Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Summer 2018 - 19 Examination

Semester: 6 **Date: 02/05/2019**
Subject Code: 03111351 **Time: 10:30am to 01:00pm**
Subject Name: Diagnostic Techniques and Instrumentation **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 **Objective Type Questions** - (Fill in the blanks, one word answer, MCQ-not more than Five in case of MCQ) (All are compulsory) (Each of one mark) **(15)**

1. The heart sounds are recorded by_____.
   a. Electrocardiography
   b. Phonocardiography
   c. Endoscope
   d. Angiocardiography

2. Tocodynamometer is used for_____.
   a. Measuring speed of walking /Running
   b. Monitoring and recording uterine Contractions
   c. Monitoring the heart wall deflections during cardiac cycle
   d. Measuring muscular movement due to respiration
3. Maternal Heart Rate is _____ of the Foetal Heart Rate.
   a. 1/2
   b. twice
   c. 1/4
   d. 1/8
4. Define Doppler effect.
5. Why we use Blood Flow meter?
6. What is the importance of Plethysmography?
7. Define ultrasound. Give its range in medical application.
8. Name the transducer used in echocardiography.
9. What is a micro electrode?
10. State the objective of Patient monitoring system.
11. Tonometer is used for _____
12. What is the difference between pneumotachometer and spirometer?
13. Name the three basic types of measurements are made in the pulmonary clinic?
14. Tidal Volume is defined as _____
15. What is the application of Indicator dilution Method?

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) What are the types of leakage current?
B) Draw and Explain the Block Diagram of Arrhythmia monitor
C) Explain AFECG with its instrumentation system.
D) Explain the main purpose of Holter Cardiography.

Q.3 A) Enlist various cardiotocographic monitoring methods which are used during Pregnancy. **(07)**
B) Explain the Principle of ultrasonic Doppler-shift flow velocity meter with necessary equations. **(08)**

OR

B) Using a diagram explain Labour Activity Monitor in Detail **(08)**

Q.4 A) Draw and Explain the Instrumentation of Phonocardiogram **(07)**

OR

A) Elaborate Apnoea detecter. Also draw block diagram of apnoea monitor. **(07)**
B) Describe Pulmonary Function Analyzer with schematic diagram. **(08)**