



M 26992

Reg. No. : .....

Name : .....

**IV Semester M.A./M.Sc./M.Com. Degree (Reg./Sup./Imp.)**

**Examination, March 2015**

**PHYSICS**

**PH404 B (i) PH 404 – Optional – II : Electronic Instrumentation**

Time: 3 Hours

Max. Marks : 50

**SECTION – A**

**(Two to be answered out of four, 10 marks each).**

1. List and explain the basic characteristics of measuring devices instruments, with any suitable example.
2. Explain in detail how to test a signal generator using CRO.
3. List and explain the different classification of transducer.
4. Explain the principle and working of MRI system. Discuss the basic idea of cardiac pacemakers.

**SECTION – B**

**(5 to be answered, 3 marks each).**

5. Distinguish between zero order and first order transducers.
6. Define gauge factor. List the different types of strain gauge.
7. Discuss the method of measuring the frequency of an A.C. voltage by observing Lissajour figures.
8. Explain the principle of lock in amplifies and give its application.

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9. What are the switching characteristics of thyristors ?
10. Give a short note on electrodes for E.C.G.
11. Explain the principle and working of electronic converters.
12. Give the operating principle of single phase voltage source inverter.

SECTION - C

(3 to be answered out of 5, 5 marks each).

13. List the different type of voltage regulators.
14. A strain gauge having a resistance of  $120 \Omega$  and a gauge factor of 2 is subjected to a strain of  $(60 + 10 \sin 314 t) \times 10^{-6}$ . If a capacitor is connected in one of the output leads and a true rms reading voltmeter of infinite impedance is connected across the output terminals. Find the reading of the voltmeter.
15. An analog transducer with a 0-10 V input is able to distinguish a change of 10 mV in its input signal. Calculate its resolution.
16. The period of the time base of CRO is 1 ms. Find the number of waveforms obtained on the screen if the frequency of the vertical input voltage is 1 kHz.
17. Draw the block diagram of EMG and explain each block.

SECTION - B