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SF-7107

B. E. - III (Sem - VI) (Electrical) Examination

May / June – 2011

Power Station Practice

Time : Hours] [Total Marks :

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - III (Sem - VI) (Electrical)**

Name of the Subject :

☛ **Power Station Practice**

☛ Subject Code No. : **7 1 0 7** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Figures to the right indicate marks.

(3) Supplement your answers with neat sketches.

(4) Mention any assumption if made clearly.

1 (a) Short Questions : (Each carries **two** marks) **10**

(i) Why is a condenser used in a Steam Power Station ?

(ii) Why hydro-electric stations have high transmission and distribution costs ?

(iii) What is HRSG ? Where is it used ?

(iv) Write two basic functions of drought system.

(v) Why is the overall efficiency of a steam power station very low ?

(b) (i) Give the principal types of Hydro-Turbines and their applications. Explain the principle of Hydro-Electric Power Plant. **5**

(ii) What factors are taken into account while selecting the site for a steam power station ? Write advantages of steam power station. **5**

2 (a) Explain various types of nuclear reactors. 8

(b) Describe a complete wind turbine unit. State its components. 7

OR

2 (a) (i) Describe a large 'Solar Thermal Power Plant'. 8

(ii) Explain the types of Solar Radiation Energy Collectors.

(b) What is radioactive decay ? Explain nuclear fission and chain reaction. 7

3 Attempt any **three** : 15

(a) State the principle of fuel cells and a fuel cell power plant.

(b) What are the requirements of site for locating nuclear power plant.

(c) Explain the important components of a steam power station.

(d) Explain the working of a gas turbine power plant with a schematic diagram.

(e) Describe reaction turbine and state their applications and range.

4 (a) Write types of lighting arrestar and explain any one in detail. 18

(b) Write causes of over voltages.

(c) Explain Voltage Surge and Lighting surge in detail with waveform.

5 Attempt any **three** : 16

(a) What are harmful effects of lighting ? Describe the various types of lighting stroke ?

(b) What are advantages of neutral earth system over unearth system. ?

(c) Explain voltage control by synchronous condenser ?

(d) Explain peterssion coil earthing and give advantages of it.

6 Attempt any **three** : **16**

(a) Explain co-ordination of hydro-electric and nuclear power station.

(b) Explain different types of feed water heaters with relative advantages and disadvantages.

(c) Draw and explain load curves for residential load and streent-lightning load.

(d) Explain tap-changer for voltage control.
