

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 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 |
|---|-------|
| 1 a) With neat block diagram, explain the working of nuclear power plant? | (10)  |
| b) Discuss the role of economiser in thermal power plant.                 | (5)   |
| 2 a) Compare impulse turbine and reaction turbine?                        | (5)   |
| b) Explain the final elements used for draught control?                   | (5)   |
| c) What is the significance of soot blower in boilers?                    | (5)   |
| 3 a) Illustrate how power is harnessed from wind energy?                  | (8)   |
| b) Explain about feed water conditioning in thermal power plant.          | (7)   |

**PART B**

*Answer any two full questions, each carries 15 marks.*

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|--|------|
| 4 a) Explain the following with reference to turbine supervising system  | (10) |
| i. Eccentricity measurement  |      |
| ii. Speed measurement  |      |
| b) How metal temperature measurement is carried out in boilers?  | (5)  |
| 5 a) Explain any three electrical parameters measured in power plants.   | (10) |
| b) Draw and explain the radiation detectors used in power plant.   | (5)  |
| 6 a) What is the significance of smoke detectors in power plants? Explain its working with the help of a neat diagram. | (7)  |
| b) Explain the non electrical parameters measurement in power plant with neat diagram.                                 | (8)  |

**PART C**

*Answer any two full questions, each carries 20 marks.*

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|--|------|
| 7 a) Explain the cooling system of turbo-alternator system.            | (10) |
| b) Discuss the safety interlocks in boiler operation.                  | (5)  |
| c) Briefly explain the working of DCS in power plant.                  | (5)  |
| 8 a) Draw the P & I diagram of nuclear power plant. Explain in detail. | (10) |
| b) Explain the reactor control loop in nuclear power plant             | (5)  |
| c) Briefly explain the reliability of nuclear power plant.             | (5)  |

- 9 a) Explain the drum level control in boilers. (10)
- b) Describe the pulse channel and logarithmic Instrumentation of nuclear power plant. (10)

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