

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: IoT for Healthcare	Semester: VII
Program: B.Tech (CSE), Spl. in HI	Time : 03 hrs.
Course Code: CSEG 493	Max. Marks: 100

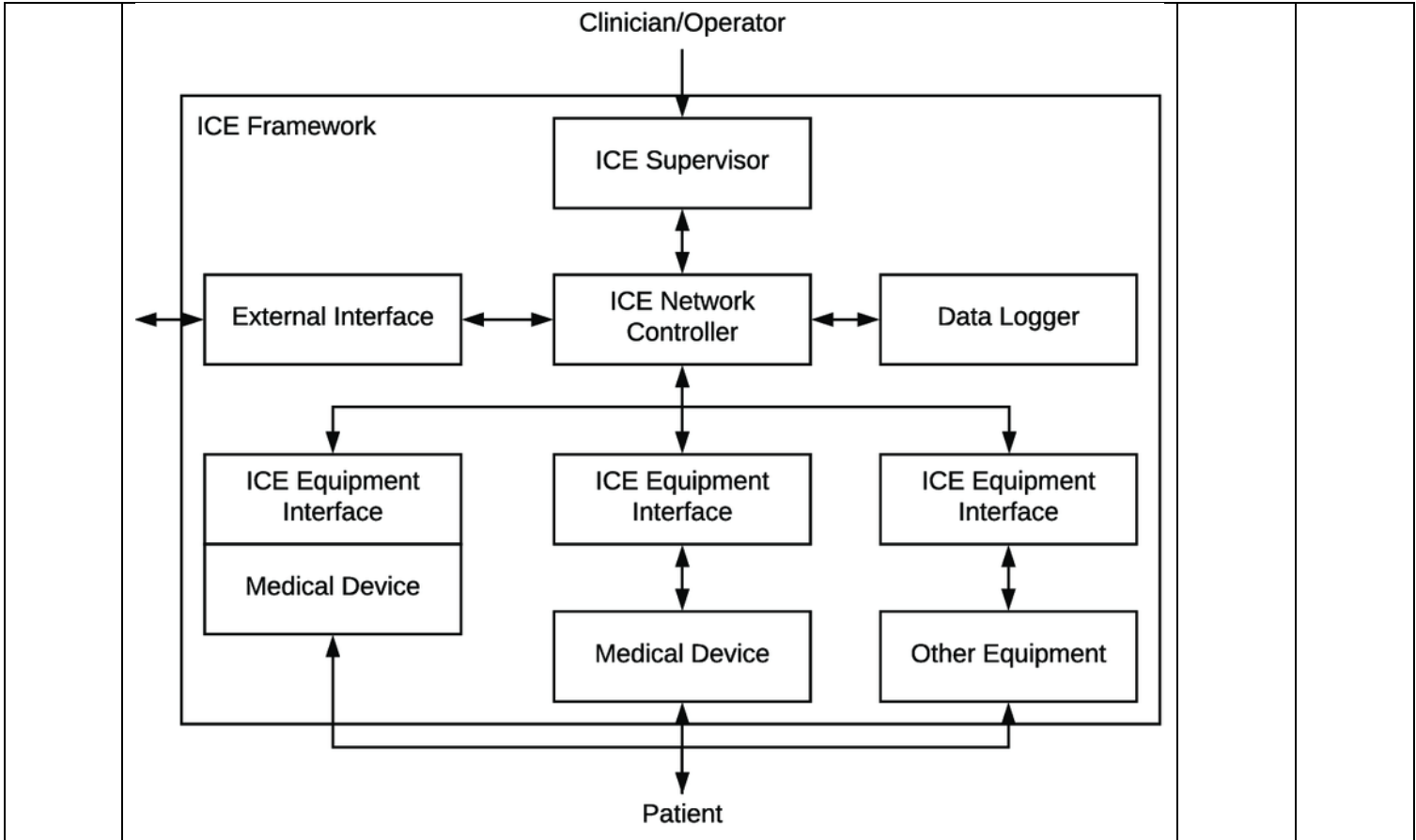
Instructions: Attempt all questions, however internal choice is mentioned.

