

MIZORAM PUBLIC SERVICE COMMISSION

GENERAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF JUNIOR GRADE OF MIZORAM FOREST SERVICE i.e. ASSISTANT CONSERVATION OF FOREST (ACF) UNDER ENVIRONMENT, FOREST & CLIMATE CHANGE DEPARTMENT, GOVERNMENT OF MIZORAM, 2018

AGRICULTURAL ENGINEERING

Time Allowed : 3 hours

Full Marks : 100

The figures in the margin indicate full marks for the questions.

Answer any 10 (ten) questions taking 5 (five) questions from each section.

SECTION - A

1. Explain in detail the different types of soil erosion on the basis of its origin and agents respectively. Describe the mechanics of soil erosion. **(10)**
2. Write short notes on: **(5×2 = 10)**
 - (a) Hydraulic radius
 - (b) Angle of repose
 - (c) Discharge capacity of channel
 - (d) Water requirement of crops
 - (e) Effective rainfall
3. Using Rational formula determine the peak flow expected to occur once in 5 years for a catchment area of 24.3 hectares, having a 30 minute time of concentration, a value of 0.40 for constant, C, and a maximum rainfall of 6.25 cm in a storm of 30 minutes duration expected to occur once in 5 years. **(10)**
4. Classify in detail the different types of irrigation methods, mentioning their merits and demerits. **(10)**
5. Choose the correct answer from the multiple choices (a,b,c and d) **(5×2 = 10)**
 - (i) The centrifugal pumps are used for pumping water when:
 - (a) Both head and discharge are high
 - (b) Discharge is high and head is low
 - (c) Both discharge and head are low
 - (d) Discharge is low and head is high
 - (ii) Hydrograph is a plot of
 - (a) Rainfall intensity against time
 - (b) Discharge against time
 - (c) Cumulative against time
 - (d) Cumulative run-off against time
 - (iii) Total depth of irrigation to a crop is known as :
 - (a) Duty
 - (b) Delta
 - (c) Base
 - (d) Evapotranspiration
 - (iv) Piezometer is used to measure :
 - (a) Static pressure of a flowing fluid
 - (b) Dynamic pressure of a flowing fluid
 - (c) Total pressure of a flowing fluid
 - (d) Surface tension of a flowing fluid

