Code No: RR411003 **Set No. 1**

IV B.Tech I Semester Regular Examinations, November 2005
POWER PLANT INSTRUMENTATION
(Electronics & Instrumentation Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain how power is generated in hydroelectric plant. [16]
2. List the important parameters that are to be monitored in a thermal power plant [16]
3. Mention the types of frequency meters and explain the principle of operation of electrical resonance type with a neat diagram. [16]
4. What is meant by flow transmitter? Mention the types of flow transmitters. Describe the installation aspects of flow transmitters used in feed water circuit. [16]
5. With the help of neat sketch clearly explain about furnace control systems? [16]
6. Explain in detail with neat sketches main and reheat stream temperature control system used in power plants? [16]
7. (a) Explain what happens if the turbine speed exceeds the critical speed. explain.
   (b) Explain what happens if the turbine vibrations exceeds the tolerance limits. [8+8]
8. Explain the concept behind the optical arrangement for the measurement of turbidity of water. [16]

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Code No: RR411003 **Set No. 2**

IV B.Tech I Semester Regular Examinations, November 2005
POWER PLANT INSTRUMENTATION
(Electronics & Instrumentation Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the differences between thermal power plant and Nuclear power plant.[16]
2. Explain the importance of instrumentation in geothermal power plant. [16]
3. (a) Discuss in detail the methods of damping employed in electromechanical indicating instruments.
   (b) What is a current transformer? Explain how C.T. can be used to extend the range of a wattmeter. [10+6]
4. Explain how the air flow rate is measured in a power plant with a relevant diagram. [16]
5. With the help of neat sketch explain the working of fire tube boiler? [16]
6. Explain in detail with neat sketches B.F.P recirculation control system used in power plants? [16]
7. What is the importance of condenser in turbine plants . How it influences the turbine efficiency. [16]
8. Draw the schematic circuit diagram of a null balance pH meter and explain the principle if operation. [16]

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Code No: RR411003 **Set No. 3**

IV B.Tech I Semester Regular Examinations, November 2005
POWER PLANT INSTRUMENTATION
(Electronics & Instrumentation Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Give a brief description of Solar power generation scheme. [16]
2. List the important parameters that are to be monitored in a thermal power plant [16]
3. (a) Describe the resonance method of measuring frequency using parallel T and bridge T networks.
   (b) Explain the heterodyne method of measuring frequency with a neat diagram. [10+6]
4. Why drum pressure is to be monitored? Explain the methods of drum pressure measurement in detail. What factors govern the choice of pressure sensor? [16]
5. Explain in detail with neat sketches Drum level control system used in power plants? [16]
6. Explain in detail about interlocks in boilers used in power plants? [16]
7. Explain special tests on turbine plant. [16]
8. Explain the concept behind the optical arrangement for the measurement of turbidity of water. [16]

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Code No: RR411003 **Set No. 4**

IV B.Tech I Semester Regular Examinations, November 2005
POWER PLANT INSTRUMENTATION
(Electronics & Instrumentation Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Give a brief description of various stages in a hydro power generation scheme.[16]
2. Explain the role of radiation detectors in nuclear power plants. [16]
3. (a) Discuss in detail the methods of damping employed in electromechanical indicating instruments.
   (b) What is a current transformer? Explain how C.T. can be used to extend the range of a wattmeter. [10+6]
4. (a) Explain the principle of head type flow meter to measure the feed water flow rate with a suitable diagram.
   (b) What is a rotameter? Can it be used to control the flow rate? How the viscosity effects of the fluid can be compensated. [8+8]
5. Explain in detail with neat sketches excess air control system used in power plants? [16]
6. Explain in detail with neat sketches super heater control system used in power plants? [16]
7. Explain special tests on turbine plant. [16]
8. With necessary block diagram, explain the working principle of spectrum analyzer. [16]

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