

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: B.Tech Mechatronics Engineering

Semester: VII Semester

Programme: Biomedical Mechatronics

Time: 03 hrs.

Max. Marks: 100

Instructions:

Section A: All questions are compulsory

Section B: All questions are compulsory. Internal choice is given in Question 9

Section C: All questions are compulsory. Internal choice is given in Question 11

SECTION A

S. No.	Question	Marks	CO
Q 1	Describe Telemedicine. How it is boon to rural India?	4	CO4
Q 2	Explain the direct method of BP Measurement with Suitable Diagram.	4	CO2
Q 3	Relate the significance of optical fiber cable in Endoscopy.	4	CO3, CO4
Q 4	Explain smart handheld surgical tools with suitable example.	4	CO4
Q 5	Illustrate Nano robotics in medicine.	4	CO3

SECTION B

Q 6	Define and Explain “Cardiac Arrhythmia” with the help of neat block diagram of the system used for its recording.	10	CO4
Q 7	Explain different types of Endoscopy	10	CO3
Q 8	Differentiate between Projection X-Ray and X-ray Computed Tomography	10	CO2
Q 9	Describe Haptic Interface. Explain its uses in Robotic Surgery with suitable diagram. OR Describe Rehabilitation Robotics. Explain its impact on human life.	10	CO3, CO4

SECTION-C

Q 10	Identify and explain the technique suitable for foetal heart rate measurement with suitable block diagram.	20	CO3, CO4
Q 11	Explain and Draw ECG waveform of healthy human. Describe different measurement system. OR Explain MRI Scan with suitable block diagram and state the relationship between frequency and space variation.	20	CO1, CO2, CO3

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SECTION A

S. No.	Question	Marks	CO
Q 1	Classify biomedical instruments on the bases of different sectors of operations.	4	CO1
Q 2	Explain the direct method of BP Measurement with Suitable Diagram.	4	CO2
Q 3	Relate the significance of optical fiber cable in Endoscopy.	4	CO3, CO4
Q 4	Explain smart handheld surgical tools with suitable example.	4	CO4
Q 5	Describe Telemedicine. How it is boon to rural India?	4	CO4

SECTION B

Q 6	Define and Explain “EMG Signal” with the help of neat block diagram of the system used for its recording.	10	CO4
Q 7	Explain different types of Endoscopy	10	CO3
Q 8	Explain types of X-Ray techniques with suitable block Diagram.	10	CO2
Q 9	Describe Haptic Interface. Explain its uses in Robotic Surgery with suitable diagram. OR Describe Nano Robotics in medicine. Explain its impact on human life.	10	CO3, CO4

SECTION-C

Q 10	Identify and explain the technique suitable for foetal heart rate measurement with suitable block diagram.	20	CO3, CO4
Q 11	Explain and Draw ECG waveform of healthy human. Describe different measurement system. OR Define and Classify Noise Reduction Techniques. Explain Electric Filters with circuit diagram.	20	CO1, CO2

