SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF MEDICAL ELECTRONICS

QUESTION BANK

VII SEMESTER

1910702 – Body Area Networks

Regulation – 2019

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UNIT I – INTRODUCTION			
Definition, BAN and Healthcare, Pervasive Patient Monitoring using BAN, Technical Challenges-Sensor design, Biocompatibility, Energy Supply, System security and reliability, Context Awareness, Integrated Therapeutic Systems, Ideal BSN Architecture.			
PART A			

Q.No	Questions	CO	BT Level	Domain
1	Define Body Area Network?	CO1	BTL 1	Remembering
2	Write the operating bandwidth of Wireless Body Area Networks.	CO1	BTL 2	Understanding
3	How does Body area Network work?	CO1	BTL 2	Understanding
4	Classify the examples of body area Network.	CO1	BTL 2	Understanding
5	State the BAN standard.	CO1	BTL 1	Remembering
6	Write the technical challenges for the WBAN application.	CO1	BTL 1	Remembering
7	Write about Pervasive monitoring.	CO1	BTL 2	Understanding
8	Mention the challenges of system security of BAN.	CO1	BTL 1	Remembering
9	Draw an ideal architecture of BSN.	CO1	BTL 1	Remembering
10	Which factor is most important for a sensor used in WBAN?	CO1	BTL 2	Understanding
11	Distinguish between WSN and BSN.	CO1	BTL 2	Understanding
12	Outline about Biosensors.	CO1	BTL 2	Understanding
13	Name the common approaches of sterilisation.	CO1	BTL 1	Remembering
14	Define health as stated by WHO.	CO1	BTL 1	Remembering
15	Categorize the common approaches used for power reduction in BAN.	CO1	BTL 2	Understanding
16	List the two strategies available for providing a better integration of the sensor within the tissue.	CO1	BTL 1	Remembering
17	Write the about MEMS and BioMEMS in BSN design.	CO1	BTL 1	Remembering
18	Classify different types of sensors available for context awareness.	CO1	BTL 2	Understanding
19	Outline the term context awareness in BAN.	CO1	BTL 2	Understanding
20	Write about Integrated Therapeutic Systems.	CO1	BTL 1	Remembering
21	What are Aptamers?	CO1	BTL 2	Understanding
22	State biocompatibility.	CO1	BTL 2	Understanding
23	Write the common physical sensors and its use in MEMS technology.	CO1	BTL 1	Remembering
24	Point out the technology used in improved sensor design.	CO1	BTL 2	Understanding

	PART – B			
1	With necessary diagrams explain how to monitor patients with chronic disease using BAN. (13)	CO1	BTL 3	Apply
2	Explain the ideal architecture of body sensor networks with diagrams. (13)	CO1	BTL 3	Apply
3	Analyse the technical challenges in BAN when compared with WSN. (13)	CO1	BTL 4	Analyse
4	Examine in detail about MEMS and BioMEMS in sensor design. (13)	CO1	BTL 4	Analyse
5	Illustrate with necessary diagrams the conceptual view of pervasive health care model. (13)	CO1	BTL 4	Analyse
6	Explain in detail about the Nano electrochemical Sensors in BAN. (13)	CO1	BTL 3	Apply
7	Describe Graphene Electrochemical Sensors in BAN with necessary illustrations. (13)	CO1	BTL 3	Apply
8	Explain in detail about Biocompatibility and implantable sensors. (13)	CO1	BTL 3	Apply
9	Describe in detail the different methods implemented for reducing power consumption in BAN devices. (13)	CO1	BTL 3	Apply
10	With a neat sketch, elaborate the fabrication steps of vertical nano-wire array integrated nanogenerator. (13)	CO1	BTL 3	Apply
11	Explain in detail about the Micro-fuel cells and Biocatalytic fuel cells. (13)	CO1	BTL 3	Apply
12	Describe in detail about security and reliability of Body sensor networks. (13)	CO1	BTL 3	Apply
13	Examine the several types of sensors developed on Context Awareness. (13)	CO1	BTL 4	Analyse
14	Illustrate with an example about Integrated Therapeutic Systems. (13)	CO1	BTL 3	Apply
15	Discriminate the technical challenges faced by designing energy supply and explain. (13)	CO1	BTL 4	Analyse
16	Point out the technical challenges faced by designing biosensors. (13)	CO1	BTL 4	Analyse
17	Describe Implantable sensors, its application, advantages and disadvantages. (13)	CO1	BTL 3	Apply
	PART C			
1	Illustrate the following: (i) Body sensor networks with applications. (10) (ii) Biocompatibility (5)	CO1	BTL 3	Apply
2	Enumerate the need for pervasive health monitoring system and explain with necessary diagrams. (15)	CO1	BTL 4	Analyse
3	Describe the drug-delivering therapeutic system with a neat sketch. (15)	CO1	BTL 3	Apply

