SECTION-C

Q.7 Write short notes on the following: **(5 × 4 = 20)**

(i) Specific speed of turbine

(ii) Control roads in nuclear power plant

(iii) Boiling water reactor

(iv) Gas analyser

Paper ID: 3073 **Roll Number** | 1 | 0 | 0 | 1 | 0 | 6 | 1 | 2 | 7 |

END TERM EXAMINATION, 2013–14

B.TECH. (TERM-08)

MEC 013 : POWER PLANT ENGINEERING

Time : **03** Hours Maximum Marks : **100**

Note : 1. Attempt **all** sections.
2. **All** questions carry **equal** marks.

SECTION-A

NOTE: ATTEMPT ANY **TWO** QUESTIONS.

Q.1 Answer **all parts** of the following: **(5 × 4 = 20)**

(i) Explain the effect of regeneration on stem cycle output and efficiency.

(ii) Enumerate the major sources of energy.

(iii) Classify the fuel used in power plants.

(iv) Classify the coal in detail.

(v) Explain ash handling system.

Q.2 Answer **all parts** of the following: **(5 × 4 = 20)**

(i) Draw lay-out of steam power plant and label it.

(ii) Give benefits of hydro power plant over thermal power plant.

(iii) Classify the nuclear reactors.

(iv) Explain the factors which should be considered while selecting the site for hydro-electric plant.

(v) What is Kaplan turbine? How does it differ from a prope[illegible] turbine?

Q.3 Answer **all parts** of the following: **(5 × 4 = 20)**

(i) Write short note on 'wind electricity economics'.

(ii) What is thermoelectric effect?

(iii) What is a fuel cell?

(iv) How are silicon cells fabricated?

(v) How the electrical instruments used in power plant are classified?

SECTION-B

NOTE: ATTEMPT ANY **TWO** QUESTIONS.

Q.4 Answer **both parts** of the following: **(2 × 10 = 20)**

(i) With the help of neat sketch, explain the working of any high pressure boiler.

(ii) Define the following terms with the help of suitable examples:

(a) Equivalent evaporation

(b) Boiler efficiency

(c) Blade velocity coefficient

Q.5 Answer **both parts** of the following: **(2 × 10 = 20)**

(i) A hydro power plant is to be used as peak load plant at an annual load factor of 30%. The electrical energy obtained during the yea is 750×10^5 *KWhr*. Determine the maximum demand. If the plant capacity factor is 24%, find reserve capacity of the plant.

(ii) Define the following performance terms:

(a) Air-ratio

(b) Pressure ratio

(c) Compressor efficiency

(d) Combustion efficiency

Q.6 Answer **both parts** of the following: **(2 × 10 = 20)**

(i) How are emissions from thermal power plants classified? Also explain the electrostatic precipitator.

(ii) Explain the working principle of the following instruments:

(a) Oil circuit breaker

(b) Air circuit breaker

(c) Water circuit breaker