SECTION A

S. No.	Question	Marks	CO
Q 1	Define IoT with example and explain its need.	4	CO1
Q 2	IoT and Big data go hand in hand. Illustrate the influence of Big data over healthcare.	4	CO2
Q 3	“Robotic surgery is a type of minimally invasive surgery.” Elaborate “minimally invasive” in context of IoT with healthcare.	4	CO3
Q 4	Illustrate how “wearables” and “sensors” differ? Give examples.	4	CO4
Q 5	Describe building support and addressing concerns.	4	CO5

SECTION B

Q 6	Write short notes on: a) IoT analytics b) Social influence with IoT c) Wearables d) Remote health diagnostics e) Telehealth	10	CO2
Q 7	Below figure shows an Integrated Clinical Environment (ICE). Illustrate its functioning and all the elements of the block diagram. Show the steps.	10	CO3

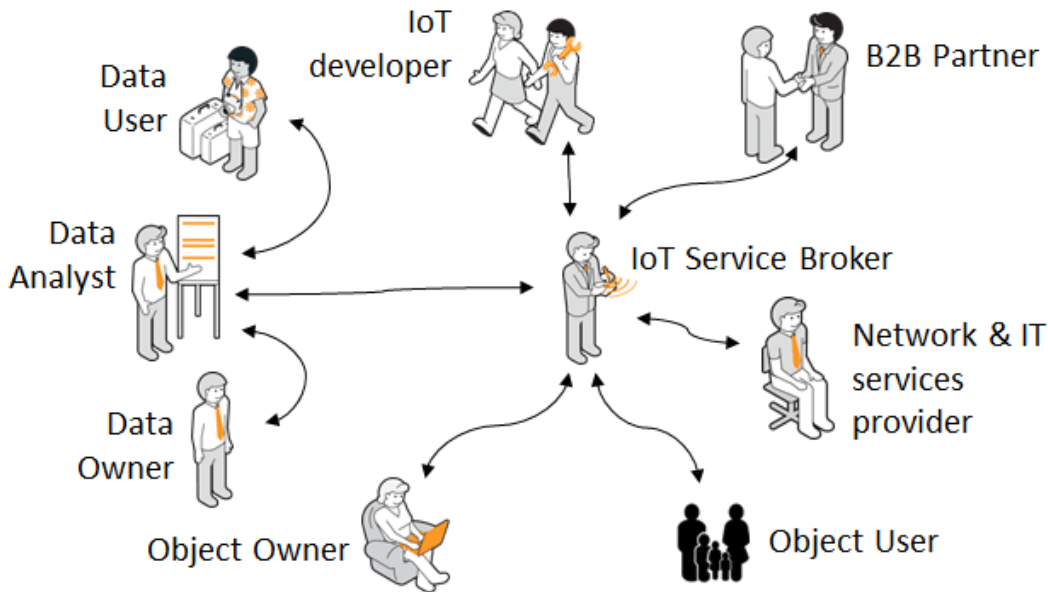


Q 8 Briefly explain about Digital Twins. Elaborate how digital twins of hospitals can help the medical community.