4	Explain in about context awareness for the development of integrated insulin drug delivery system. (15)	CO1	BTL 4	Analyse
5	Examine the technical challenges faced by Wireless Sensor Networks and Body Sensor Networks in detail. (15)	CO1	BTL 4	Analyse

UNIT II – HARDWARE FOR BAN

Wireless communication - RF communication in Body, Antenna design and testing, Matching Network, Propagation, Materials, Base Station, Power considerations, Wireless communication technologies for wearable systems, Body Area Network – Human Applications.

PART A

Q.No	Questions	CO	BT Level	Domain
1	Differentiate between wired and wireless communication.	CO2	BTL 2	Understanding
2	Outline about one- and two-way link.	CO2	BTL 2	Understanding
3	List the two ways of communication link.	CO2	BTL 1	Remembering
4	Point out the applications of inductive coupling.	CO2	BTL 2	Understanding
5	Write about Specific Absorption Rate in BAN.	CO2	BTL 2	Understanding
6	Define reflection Coefficient.	CO2	BTL 1	Remembering
7	Sketch the schematic diagram of Patch Antenna.	CO2	BTL 1	Remembering
8	Write an expression of radiation resistance of a small and large loop antenna.	CO2	BTL 1	Remembering
9	State Quality factor.	CO2	BTL 1	Remembering
10	Outline the impedance matching of an antenna.	CO2	BTL 1	Remembering
11	Point out the efficiency of tuning network.	CO2	BTL 2	Understanding
12	Difference between L and π network.	CO2	BTL 1	Remembering
13	Why is a quarter wave line called as impendence inverter?	CO2	BTL 2	Understanding
14	Write the significance of a half wavelength line.	CO2	BTL 2	Understanding
15	List the advantages of Graphical User Interface (GUI).	CO2	BTL 2	Understanding
16	Name the layer responsible for media access control and why?	CO2	BTL 1	Remembering
17	Point out the role of base station in BAN	CO2	BTL 2	Understanding
18	An antenna is fed with 1000 W power. The radiation efficiency is 80% and radiation intensity is $U(\theta, \phi) = 2 \sin^2(\theta) \sin^2(\phi)$. Find the power radiated by an antenna.	CO2	BTL 1	Remembering
19	A signal travels at 500 MHz. What is its wavelength?	CO2	BTL 1	Remembering

20	Write about the radiation pattern in BAN.	CO2	BTL 2	**Understanding**
21	What do you mean by polarisation?	CO2	BTL 1	**Remembering**
22	Mention the applications of Transceiver.	CO2	BTL 2	**Understanding**
23	Point out the significance of parasitic effects.	CO2	BTL 1	**Remembering**
24	Write the Link budget equation in BAN.	CO2	BTL 2	**Understanding**
	PART B			
1	Describe how impedance matching is achieved in L and π – L network. with diagrams. (13)	CO2	BTL 4	**Analyse**
2	Analyse the parasitic effects in a network with necessary steps. (13)	CO2	BTL 4	**Analyse**
3	Explain π matching network of an antenna with a neat sketch. (13)	CO2	BTL 3	**Apply**
4	Draw and explain the schematic diagram of L matching network in detail. (13)	CO2	BTL 3	**Apply**
5	Analyse the relationship of load resistance and output power of transmitter tuning of a matched network with necessary illustrations. (13)	CO2	BTL 4	**Analyse**
6	Explain impedance measurement of a Quarter Wave line with necessary steps.. (13)	CO2	BTL 3	**Apply**
7	Write short notes on measurement of (i) Antenna Impedance (7) (ii) Radiation Resistance (6)	CO2	BTL 4	**Analyse**
8	With a neat sketch explain patch antenna in detail used for implants. (13)	CO2	BTL 4	**Analyse**
9	Describe in detail the radiation resistance of small and large loop antenna for in body communications. (13)	CO2	BTL 4	**Analyse**
10	Illustrate the working principle of Implanted Transceiver in detail for body area communications. (13)	CO2	BTL 3	**Apply**
11	Write the relation between reflection coefficient and characteristic impedance in detail for fat- muscle boundary. (13)	CO2	BTL 4	**Analyse**
12	Write short notes on (i) External Transceiver (7) (ii) Propagation for Implants (6)	CO2	BTL 3	**Apply**
13	Explain the following (i) Materials for Implants (4) (ii) Power consideration (4) (iii) External Transceiver (5)	CO2	BTL 3	**Apply**
14	Describe Base station antennas used in body area network. (13)	CO2	BTL 3	**Apply**
15	Write briefly about the following , (i)Battery challenges in BAN (7) (ii) Radio Frequency Losses in Components and Layout Issues. (6)	CO2	BTL 4	**Analyse**
16	Examine the significance of Receiver Tuning with link budget equations. (13)	CO2	BTL 3	**Apply**

