

MIZORAM PUBLIC SERVICE COMMISSION

DEPARTMENTAL EXAMINATIONS FOR JUNIOR GRADE OF M.E.S. (AE/SDO) UNDER MINOR IRRIGATION DEPARTMENT, MARCH, 2017.

ENGINEERING PAPER – II

Time Allowed : 3 hours

FM : 100 PM : 40

Marks for each question is indicated against it.

Attempt all questions.

1. Describe, with a neat sketch, the Hydrologic cycle. (5)
2. What do you mean by Precipitation? Classify Precipitation depending upon the various atmospheric conditions. (5)
3. Define:- (a) Infiltration Capacity and (b) Infiltration Rate. (4)
4. Name the various methods of computation of Average rainfall over a basin. Which one of the methods is most suitable for rugged basins and hilly regions? (4)
5. What are the factors considered for Selection of gauge site for discharge measurement? (5)
6. The factors affecting the runoff from any catchment area may be classified into two main groups. Name them. (2)
7. Define the term 'flood'. Name the various methods commonly adopted for flood estimation. (5)
8. What are the fundamental principles upon which various Survey methods are based? (4)
9. The distance between two points A and B measured along a slope is 252 m. Find the horizontal distance between A and B when (a) the angle of slope is 12° , (b) the slope is 1 in 4.5 and (c) the difference in elevation of A and B is 35.07 m. (6)
10. Find the angle between the lines AB and BC, if their respective bearings are (a) $146^\circ 12'$ and $68^\circ 24'$; (b) $70^\circ 38'$ and $126^\circ 18'$. (4)
11. The followings are the bearings of the lines of a closed traverse ABCD:-

Line	Fore bearing	Line	Fore bearing
AB	N $45^\circ 10'$ E	CD	S $9^\circ 50'$ W
BC	S $60^\circ 40'$ E	DA	N $80^\circ 40'$ W

Calculate the interior angles of the traverse. (6)
12. Name the different classifications of Levelling. (4)
13. Describe the various characteristics of Contour lines. (6)
14. Name the principal agents responsible for the process of soil erosion. (3)
15. Name the different biological and engineering measures commonly adopted for control of soil erosion. (5)
16. Name the different types of temporary check dams. (5)
17. Name the different types of Drop spillways. Which one of them is the simplest type?. (4)
18. A Drop spillway is designed for structural stability against certain parameters. Give a list of such parameters. (5)

19. What are the major reasons for failure of earth dams? (3)
20. Name the different types of the most commonly used Primary tillage implements. Which one of them buries surface soil which has lost its structure and expose a new and undamaged surface? (5)
21. Name the different types of harrows. Apart from harrows, name the other type of Secondary tillage implements commonly used. (5)
22. What is a Seed drill? What are the different classifications of tractor drawn seed-cum - fertilizer drill commonly used in India? (5)

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