AMSV18 ENGINEERING HYDROLOGY

UNIT-1 BASIC CONCEPT OF HYDROLOGY AND HYDROLOGIC CYCLE

1.1 Test for consistency of rainfall records- Analysis of rainfall data

1.2 Correlation between intensity and duration- intensity, duration and frequency- depth area duration (DAD) curve.

1.3 Hydrologic abstractions- infiltratio- Green Ampt method Evapotranspiration different methods- Blaney Criddle method- penman method.

UNIT-2 CATCHMENT CHARACTERISTICS

2.1 Classification of streams- stream pattern-stream order- stream gauging rating of current meter

2.2 Extension of stage discharge curve

2.3 Adjustment of stage discharge curve selection of site for stream gauging stations.

UNIT-3 RUNOFF

3.1 Computation of runoff

3.2 Hydrograph analysis-Rational method

3.3 S-hydrograph- unit hydrograph from complex storm - synthetic unit hydrograph-

3.4 Instantaneous unit hydrograph (Brief description only) - linear reservoir model.

UNIT-4 PARTIAL DIFFERENTIAL EQUATION GOVERNING UNSTEADY GROUNDWATER FLOW

4.1 Evaluation of aquifer parameters the is method -Jacob's approximation method.

4.2 Well flow near aquifer boundaries

4.3 Method of images surface investigation of groundwater Electrical resistivity method.

4.4 Graphical representation of hydro chemical data - Pollution of groundwater, sources.

4.5 Seawater intrusion- Ghyben-Herzberg relationship Method of control of seawater intrusion- Artificial recharge of groundwater.

UNIT-5 RAINFALL

5.1 Runoff correlation using linear regression and multiple linear regression analysis.

5.2 Design flood and their Estimation - Different methods

5.3 Flood frequency studies -Gumbel's method.

UNIT-6 FLOOD ROUTING THROUGH RESERVOIRS

6.1 ISD method- Modified Pulse method.

6.2 Flood routing through channels by Muskingum method.

6.3 Flood control methods - Flood forecasting and warning (Brief descriptions only)

References Books

1 Garg S. K. Hydrology and Water Resources Engineering, Khanna Publishers, 2005