Questionnaire

1. **The illustrative underwater network shown in PART 1 slides contains two kinds of nodes (black and grey). What do the darker black nodes signify ? (*Provide all options that are true*)**

   a. The black nodes illustrate the node with surface expression

   b. The black nodes illustrate the nodes deployed at the bottom of the sea and are accessible only acoustically

   c. The grey nodes illustrate the nodes deployed with surface expression

   d. The grey nodes illustrate the nodes deployed at the bottom of the sea and are accessible only acoustically

2. **What are some of the few dedicated underwater network simulators that exist today ?**

   a. SUNSET

   b. DESERT

   c. UnetSim

   d. All of the above

3. **What functionalities does a physical link layer provide ?**

   a. Modulation and demodulation of signals

   b. Reliability via acknowledgements and retransmissions

   c. None of the above

4. **How are agents in UnetStack different from layers in a traditional network stack ? (*Provide all options that are true*)**

a. Agents play a similar role as layers in traditional network stacks, but are more flexible in their interaction with other agents

b. Agents are self-contained independent entities providing a well-defined functionality

c. None of the above

5. **How are nodes in a simulated underwater network using UnetStack uniquely identified ?**

   a. Node address

   b. Port

   c. IP address of the node over which web interface is accessed

   d. None of the above

6. **What distance apart are the two nodes deployed in the 2 node network simulation demonstrated in PART 1 ?**

   a. 4 km

   b. 1 km

   c. 2 km

   d. 500 m

7. **When a packet is transmitted from a transmitting modem using `phy << new TxFrameReq()` command, what message is received on the receiving modem ?**

   a. `RxFrameNtf` message

   b. `TxFrameNtf` message

   c. `DatagramNtf` message

   d. All of the above

8. **To add the agent `EchoDeamon` at the receiving modem, we used the command `container.add 'echo', new EchoDeamon()` on the shell. Provide the command in the space below to add the `EchoDeamon` agent with a different agent name `myechodeamon` .**

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9. **List down the two general approaches mentioned in PART 3 to add routes to the nodes in the network.**

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10. **What is the command to check connectivity to a node with address 231 by transmitting 10 packets in UnetStack ?**

    a. `ping 231`

    b. `ping 10, 231`

    c. `ping 231, 10`

    d. None of the above

11. **What pair of nodes shown below do not have a direct connectivity between them in the network shown in PART 3 ?**

    a. Node 1, Node 2

    b. Node 1, Node 3

    c. Node 1, Node 4

    d. Node 3, Node 4

12. **State the reason to add routes on both Node 1 and Node 4 mentioned in PART 3.**

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13. **What are the node addresses of the nodes on which the routes were added remotely using the `rsh` command in PART 3 ?**

a. 1 and 4

b. 1 and 5

c. 4 and 5

d. 3 and 5

14. **A code snippet was shown in PART 4 on using UnetSocket API and establish a connection using a particular protocol number `0` as shown here `sock.connect(to, 0)` . What would the equivalent code be for connecting to protocol number `32` ?**

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15. **What was the command used in PART 4 to enable sensor to start sending data remotely from Node 1 ?**

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16. **In the second demo of PART 4, what was the protocol that was encapsulated by the UnetStack datagram ?**

a. UDP

b. TCP

c. RS232

d. None of the above

17. **Define the target node and

18. tracker node mentioned in PART 5**.

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19. **Which entity is the tracker in PART 5 demonstration of localization ?**

a. Python application

b. Beacon node 1

c. Beacon node 2

d. Beacon node 3

20. **What location is the target node deployed at in the network simulated for localization in PART 5 ? (*Mention the 3D coordinate*)**

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21. **Which agent is used in UnetStack is used for measuring distances to other nodes in the network ?**