17	Explain multi - resonant network in detail for 2.4 GHz frequency with necessary diagrams. (13)	CO2	BTL 4	**Analyse**

<div align="center">**PART C**</div>

1	Explain in detail of electro stimulation of camera capsule for diagnosing gastrointestinal disorders. (15)	CO2	BTL 3	**Apply**
2	Determine the radiation resistance of half wave dipole of an antenna for in body communications. (15)	CO2	BTL 3	**Apply**
3	Examine the importance of RF communication in Human Body with necessary illustrations. (15)	CO2	BTL 4	**Analyse**
4	Explain briefly about smart wearable sensors and systems with application in rehabilitation. (15)	CO2	BTL 3	**Apply**
5	Elaborate the following . (i) Defibrillation Pulse and X Rays (8) (ii) Power requirements for Implants (7)	CO2	BTL 4	**Analyse**

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UNIT III – NETWORK TOPOLOGIES, PROTOCOLS AND STANDARDS

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Network Topologies - Stand –Alone BAN, Wireless personal Area Network Technologies. Standards - IEEE802.15.1, IEEE P802.15.13, IEEE 802.15.14, Zigbee, Healthcare system standards.

<div align="center">**PART A**</div>

Q.No	Questions	CO3	BT Level	Domain
1	What do you mean by logical topology of a network?	CO3	BTL 1	**Remembering**
2	List the common network topologies used in wireless sensor networks.	CO3	BTL 1	**Remembering**
3	Define point to point network.	CO3	BTL 1	**Remembering**
4	Sketch cluster tree network.	CO3	BTL 1	**Remembering**
5	Difference between star and mesh network.	CO3	BTL 2	**Understanding**
6	Compare Star mesh hybrid and cluster network.	CO3	BTL 2	**Understanding**
7	Write the expression for latency in network topology.	CO3	BTL 2	**Understanding**
8	Mention stand-alone sensor networks in BAN?	CO3	BTL 1	**Remembering**
9	Outline the characteristics of Pervasive Sensor Networks in BAN.	CO3	BTL 2	**Understanding**
10	State frequency hopping technique.	CO3	BTL 2	**Understanding**
11	Differentiate connection less and connection-oriented services.	CO3	BTL 2	**Understanding**
12	Point out MAC protocol in network layer.	CO3	BTL 2	**Understanding**
13	Compare bandwidth and date rate.	CO3	BTL 2	**Understanding**
14	Write the different modulation formats supported by IEEE 802.15.4.	CO3	BTL 1	**Remembering**

