ITI-New Capital-Automotive Exam

Total points 49/50

Email *

....

✓ The ADAS compared to autonomous driving is ... ? *   1/1

- [ ] ADAS are more complex than autonomous driving
- [x] ADAS must involve the driver while the the autonomous driving doesn't   ✓
- [ ] ADAS are higher technology than autonomous driving
- [ ] Nothing is correct

✗ The system that transmits an engine's torque to the wheels is called ...?

- (●) Differential   ✗
- ( ) Gear Box
- ( ) Crank Shaft
- ( ) Cam Shaft

Correct answer

- (●) Gear Box

✓ The software engineer who is responsible for splitting the SW in smaller modules and define the interactions between them is called .... ?

○ System Engineer

◉ Architect Engineer

○ Software Designer

○ Validation Engineer

✓ Which of the following characteristics are correct about **Wired** communication protocol compared to **Wireless** communication protocol ...

☑ High Security

☑ High Safety

☐ Low Price

☐ High Noise

✓ Which of the following are correct about **Synchronous** Communication protocol...

☐ A deviation may occur

☐ Can Not change the system clock at run time

☑ Nodes in communication share the same clock

☐ It is not used in automotive communication protocols

✓ Which of the following are correct about **Asynchronous** Communication protocol...   /1

☑ A deviation may occur

☑ Can Not change the system clock at run time

☐ Nodes in communication share the same clock

☐ it is not used in automotive communication protocols

✓ Which of the following is correct about **Serial** communication protocol ...?   /1

☐ It has data skew problems

☑ It uses one or two wires to transfer the data

☐ It has emf radiation problems

☐ Nothing is correct

✓ What is a Throughput in Communication protocols...? *   /1

○ It the percentage of the overhead in frame

◉ It is the percentage of data in frame

○ It is the total number of bits in frame

✓ Which of the following is correct about CAN communication protocol ... ? */1

☐ Its Nodes have a structure of Multi Masters Multi Slaves

☑ It is based on Half Duplex Topology

☑ It has differential hardware interface

☐ It is Synchronous Communication Protocol

✓ The following is correct about arbitration in CAN bus ... ? */1

☑ The higher the message ID value the lower its priority

☐ The node with lower address has higher priority

☐ The arbitration may be extended to the data field part of the frame

☐ There is No arbitration in CAN

✓ A CAN node in passive mode can do ... ? */1

☐ Send Active Error Frame if a corrupted frame received

☑ Send data frame in case the bus is idle

☑ Send remote frame in case the bus is idle

☑ Receive data frame from other nodes

✓ The following is correct about overload frame … ? *   /1

- ☑ It is similar to the active error frame
- ☑ it happen in inter frame space bits
- ☐ It can be sent anytime during data frame
- ☑ It has no data field

✓ These features are in CAN hardware Architecture   /1

- ☑ it based on differential HW interface
- ☑ its wire are twisted
- ☑ it has a terminator resistor
- ☐ it has only one wire

✓ CAN Node consists of .... *   /1

- ☑ CAN controller
- ☑ Host
- ☑ CAN Transiver
- ☐ Non of the above

✓ These frames can be generated from CAN Node *   1

☑ Remote Frame

☑ Data Frame

☑ Overload Frame

☑ Active Error Frame

✓ Which Error Detection Type is used in CAN protocol *   1

☐ Checksum

☐ CRC64

☐ Parity check

☑ CRC15

✓ CAN Controller uses time debouncing technique to validate failures?   1

◯ True

⦿ False

✓ When Bit Stuffing is used in CAN Frame * /1

☐ when there is 6 consecutive bits has same value appear on Bus

☐ when there is 6 consecutive bits has different value appear on Bus

☑ when there is 5 consecutive bits has same value appear on Bus

☐ when there is 5 consecutive bits has different value appear on Bus

✓ CAN protocol breakdowns are ...... * /1

☑ It has a high Bus load

☐ It has a lot of data errors

☐ It can not detect the errors

☑ It has a limited data section

✓ The CAN node could be connected to the Bus directly without a CAN Transceiver /1

◉ True

◯ False

✓ We can connect two microcontrollers having CAN peripherals directly without a CAN Transceiver   1

○ True

○ False

✓ The CAN Controller is connected to the CAN Transceiver directly without any isolation.   1

○ True

● False

✓ CAN Communication Protocol is .... ? *   1

☑ Standard Protocol

☑ Message oriented protocol

☐ Server / Client Protocol

☐ Application Protocol

✓ In CAN Network each message has only one sender? *   1

● True

○ False

✓ In CAN Network each node can send more than one message? *   /1

◉ True

◯ False

✓ In CAN network not all nodes receive all messages sent on the bus? *   /1

◯ True

◉ False

✓ In CAN network not all nodes receive, and buffer all messages sent on the bus?   /1

