

**COMCS – 2022/2023 2ºSemestre
Exame 31/01/2023**

**Sem consulta
Duração 45 min**

Nome: _____ Nº _____

Answer sheet

NOTAS:

1 – In all multiple choice questions you should indicate a correct answer, if the answer indicated is incorrect you will be penalized up to 1/3 of the question quote.

2 – Only the answers indicated in the Answer Sheet will be considered.

3 – All exam sheets must be delivered.

4 – The written question should fit into the available space.

1 - a) ☐ b) ☐ c) ☒ d) ☐

2 - a) ☒ b) ☐ c) ☐ d) ☐

3 - a) ☐ b) ☐ c) ☐ d) ☐

4 - a) ☒ b) ☐ c) ☐ d) ☐

5 - a) ☒ b) ☐ c) ☐ d) ☐

6 - a) ☒ b) ☐ c) ☐ d) ☐

7 - a) ☐ b) ☒ c) ☐ d) ☐

8 - a) ☐ b) ☐ c) ☒ d) ☐

9 - a) ☐ b) ☐ c) ☐ d) ☐

10 - a) ☐ b) ☐ c) ☐ d) ☐

1 – The application layer on the TCP/IP stack corresponds to the following OSI model levels:

- a) Application layer.
- b) Application layer and Presentation layer.
- c) Application layer, Presentation Layer and Session layer.
- d) Application layer, Presentation Layer, Session layer and transport layer.

2 – Consider the UDP protocol.

- a) There is no guarantee of message delivery on the UDP protocol.
- b) UDP doesn't guarantee the delivery of messages to the destination but it warns the sender of the message in case of no delivery.
- c) There is no guarantee of message delivery on the UDP protocol, there is the guarantee that all messages are received in the same order they have been transmitted.
- d) UDP does not support the broadcast of frames.

3 – The TCP sliding windows protocol ...

- a) Allows the sender and receiver to adjust their transmission rate with the reception rate avoiding congestions.
- b) Allows the encryption of frames between sender and receiver.
- c) Allows for the compression of frames.
- d) None of the above.

4 – On the PROFINET protocol the cyclic data exchange protocol...

- a) Is used for the exchange of real-time data.
- b) Is used for the exchange of sporadic data.
- c) Is used for the exchange of non real-time data.
- d) Is used for the exchange of high reliability data.

5 – When an electromagnetic signal is transmitted through the air...

- a) The signal will be attenuated and may be interfered due to noise from other sources.
- b) It will be amplified and will suffer the effect of diffraction.
- c) It will only be distorted.
- d) It will only suffer the effect of distortion and attenuation.

6 – The modulation mechanism allows

- a) To modify the band of a signal by placing it in another frequency band without losing the signal's information.
- b) Allows to amplify a signal.
- c) Allows to remove noise of a signal.
- d) Allows the propagation of a signal to be made in a wireless medium without losses in the signal power.

7 – Bluetooth

- a) Uses the CSMA/CD strategy for médium access.
- b) Organizes communications in Piconets limited to 8 active devices.**
- c) Organizes communications in Piconets limited to 1024 active devices.
- d) None of the above.

8 – The GATT protocol...

- a) Is used for medium access in BLE.
- b) Is responsible for the structuring of a piconet.
- c) Is used for the configuration BLE protocol.
- d) Is used for data transmission of data in BLE.

9 – The 802.15.4, usually known as Zigbee...

- a) Only supports networks topologies where all nodes are within the range of a PAN coordinator.
- b) Uses a superframe structure for medium access which is structured upon beacon frames.
- c) Does not support mesh networks.
- d) None of the above.

10 – The CAN protocol...

- a) Is able to support real-time communications due to its priority-based medium access mechanism.
- b) Supports real-time communications only by the use of a polling mechanism.
- c) Does not support real-time communications.
- d) None of the above.

11 – Explain the TCP/IP mechanisms which are used for the reliable transmission of frames.

[illegible]

12 – Explain why the standard ethernet protocol is not suitable for real-time applications.

[illegible]