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M. Tech 1st Semester Examination
Advance Waste Water Treatment
WRE-111

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : (i) Answer All the questions.

(ii) Figure to the right indicate full mark.

(iii) Justify your answer with suitable diagram.

(iv) Use of non programmable calculator is permitted.

SECTION - A

1. Attempt Any Two Questions.

(i) Explain basic principles involved in

(i) Grit chamber.

(ii) Sedimentation tank.

(ii) Discuss the waste water characteristics in detail and effects of each parameter on the quality of waste water.

(iii) Explain working of the sewage pumping with sketch. What is the function of dry well and wet well? (20)

[P.T.O.]

2. Attempt Any Two Questions.

- (i) Explain the design aspects of
 - (a) Primary sedimentation unit
 - (b) Screening unit
 - (c) Neutralization unit
- (ii) (a) Explain working of fixed film reactor.
(b) Explain concept of gas transfer.
- (iii) Explain design and working of trickling filter. (20)

3. Attempt Any Four Methods.

- (i) Methods of dissolved solid removal
- (ii) Sludge stabilization
- (iii) Sludge conditioning
- (iv) Sludge disposal
- (v) Sludge digestion (20)

4. Explain working of any two treatment methods in detail with sketch.

- (i) Electro Dialysis
- (ii) Adsorption method
- (iii) Desalination (20)

5. Define following terms (Any Ten)

- (i) Total Solids
- (ii) COD
- (iii) pH
- (iv) Reaction Time
- (v) Coagulation
- (vi) Equalization
- (vii) Aerobic Process
- (viii) Phosphors removal
- (ix) Suspended growth of organism
- (x) Conditioning
- (xi) Biological Growth Curve
- (xii) Flotation. (20)