

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI

DEPARTMENT OF MECHANICAL ENGINEERING

2018/2019 RAIN SEMESTER POSTGRADUATE EXAMINATIONS

COURSE; MEE 884 THERMAL POWER PLANT STATION EMISSIONS CONTROL

INSTRUCTIONS: ANSWER ANY 4 QUESTIONS.

TIME 2 1/2 HOURS

QUESTION 1.(30 mks)

As a step to solve the perennial power supply shortage in the country, one of the States has decided to build a coal-fired power plant at Enugu State, As an expert, you are required to

- (i) Highlight four major pollutant associated with this type of power plant
- (ii) Explain the effects of each of these pollutants on human health and the environment
- (iii) Discuss the effective technologies that can be deployed to control these pollutants

QUESTION 2 (15 mks) Explain how the operation of thermal power stations in the country can affect the (i) National Air Quality (ii) National climate

QUESTION 3 (15 mks) Discuss the difficulties associated with ash handling in power plants and the common ash handling systems.

QUESTION 4 (10 mks) The concentration of anthropogenic Carbon dioxide in the atmosphere is raising a great concern in the recent, explain how this can be controlled.

QUESTION 5 (10 mks) Inadequate power supply in the country has led to indiscriminate use of diesel and petrol electric generators, explain the implications of this practice with respect to human health and the environment