



Roll No.

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2023

Biomedical Engineering

VII<sup>th</sup> Semester

**BM5791 & Principles of Telemedicine**  
(Regulation 2019)

Time: 3hrs

Max.Marks: 100

CO 1	Understand the important concepts of Telemedicine concepts and their evolution.
CO 2	Perform the design of the architecture of telemedicine systems and their sub-system.
CO 3	Evaluate the application of computer and networking technologies for telemedicine.
CO 4	Assimilate the information of health record standards and data management for healthcare services.
CO 5	Analyze & monitor with respect to clinical and technical aspects of telemedicine in the current scenario.

**BL – Bloom's Taxonomy Levels**

(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analysing, L5 - Evaluating, L6 - Creating)

**PART- A (10 x 2 = 20 Marks)**  
(Answer all Questions)

Q. No	Questions	Marks	CO	BL
1	What are the organs of telemedicine?	2	1	L1
2	State the impact of telemedicine on health care delivery.	2	1	L2
3	Write short notes on VSAT mode videoconferencing system.	2	2	L2
4	Compare wireless communication and satellite communication.	2	2	L1
5	Difference between LAN and WAN.	2	3	L1
6	Write briefly about WWW approach.	2	3	L2
7	Define HL7.	2	4	L2
8	Enlist the benefits of SNOMED.	2	4	L1
9	Distinguish between tele pathology and tele dermatology.	2	5	L2
10	List out various advantages of tele surgery.	2	5	L1

**PART- B (5 x 13 = 65 Marks)**  
(Restrict to a maximum of 2 subdivisions)

Q. No	Questions	Marks	CO	BL
11 (a) (i)	Give a detailed explanation on the history and evolution of telemedicine.	7	1	L2
(ii)	Enumerate the factors which are likely to drive the growth of telemedicine.	6	1	L4
<b>OR</b>				
11 (b) (i)	What is the role of telemedicine in the development of rural health care? Discuss about global and Indian scenario in telemedicine.	7	1	L3
(ii)	Classify different types of digital information such as still images, audio, video, and text data.	6	1	L2
12 (a) (i)	Explain about Regulatory sub-systems and optical sub-system of telemedicine with a neat block diagram.	7	2	L2
(ii)	Discuss briefly the elements of telecommunication systems such as ANT and ISDN protocol.	6	2	L3
<b>OR</b>				
12 (b) (i)	Write short notes on the Telecommunication approach and PTOS.	7	2	L2

(ii)	Different modalities of mobile applications of telemedicine in M-health and E-health platform.	6	2	L3
13 (a) (i)	Explain the 3-tier architecture model for different types of network topologies LAN, WAN and MAN with the help of 7 layer model.	13	3	L4
<b>OR</b>				
13 (b) (i)	Briefly discuss about Adhoc network (PAN).	7	3	L1
(ii)	Write short notes on Body sensor technology in healthcare practice.	6	3	L2
14 (a) (i)	Give a detailed explanation of different modalities on DICOM, LOINC standards, and PACS. illustrate with suitable examples.	13	4	L2
<b>OR</b>				
14 (b) (i)	Specify the clinical term (SNOMED) adoption of information system standards in healthcare delivery.	7	4	L5
(ii)	Describe the mechanism of the health care management information system (HMIS).	6	4	L2
15 (a) (i)	Explain the importance of telemedicine in managing healthcare during natural disasters and medical emergencies on land, sea, and in air.	7	5	L4
(ii)	What is robotic surgery? Explain the functioning of telerobotic system with the special reference to its various components.	6	5	L3
<b>OR</b>				
15 (b) (i)	Write short notes on telesurgery, teleradiology, telecardiology and teleoncology.	7	5	L2
(ii)	How is a diffusion of IT innovations done in the healthcare field?	6	5	L2

**PART- C (1 x 15 = 15 Marks)**  
(Q.No.16 is compulsory)

Q. No	Questions	Marks	CO	BL
16. (i)	Neurosurgeon consultant, Wah Hospitals Hyderabad feels that information technology will radically change the working of medical science. Telemedicine has revolutionized medical consultation by cutting down the distance between the rural patient and urban specialist, Discuss the technological issues faced during communication through Telemedicine consultation.	15	5	L6

