

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: AE410

Course Name: POWER PLANT INSTRUMENTATION

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

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|---|---|------|
| 1 | a) Describe the basic building blocks of hydro power generation with neat figure. | (10) |
| | b) Define rankine cycle with TS diagram. | (5) |
| 2 | a) What is the function of soot blowers in power plant ? Explain with figure. | (5) |
| | b) Give the importance of burner tilting in power plant? | (5) |
| | c) Explain the following with reference to steam generation | (5) |
| | a) Air preheating | |
| | b) Super-heating | |
| 3 | a) With a neat sketch, describe the working of thermal power plant . | (8) |
| | b) What are the different types of boilers used in power plants? Explain. | (7) |

PART B

Answer any two full questions, each carries 15 marks.

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|---|--|-----|
| 4 | a) Explain flame monitoring in boilers. | (5) |
| | b) How pedestal vibration is measured in boilers? | (5) |
| | c) Write the temperature measurement techniques in boilers? | (5) |
| 5 | a) How is power factor and frequency measured in power plants? | (5) |
| | b) Explain the flow of feed water measurement in power plants. | (5) |
| | c) Illustrate how dust monitoring is carried out in a power plant. | (5) |
| 6 | a) Discuss the pressure measuring devices in boilers. | (7) |
| | b) Explain the operation of combined cycle power plant. | (8) |

PART C

Answer any two full questions, each carries 20 marks.

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|---|--|------|
| 7 | a) Explain the control of boiler drum level in power plant operation. | (10) |
| | b) Write a note on interlocks in boiler operation? | (5) |
| | c) Compare the performance of boiler following mode and turbine following mode of operation in power plants. | (5) |
| 8 | a) Enumerate the need for reactor control in nuclear power plant operation. | (7) |

- b) Discuss about the importance of safety systems in nuclear power plants. (5)
- c) Illustrate the measurements carried out in nuclear power plant. (8)
- 9 a) Discuss the role of distributed control system in a power plant. (10)
- b) Draw and explain the piping and instrumentation diagram of nuclear power plant. (10)