◉ True

◯ False

✓ In CAN network, only the node that own a message can send a frame with this message ID?   /1

◯ True

◉ False

✓ In CAN network, any node can send a frame with any message ID, while RTR = 0?   /1

◯ True

⦿ False

✓ In CAN frame all reserved bits are recessive bits? *   /1

◯ True

⦿ False

✓ A CAN frame with RTR = 0 may have DLC = 0? *   /1

◯ True

⦿ False

✓ CRC check is done on the CAN frame even it has no data? *   /1

⦿ True

◯ False

✓ In classical CAN frame sending DLC with 1111, will send a 64 bytes data frame. 1/1

○ True

◉ False

✓ The data size of CAN-FD protocol * 1/1

○ 8 byte

○ 16 byte

◉ 64 byte

○ 128 byte

✓ Which of these bits are added to classical CAN frame to Transform it to CAN-FD frame 1/1

☐ Data length code (DLC) is extended from 4 bits to 6 bits

☑ Flexible Data Rate Format (FDF)

☑ Bit Rate Switch (BRS)

☑ Error state indicator (ESI)

✓   Where the dynamic bit stuffing happens in CAN-FD frame ? *   /1

☐   from start of frame till the end of frame

☑   from start of frame till the end of data

☐   from data till the end of frame

☐   in CRC only

✓   Where fixed bit stuffing can be applied in CAN-FD *   /1

☐   from start of frame till the end of frame

☐   from start of frame till the end of data

☐   from data till the end of frame

☑   in CRC only

✓   Assuming a CAN frame used to send 3 data bytes 0x3F4083. The data
field on the bus will be modified due to the bit stuffing principal and ...
stuffing bits will be added.

☐   1 Stuffing Bit

☐   2 Stuffing Bit

☑   3 Stuffing Bit

☐   4 Stuffing Bit

✗   Which of the following is correct about LIN communication protocol ... ? *   0/1

☐ All nodes are synchronized using a shared clock signal

☑ It has Single Master Architecture

☐ Its speed is limited to 125Kbps

☐ It is full duplex communincation

Correct answer

☑ It has Single Master Architecture

☑ Its speed is limited to 125Kbps

✓   What is the purpose of the preamble in an ethernet frame ... ? *   1/1

☐ Used as a padding for data

☑ Used for timing synchronization

☐ Used to identify the source address

☐ Used to identify the destination address

✓ Classical CAN Vs CAN FD has the following differences ... ? *

☑ Classical CAN maximum speed is 1 Mbps while it is 5 Mbps in CAN FD

☑ Classical CAN frame has a maximum of 8 date bytes while it is 64 bytes in CAN FD

☑ Classical CAN allow remote frames while CAN FD doesn't define this kind of frames

☑ Classical CAN controllers can not send and receive CAN FD frames while CAN FD controllers can send and receive classical CAN frames

✓ The following is correct about LIN Frame header ... ? *

☐ it has a configurable fixed length

☑ It can be sent only by the master node

☐ It is directed to specific slave node

☑ It has no arbitration part

✓ The following is correct about MAC address ... ? *

☑ it must globally unique address

☑ It has 6 bytes of length

☐ It can be completely changed by the user

☐ Nothing is correct

✓ The following subsystems are part of the power train system ... ? *

☑ Air Intake System

☐ Anti Lock Brake System

☑ Lubricating System

☑ Ignition System

✓ The following is correct about UDS Protocol ... ? *

☑ It could be implemented over many different physical layers

☑ UDS Frame is sent by the tester tool while UDS response is sent by the ECU

☑ The UDS frame has an optional subfunction part

☑ The UDS frame has an optional data part

✓ which of the following is correct about LIN communication protocol *

☑ it is a software protocol

☑ it has no controller

☑ it has only one wire

☑ it uses a self synchronization

✓ which of the following is correct about DTC * /1

☑ it is a standard data trouble code

☐ it is unique for every car

☑ it is used to report a specific error

☐ nothing is correct

✓ which of the following is correct about DIDs * /1

☑ it has a size of 2 bytes

☑ it is an optional in UDS frame

☐ it is used for request only

☐ must be manually coded

✓ which layer is responsible for transfer the frame by MAC address in /1
Ethernet

○ application layer

◉ data link layer

○ physical layer

○ network layer

✓ which layer is responsible for transfer the frame by IP address in Ethernet * /1

○ application layer

○ data link layer

○ physical layer

◉ network layer

✓ which layer is responsible for applying protocols in Ethernet *   /1

◉ application layer

○ data link layer

○ physical layer

○ network layer

✓ Which of these protocols are application protocols that uses Ethernet in /1
Automotive Industry

☑ gPTP

☑ Some/IP

☐ ARP

☑ DoIP

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