

Seat No: \_\_\_\_\_

**GANPAT UNIVERSITY**  
**B.TECH SEM. V BIOMEDICAL & INSTRUMENTATION ENGINEERING**  
**CBCS REGULAR EXAMINATION DECEMBER 2013**  
**2BM502: ELECTRONICS MEASUREMENT AND INSTRUMENTATION**

**TIME: - 3 HOURS**

**TOTAL MARKS: - 70**

**INSTRUCTION: -** 1. Write the answer of each section in separate answer sheet.  
2. Figure to the right indicates full marks.  
3. Assume suitable data if necessary.

**SECTION-I**

**Que-1**

- |  |   |
|--|---|
| (a) Draw and explain Aryton shunt.                               | 6 |
| (b) Explain Average responding voltmeter with necessary diagram. | 6 |

**OR**

**Que-1**

- |   |   |
|---|---|
| (a) Draw and explain staircase ramp type DVM.   | 6 |
| (b) Draw diagram for multirange voltmeter. Convert a basic D'Arsonval movement with an internal resistance of 50 ohm and full scale deflection current of 2 mA into a multirange dc voltmeter with voltage ranges of 0-10 V, 0-50 V, 0-100 V and 0-250 V. | 6 |

**Que-2**

- |   |   |
|---|---|
| (a) Draw and explain major blocks of a general purpose CRO. | 6 |
| (b) Explain Bolometer.                                      | 5 |

**OR**

**Que-2**

- |  |   |
|--|---|
| (a) Explain sweep generator with suitable diagram. | 6 |
| (b) Define: Sweep. Explain types of sweep.         | 5 |

**Que-3**

- |   |   |
|---|---|
| (a) Write a short note on PMMC.   | 5 |
| (b) Explain storage oscilloscope with necessary diagram.  | 5 |
| (c) A voltmeter reading 70V on its 100V range and an ammeter reading 80mA on its 150mA range are used to determine the power dissipated in a resistor. Both these instruments are guaranteed to be accurate within $\pm 1.5\%$ at full scale deflection. Determine the limiting error of the power. | 2 |

**SECTION-II**

**Que-4**

- |   |   |
|---|---|
| (a) Explain galvanometer type recorder.                         | 6 |
| (b) Describe construction and operation of electro luminescent. | 6 |

OR

Que-4

- (a) Describe the different methods by which data can be recorded on the strip chart paper. 6
- (b) Give the name of types of ADC. Compare each of them. 6

Que-5

- (a) What are the objectives of DAS? 6
- (b) Explain quantizing with example 5

OR

Que-5

- (a) Write a short note on FDM. 6
- (b) What should be the problems with TDM explain problems with figure. 5

Que-6

- (a) Define measurement. What is the importance of measurement? Which are the methods to do measurement? 3
- (b) Explain types of errors in detail. 5
- (c) What do you mean by error? Write down sources of errors. 4

== END OF PAPER ==