15	State the two main operational modes provided by MAC specification.	CO3	BTL 1	**Remembering**
16	List the use of Zigbee router in BAN.	CO3	BTL 1	**Remembering**
17	Define cluster in network topology.	CO3	BTL 2	**Understanding**
18	Mention the medium access policies provided by IEEE 802.15.6.	CO3	BTL 1	**Remembering**
19	Point out the use of HBC technique in BAN.	CO3	BTL 2	**Understanding**
20	Classify sectoring and repeaters.	CO3	BTL 2	**Understanding**
21	Compare Co-Channel interference and adjacent channel interference.	CO3	BTL 2	**Understanding**
22	How synchronisation is achieved by means of periodic beacon transmissions.	CO3	BTL 2	**Understanding**
23	Categorize spread spectrum technique and its uses.	CO3	BTL 1	**Remembering**
24	List the use of Link Manager protocol.	CO3	BTL 1	**Remembering**
PART B				
1	Explain the common network topologies used in wireless sensor networks. (13)	CO3	BTL 3	**Apply**
2	Compare the Merits and demerits of different topologies used in sensor networks. (13)	CO3	BTL 4	**Analyse**
3	Illustrate in detail on Stand-alone sensor networks in BAN. (13)	CO3	BTL 3	**Apply**
4	Examine Pervasive Sensor Networks in BAN. (13)	CO3	BTL 4	**Analyse**
5	Describe the integration of BSN (in tree, mesh and star topologies) with ASN for healthcare applications. (13)	CO3	BTL 3	**Apply**
6	Elaborate the wireless regulatory environment of Body Sensor Networks. (13)	CO3	BTL 3	**Apply**
7	Sketch IEEE 802.15.1 (Bluetooth BR/EDR) protocol stack and explain in detail. (13)	CO3	BTL 3	**Apply**
8	Explain Medium-Rate Wireless Personal Area Networks. (13)	CO3	BTL 4	**Analyse**
9	With necessary illustrations explain about IEEE 802.15 protocol. (13)	CO3	BTL 3	**Apply**
10	Explain how the Bluetooth low energy, Bluetooth LE protocol stack and the Bluetooth LE connection setup is made in BAN.(13)	CO3	BTL 3	**Apply**
11	Examine IEEE P802.15.3 High-Rate Wireless Personal Area Networks in detail. (13)	CO3	BTL 3	**Apply**
12	Describe IEEE 802.15.4 Low-Rate Wireless Personal Area Networks with a neat sketch. (13)	CO3	BTL 3	**Apply**
13	Examine MAC and PHY frame formats of IEEE 802.15.4 and explain in detail. (13)	CO3	BTL 4	**Analyse**
14	Sketch the architecture of Zigbee Stack protocol and define three device types of ZigBee with respect to their networking capabilities. (13)	CO3	BTL 4	**Analyse**

15	Summarise the device descriptions of a ZigBee Healthcare cluster, accompanied by ID with diagrams (13)	CO3	BTL 3	Apply
16	Explain the three PHY layer specifications of IEEE 802.15.6 in detail. (13)	CO3	BTL 3	Apply
17	Analyse domain information model of ISO/IEEE 11073-10404 Pulse oximeter in detail. (13)	CO3	BTL 4	Analyse
PART C				
1	Examine the characteristics of wireless communication standards operating at 2.4 GHz. (15)	CO3	BTL 4	Analyse
2	With a neat sketch, explain different healthcare system standards. (15)	CO3	BTL 3	Apply
3	Illustrate the device descriptions defined by ZigBee Healthcare Profile. (15)	CO3	BTL 3	Apply
4	Explain the PHY specifications supported by IEEE 802.15.4 for BAN (15)	CO3	BTL 3	Apply
5	Describe the characteristics, advantages and disadvantages of various network topologies used in wireless sensor networks with a neat sketch. (15)	CO3	BTL 4	Analyse

UNIT IV – COEXISTENCE ISSUES WITH BAN

Interferences – Intrinsic - Extrinsic, Effect on transmission, Regulatory Issues - Medical Device regulation in Asia, Security and Self-Protection-Bacterial attacks, Virus infection, secured protocols, Self-protection.

PART A

Q.No	Questions	CO	BT Level	Domain
1	Mention the key aspects of data transmission and processing in a WBAN.	CO4	BTL 2	Understanding
2	List the different types of interference in BAN Systems.	CO4	BTL 2	Understanding
3	Point out the challenges faced by the interference.	CO4	BTL 1	Remembering
4	List the services provided by WBAN to access data.	CO4	BTL 1	Remembering
5	Define DOS attacks.	CO4	BTL 1	Remembering
6	Compare privacy and security in BAN.	CO4	BTL 2	Understanding
7	What is cypher physical security?	CO4	BTL 1	Remembering
8	Outline QoS regulation in secure body area networks.	CO4	BTL 1	Remembering
9	State spoofing.	CO4	BTL 1	Remembering
10	Illustrate the application of Electronic Patient Record.	CO4	BTL 2	Understanding
11	Define packet error rate.	CO4	BTL 1	Remembering
12	Difference between Sinkhole attacks and Sybil attacks.	CO4	BTL 2	Understanding

