

MIZORAM PUBLIC SERVICE COMMISSION
DEPARTMENTAL EXAMINATION FOR JUNIOR GRADE OF M.E.S. (AE/SDO)
UNDER PUBLIC WORKS DEPARTMENT,
GOVERNMENT OF MIZORAM.
(JULY-2025)

CIVIL ENGINEERING PAPER – II

Time Allowed : 3 hours

FM : 100 PM : 40

Marks for each question is indicated against it.

PART – A (50 MARKS)

1. (a) (i) Convert the following WCB to Quadrantal bearings. (2+2+2+2=8)
(a) $334^{\circ}52'$ (b) $68^{\circ}32'$
(c) $132^{\circ}12'$ (d) $236^{\circ}37'$

- (ii) Explain how discharge of stream may be measured for designing drainage system. (12)

OR

- (b) (i) Draw a typical contour lines for the following :- (2+2+2+2=8)
(a) very steep hill (b) uniformly sloping hill
(c) a ridge (d) a valley

- (ii) Explain Catch water drain with neat diagram. (5+7=12)

2. (a) (i) Explain how radius of an existing curves of road may be measured at site. (10)
(ii) What are the function of Breast walls? Draw a diagram of Breast wall with typical dimensions. (4+6 = 10)

OR

- (b) (i) What is the function of Transition curve? (5)
(ii) Explain Toe walls and Check walls with neat diagrams. ($7\frac{1}{2}+7\frac{1}{2} = 15$)

3. Write a short note on influence of developmental activities in increased incidence of landslides. (10)

PART – B (50 MARKS)

4. (a) (i) Explain in detail plain and re-inforced cement concrete pavement. (10)
- (ii) Discuss measures that can be implemented to prevent fatal accident due to fatigue and/or driver feeling asleep at wheel. (10)

OR

- (b) (i) Explain the significance of stiffness of bitumen at 135°C, 60°C and 25°C. (10)
- (ii) What are the general factors affecting output of construction machines? (10)
5. (a) (i) What are the conditions where suspension bridges may be constructed? Draw a typical sketch of light load suspension bridge. (4+6=10)
- (ii) What is the difference between Prime coat and Tack coat? What are the objectives application of prime coat? (5+5=10)

OR

- (b) (i) Explain the principles that govern the design and use of road signs. (10)
- (ii) Discuss the factor affecting selection of design life of pavement. How a too short or too long assumption of design life of pavement would affect investment in road construction? (5+5 = 10)
6. What are the symptoms and causes of Alligator crack and Slippage in pavement surface? (5+5=10)

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