10

CO4

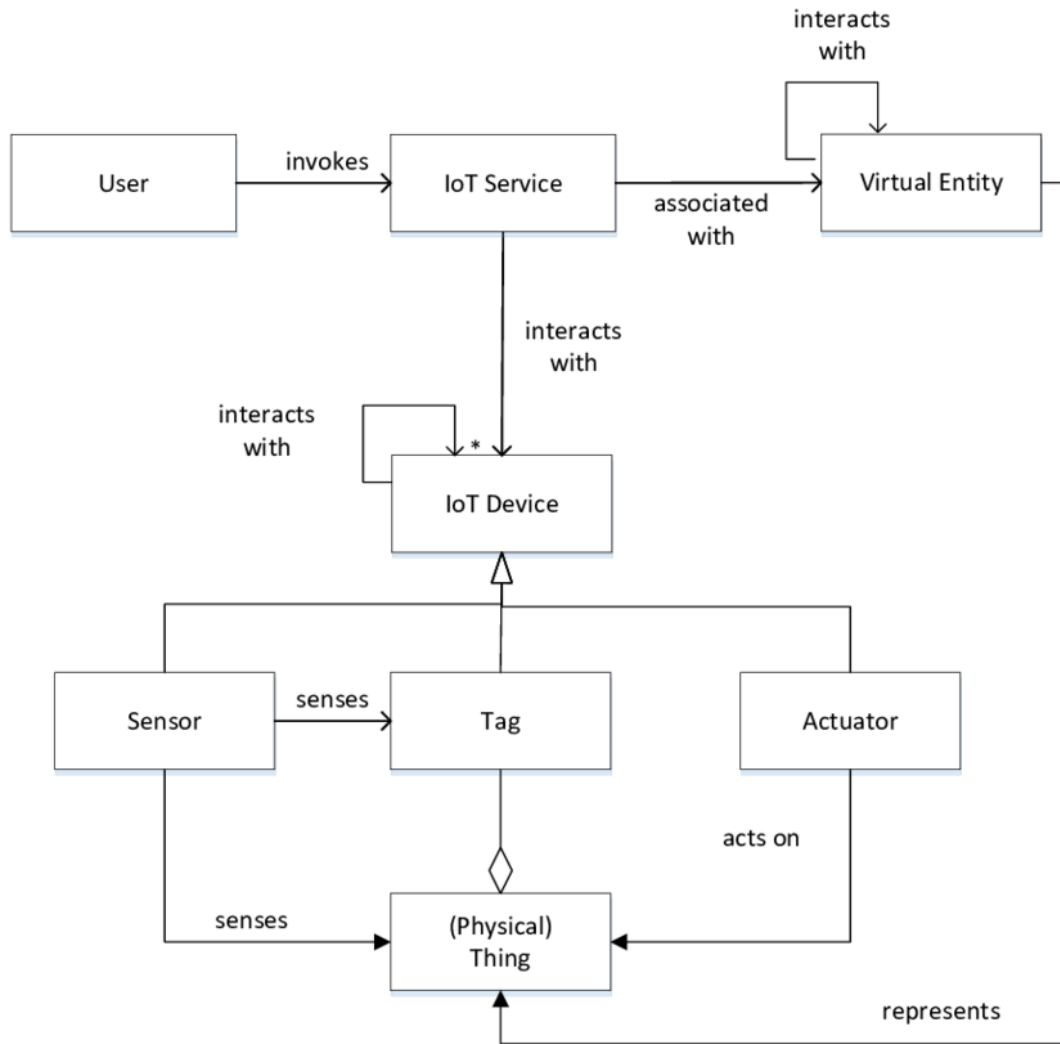
Q 9



10

CO5

	<p>As shown in the above figure data is processed differently in the IoT and traditional Internet environments (i.e., Internet of Computers). In the Internet of Computers, both main data producers and consumers are human beings. However, in the IoT, the main actors become things, which mean things are the majority of data producers and consumers. Mention some of the IoT actors in the above context.</p> <p style="text-align: center;">Or,</p>		
	<p>One survey revealed that 39% of jobs in the legal sector could be automated in the next 10 years. Separate research has concluded that accountants have a 95% chance of losing their jobs to automation in the future. In the above context, critically analyze the robots vs human race. Describe Self-healing robots in detail.</p>		
SECTION-C			
<p>Q 10</p>	<p>Based on the below IoT concept model, write a case study to create a smart alarm clock. The alarm clock has the ability to check the train timetable and adjust the alarm accordingly so that you can get more sleep. Visualize the possibilities and mention your steps.</p>	<p>20</p>	<p>CO1, CO4</p>



Q 11 Briefly explain the below applications of IoT communication:

- a) Shopping
- b) Food Nutrition
- c) Healthcare
- d) Intelligent home
- e) Transportation

Or,

In context with healthcare systems applications, write short notes on:

- a) Mevion Proton Beam Radiation Therapy (PBRT)
- b) Robotic surgery at DLR
- c) FDA clearance
- d) Surgical theatre integration

20

CO3