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**Question Paper Code: 41282**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Elective

Computer Science and Engineering

14UCS911 – INTERNET OF THINGS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. NFC means

- (a) Near Field Communication                      (b) New Fibre Communication  
(c) Network Free Communication                  (d) Network Fibre Communication

2. The vision of the future internet of things includes extended internet of things information services based on the \_\_\_\_\_ information services.

- (a) EPC                      (b) TDS                      (c) TDT                      (d) ONS

3. \_\_\_\_\_ is a board term, used to describe a design philosophy and a variety of methods in which the needs, wants and limitations of end users are placed at the centre of attention at each stage of the design process.

- (a) UCD                      (b) UML                      (c) UCSD                      (d) PCD

4. \_\_\_\_\_ is the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call.

- (a) crowdsourcing                      (b) open-source development  
(c) end-user programming                  (d) living labs

5. \_\_\_\_\_ can be used to build applications involving smart things, and users can leverage well-known web mechanisms to interact with and share these devices.
- (a) web technologies (b) cloud computing  
(c) mobile technology (d) grid computing
6. The uniform interface is based on the identification (and thus interaction) of resources, and in case of the web, this interface is defined by the \_\_\_\_\_ protocol.
- (a) HTTP (b) FTP (c) TCP (d) TelNET
7. \_\_\_\_\_ is an open standard for real-time communication based on exchanges of XML messages, and powers a wide range of applications including instant messaging.
- (a) XMPP (b) RTSP (c) HTTP (d) WoT
8. \_\_\_\_\_ are relevant to the field of autonomous cooperating logistics process where intelligent logistics objects with capabilities for autonomous decision making are designed to directly act upon the physical logistics environment.
- (a) actuators (b) sensors (c) RFID (d) WiFi
9. The huge numbers of devices connected to the internet of things have to communicate automatically, not via humans. What is this called
- (a) Machine to Machine (M2M) (b) Bot to Bot (B2B)  
(c) Skynet (d) Intercloud
10. The internet of things needs a lot of network connections. What is the proposed 'white space' radio standard called
- (a) Bluetooth (b) Wimax (c) Weightness (d) None of these

PART - B (5 x 2 = 10 Marks)

11. List the challenges and issues of IoT.
12. Differentiate sensors with actuators.
13. Define the fundamental concepts of agility and autonomy.
14. Write the applications of ontology engineering in the internet of things.
15. Write the steps to setup cloud environment.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Describe the various phases of internet of things. (8)  
(ii) List the components in internet of things and explain with suitable diagrams. (8)

Or

- (b) Explain the concepts and terminologies any three wireless communication technologies and distinguish the wireless communication technologies with wired communication technologies. (16)

17. (a) Explain the working principles of sensors and actuators with suitable examples. (16)

Or

- (b) Write the steps to create communication for IoT devices based on the following scenario:

- (i) Connecting microcontroller with mobile devices  
(ii) Communication through bluetooth and USB  
(iii) Connection with the internet using WiFi  
(iv) Connection with the internet using ethernet (16)

18. (a) Explain the clustering principles in an internet of things architecture. (16)

Or

- (b) Write the evolution from the RFID based EPC network to an agent based internet of things and explain how agents are allotted based on the behaviour of objects. (16)

19. (a) Explain sensor-actuator technologies and middleware technologies needed for a DiY internet of things semantic interoperability. (16)

Or

- (b) Explain the following in details:

- (i) Semantic web ontology (8)  
(ii) IoT in context of EURIDICE (8)

20. (a) Write the steps for designing REST ful smart things and explain the web enabling constrained devices. (16)

Or

- (b) Design any one important vertical IoT applications with its design specifications and technical implementations with needed diagrams. (16)
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