13	What is meant by traffic analysis?	CO4	BTL 2	Understanding
14	Outline about virus attacks.	CO4	BTL 2	Understanding
15	Write about energy efficient network.	CO4	BTL 1	Remembering
16	State the two main components of Security Protocols for Sensor Networks.	CO4	BTL 1	Remembering
17	Outline Inter-Pulse Interval (IPI) in BAN.	CO4	BTL 2	Understanding
18	What is Innate immune system in BAN?	CO4	BTL 2	Understanding
19	Define Adaptive Immune system.	CO4	BTL 1	Remembering
20	Enumerate the ways of Jamming in a network.	CO4	BTL 1	Remembering
21	Write the considerations of context-aware systems.	CO4	BTL 2	Understanding
22	State the term "buffer overflow" in network topology.	CO4	BTL 2	Understanding
23	Outline the techniques available to avoid collision in a network.	CO4	BTL 2	Understanding
24	Point out the use of cryptography.	CO4	BTL 1	Remembering
PART B				
1	Explain Interference and coexistence in detail with diagrams. (13)	CO4	BTL 3	Apply
2	List the salient features of the regulatory strategies in Asia and explain. (13)	CO4	BTL 3	Apply
3	Illustrate Bacterial attacks that are likely to threaten a BSN's security and privacy. (13)	CO4	BTL 3	Apply
4	Identify seven possible viral infections that could compromise BSN's security and privacy and explain in detail. (13)	CO4	BTL 3	Apply
5	Examine briefly about the following, (i) SNEP (7) (ii) µTesla (6)	CO4	BTL 3	Apply
6	Explain pairwise key management system in networks with diagrams. (13)	CO4	BTL 3	Apply
7	Write in detail about the Q-composite key distribution scheme with a neat sketch. (13)	CO4	BTL 3	Apply
8	Identify the similarities and differences between BIS and AIS and explain. (13)	CO4	BTL 4	Analyse
9	Explain in detail about the advantage of the feature extraction on the frequency domain and time domain. (13)	CO4	BTL 4	Analyse
10	Sketch the basic architecture of human immune system and explain in detail. (13)	CO4	BTL 3	Apply
11	Draw and examine the architecture of a BSN immune system. (13)	CO4	BTL 3	Apply
12	Categorize the mechanisms per BIS layer for developing self-protected BSN. (13)	CO4	BTL 4	Analyse
13	Describe SNEP counter mode encryption and decryption. (13)	CO4	BTL 4	Analyse

14	Elaborate the following (i) Jamming (3) (ii) Exhaustion and interrogation (3) (iii) Wormholes (3) (iv) Acknowledgement spoofing (4)	CO4	BTL 3	**Apply**
15	Analyse the viral Infections that are likely to compromise the privacy and security of a BSN. (13)	CO4	BTL 4	**Analyse**
16	Elaborate the disadvantage of SNEP and how μTesla is used for secure communication with diagrams. (13)	CO4	BTL 3	**Apply**
17	Write short notes on (i) Cryptography for ADHOC links (7) (ii) Biometrics based Cryptography (6)	CO4	BTL 3	**Apply**
PART C				
1	Why security in BAN is important? List the various aspects of the BAN which need securing. Why data must they be secured? Explain with necessary diagrams. (15)	CO4	BTL 3	**Apply**
2	Examine the secured protocols developed for body Sensor Networks in detail. (15)	CO4	BTL 3	**Apply**
3	Examine the following (i) Biometric Time Domain (8) (ii) Biometric Frequency Domain (7)	CO4	BTL 4	**Analyse**
4	Explain the possible bacterial attacks in a BSN with diagrams. (15)	CO4	BTL 3	**Apply**
5	Elaborate the extremely effective defence mechanism that can prevent the onset of infection with diagrams. (15)	CO4	BTL 4	**Analyse**

UNIT V – APPLICATIONS OF BAN

Monitoring patients with chronic disease, Hospital patients, Elderly patients, Cardiac arrhymias monitoring, Multi patient monitoring systems, Multichannel Neural recording, Gait analysis, Smart Garments, Electronic pill.

PART A				
Q.No	Questions	CO	BT Level	Domain
1	What is Diabetes mellitus?	CO5	BTL 1	**Remembering**
2	How can atrial fibrillation be prevented while monitoring patients with chronic disease?	CO5	BTL 2	**Understanding**
3	Define arrhythmias.	CO5	BTL 2	**Understanding**
4	Point out the use of ear-worn activity recognition (e-AR) sensor.	CO5	BTL 1	**Remembering**
5	Write the physiological and biochemical parameter for the rheumatoid arthritis.	CO5	BTL 1	**Remembering**
6	Illustrate the physiological and biochemical parameter for the vascular disease.	CO5	BTL 2	**Understanding**
7	Draw the ECG signal waveform.	CO5	BTL 1	**Remembering**
8	Differentiate ECG and optical heart rate monitors.	CO5	BTL 2	**Understanding**
9	Express noise in patient monitoring system.	CO5	BTL 2	**Understanding**
10	Infer why Gait analysis is important in-patient monitoring system.	CO5	BTL 2	**Understanding**

