
    C 8bits
    D 16bits

39. To convert from binary to octal we group in
    A Bits of 3s from left to right
    B Bits of 4s from left to right
    C Bits of 3s from right to left
    D Bits of 4s from right to left

40. When a microcomputer carries out calculations they are performed within the
    A RAM
    B ROM
    C input/output port
    D Microprocessor

41. Which one of the following is true?
    A RAM is non volatile
    B ROM is non Volatile
    C Both ROM and RAM are volatile
    D The ROM contains the garbage switch on

42. The formula used to calculate the number of memory location of a microprocessor is
    A 2^n
    B 2^{n+1}
    C 2^{n-1}
    D 2^n-1

43. In relation to digital system MSB stands for
    A Most Significant Byte
    B Microprocessor Status Bit
    C Most Significant Bit
    D Memory Status Bit

44. The output from the clock circuit is connected as an input to the
    A RAM
    B ROM
    C Data bus
    D Microprocessor

45. The ALU has
    A One input and two outputs
    B One input and one output
    C Two inputs and two outputs
    D Two inputs and one output

46. The LSB digital word is the
    A Least significant byte
    B Lower Significant Bit
    C Longest Significant Bit
    D Least Significant Bit

47. A macro stage of a GRAFCET has
    A The IN stage and OUT stage
    B IN stage and the inner stage
    C IN stage and many OUT stages
    D Initial stage and OUT stage

48. A register can be defined as
    A A group of memory cells used to provide temporary storage of words within the microprocessor
    B one bit memory cell
    C a device where the user's program is stored
    D Always 8bits long

49. The manufacturer of the microprocessor 6502 is
    A Intel
    B MOS Technology
    C Motorola
    D Zilog

50. It is not a manufacturer of PLCs
    A Telemecanique
    B Allen Bradley
    C Microsoft
    D Gerlin Merlin

STOP

NOW GO BACK AND CHECK YOUR WORK