

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Power Plant Instrumentation

Subject Code : 4TE08PPI1

Branch: B.Tech (IC)

Semester : 8

Date : 01/05/2018

Time : 02:30 To 05:30

Marks : 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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- Q-1 Attempt the following questions: (14)**
- a) Which methods is/are used for impurity measurement in water and steam system? 01
A) Conductivity B) DO Analysis
C) PH measurement D) All of above
- b) Which of the following is less efficient in conventional power plant ? 01
A) Nuclear B) Thermal(Steam)
C) Gas D) Solar
- c) Which equipment is not supporting equipment in turbo-alternator ? 01
A) Condenser B) Generator
C) Steam turbine D) Draught system
- d) In three element drum level control system which control strategy used ? 01
A) Feedback B) Feed forward
C) Feedback + feedforward cascade D) Feedback + feedforward parallel
- e) Which techniques are used to monitor air pollution compounds? 01
A) IR absorption B) Gas chromatography
C) Mass spectroscopy D) All of the above
- f) In gas chromatography which gases are used as carrier gas? 01
A) N₂ B) Ar
C) He D) All of the above
- g) What are main parts of control room? 01
A) Front panel B) Rear panel
C) Engineer's cabin D) All of the above
- h) To measure coal quantity which measurements are used? 01
A) Indirect measurement from bunker level B) Measurement using load cells
C) Measurement by belt weighting D) All of the above



- i) List out the different methods to measure the speed of turbine. 01
- j) Mention the importance of instrumentation in power plant. 01
- k) What is the principle of thermal conductivity analyzer? 01
- l) Name any two instruments used to find CO₂ in flue gas? 01
- m) What is the principle of radiation detector? 01
- n) Which thermodynamic cycle is used in thermal power plant? 01

Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions (14)**
- a) What are the factors to be considered while selecting the type of power plant? 07
 - b) Explain the block diagram and working of thermal power plant. 07
- Q-3 Attempt all questions (14)**
- a) Explain speed and vibration monitoring and control in power plant. 07
 - b) Explain the block diagram and working of hydro power plant. 07
- Q-4 Attempt all questions (14)**
- a) Describe three element feed water control system. 07
 - b) Explain in detail the function of smoke density measurement and dust monitor. 07
- Q-5 Attempt all questions (14)**
- a) Describe distributed control system in power plant. 07
 - b) Explain the block diagram and working of nuclear power plant. 07
- Q-6 Attempt all questions (14)**
- a) List out different types of reactors and explain any two with diagrams. 07
 - b) Explain the measurement requirement in water circuit in thermal power plant. 07
- Q-7 Attempt all questions (14)**
- a) Explain briefly dissolved oxygen analyzer. 07
 - b) Explain briefly flue gas oxygen analyzer. 07



- Q-8** **Attempt all questions** **(14)**
- a) Explain single element and two element drum level control of a boiler. 07
- b) Explain effects of impurities in boiler and other plant equipment. 07