11	Define Magneto resistive sensors.	CO5	BTL 1	Remembering
12	Indicate how the neural spikes can be measured.	CO5	BTL 2	Understanding
13	State the role of neuron in nervous system.	CO5	BTL 1	Remembering
14	What do you mean by depolarisation?	CO5	BTL 1	Remembering
15	Identify the conceptual diagrams of the conventional system and the proposed system for high-density neural recording.	CO5	BTL 1	Remembering
16	Mention the use of Gait analysis.	CO5	BTL 2	Understanding
17	List the use of Gyroscope.	CO5	BTL 2	Understanding
18	State the principle of Faraday's law of magnetic induction.	CO5	BTL 1	Remembering
19	Outline electromyography in BAN.	CO5	BTL 2	Understanding
20	Point out the best method for the detection of heart abnormalities .	CO5	BTL 1	Remembering
21	Interpret technology-aware ECG monitoring systems.	CO5	BTL 2	Understanding
22	Why blood pressure is being measured in patient monitoring system.	CO5	BTL 2	Understanding
23	State the characteristics of electrode.	CO5	BTL 1	Remembering
24	Define sensor technology.	CO5	BTL 1	Remembering
PART B				
1	Illustrate in detail, how can you keep track of chronic disease patients. (13)	CO5	BTL 3	Apply
2	Explain the disease processes and the parameters commonly used to monitor these diseases in detail. (13)	CO5	BTL 4	Analyse
3	Categorize the ways of monitoring the elderly patients using BSN in detail. (13)	CO5	BTL 4	Analyse
4	How do you monitor hospital patients using BSN and explain in detail. (13)	CO5	BTL 3	Apply
5	Summarize the signal characteristics of ECG with diagrams. (13)	CO5	BTL 3	Apply
6	What are the factors that causes cardiac arrhythmia and explain it in detail? (13)	CO5	BTL 3	Apply
7	Write about AD8232 ECG Sensor? Examine the working and its applications. (13)	CO5	BTL 3	Apply
8	Sketch the overall architecture of electrocardiogram (ECG) monitoring systems and explain in detail. (13)	CO5	BTL 4	Analyse
9	Draw the flowchart of blood pressure data acquisition and explain each block in detail. (13)	CO5	BTL 4	Analyse
10	Explain the design of blood pressure data acquisition process. (13)	CO5	BTL 3	Apply
11	Describe the block diagram of different multi-channel neural recording architectures and the function of each block. (13)	CO5	BTL 3	Apply
12	Interpret the following neural amplifiers (i) Conventional capacitive-feedback network topology. (7) (ii) CFN amplifier using T-capacitor feedback network topology. (6)	CO5	BTL 3	Apply
13	Compare open loop network (OLN) topology and Miller compensated CFN (MCCFN) topology with diagrams. (13)	CO5	BTL 3	Apply
14	Sketch the block diagram of the neural recording system with adaptive electrode selection and explain in detail. (13)	CO5	BTL 4	Analyse

15	Analyse the basic principles and features of motion sensors and systems with diagrams. (13)	CO5	BTL 4	**Analyse**
16	Examine the features of smart clothing for physiological monitoring process. (13)	CO5	BTL 4	**Analyse**
17	List and explain the various applications of electronic pill. (13)	CO5	BTL 3	**Apply**
PART C				
1	Examine a generic ECG layered monitoring architecture developed to capture the key elements and structural components of ECG monitoring systems. (15)	CO5	BTL 3	**Apply**
2	Illustrate Multi patient monitoring systems based on wireless embedded internet with necessary diagrams.. (15)	CO5	BTL 3	**Apply**
3	Categorize the methods used for the data compression to decrease the output data rate and power consumption in multichannel neural recording. (15)	CO5	BTL 4	**Analyse**
4	Explain how a wearable GRF sensor system is constructed using five small triaxial force sensors. (15)	CO5	BTL 3	**Apply**
5	Describe the following with diagrams: (i)　　Smart Garments　　(8) (ii)　　Electronic Pill　　(7)	CO5	BTL 3	**Apply**