

**B.Tech. 4th Semester (ME) F-Scheme Examination,
May-2018**

STEAM AND POWER GENERATION

Paper-ME-210-F

Time allowed : 3 hours] [Maximum marks : 100

Note : Question No. 1 is compulsory. Attempt one question from each section. All questions carry equal marks.

1. Explain the following terms : 5×4=20
- (a) Steam table and its uses
 - (b) Heat balance
 - (c) Mean effective pressure
 - (d) Steam turbine
 - (e) Effect of leakage in condenser

Section-A

2. Explain P-V, T-S, H-S diagram for Rankine and modified Rankine cycle. 20
3. What are fire tube and water tube boilers ? Classify them with neat and clean diagram. 20

Section-B

4. Explain the relationship between area, velocity and pressure in nozzle flow mathematically. 20

5. Derive work done and mean effective pressure from theoretical indicator diagram in steam engine. 20

Section-C

6. Define the term degree of reaction used in reaction turbine and prove that it is given by

$$R_d = (V_r / 2U) (\cot \beta_2 - \cot \beta_1)$$

when $V_{r1} = V_{r2} = V_r$ 20

7. Explain the following : <http://haryanapapers.com>
- (i) Regenerative feed heating cycle
 - (ii) Binary vapour cycle 20

Section-D

8. What are steam condensers ? Explain elements of steam condensing plant alongwith neat and clean diagram. 20
9. Explain the following terms : 4×5=20
- (i) Calorific value of fuels
 - (ii) Stoichiometric Air fuel ratio
 - (iii) Excess air required for combustion
 - (iv) Exhaust gases analysis