

MIZORAM PUBLIC SERVICE COMMISSION
DEPARTMENTAL EXAMINATIONS FOR JUNIOR GRADE OF M.E.S. (AE/SDO)
UNDER PUBLIC WORKS DEPARTMENT,
GOVERNMENT OF MIZORAM, JULY, 2022.

ARCHITECTURE ENGINEERING PAPER – II

Time Allowed : 3 hours

FM : 100 PM : 40

*Marks for each question is indicated against it.
Attempt all questions.*

Direction (Question No. 1 - 25) : Multiple choice questions. Attempt all questions. (25×2=50)

1. The bearing capacity of soil is calculated in _____ units.
(a) gm/cc (b) kg/m³
(c) kN/m² (d) N/m
2. What is the weight of 1 bag of cement?
(a) 25 kg (b) 30 kg
(c) 100 kg (d) 50 kg
3. In RCC beams, the end cover of concrete should not be less than
(a) 15 mm (b) 20 mm
(c) 25mm (d) 30 mm
4. The pipe having minimum diameter in a domestic waste water disposal system is
(a) waste pipe (b) soil pipe
(c) ventilation pipe (d) anti siphonage pipe
5. Reed beds are often used as an important component for
(a) natural purification of air (b) sewage treatment
(c) solid waste management (d) air conditioners
6. Steel reinforcement in RCC structures is to provide
(a) tensile strength (b) compressive strength
(c) bond strength (d) overall strength
7. What does the term grey water mean?
(a) wastewater generated in households or office buildings without fecal contamination
(b) wastewater generated in households or office buildings including fecal contamination
(c) waste water from factories
(d) water from soak pits
8. For walls, columns and vertical faces of all structural members, the formwork is generally removed after
(a) 24 to 48 hours (b) 7 days
(c) 14 days (d) 21 days

9. What is the purpose of primer before painting?
(a) better adhesion of paint to the surface (b) primarily for providing better colours
(c) more economical (d) makes the paint surface washable
10. To facilitate draining off rain water from coping, sills, sunshades etc, a groove is cut on the underside and this groove is known as
(a) throating (b) drip course
(c) string course (d) break course
11. What is the purpose of using glass strips in concrete flooring?
(a) for aesthetic purpose (b) for ease of construction
(c) to take care of contraction and expansion. (d) all of the above
12. Assuming full compaction, strength of concrete is inversely proportional to
(a) water-sand ratio (b) water-plasticiser ratio
(c) water-cement ratio (d) water-coarse aggregate ratio
13. Curtain walls are
(a) structural components (b) non-structural components
(c) both structural and non-structural (d) none of the above
14. The vertical sides of openings for doors and windows are called:
(a) Jambs (b) reveals
(c) buttresses (d) pilasters
15. The process of applying cement mortar under pressure through a nozzle is called
(a) pressurizing (b) prestressing
(c) guniting (d) none of the above
17. Ashlar is a term associated with _____ in construction.
(a) steel work (b) masonry work
(c) timber work (d) earth work
18. As per IS- 456:2000, expansion joints in structures are provided in structure lengths greater than
(a) 15 (b) 20
(c) 30 (d) 45
19. In brick masonry the bond produced by laying alternate headers and stretchers in each course is known as
(a) English bond (b) double flemish bond
(c) zigzag bond (d) single flemish bond
20. A wall constructed to resist the pressure of an earth filling, is called
(a) Retaining wall (b) Breast Wall
(c) Buttress (d) Parapet wall
21. Invert level of a pipe at a given cross section refers to the
(a) highest point of the internal surface (b) lowest point of the internal surface
(c) highest point of the external surface (d) lowest point of the external surface

22. The compressive strength of M-25 concrete after 28 days is
(a) 25 kg/sqm (b) 25 N/sqmm
(c) 250 N/sqmm (d) 2.5 N/sqmm
23. The initial setting time for ordinary Portland cement as per IS specifications should not be less than
(a) 10 minutes (b) 30 minutes
(c) 60 minutes (d) 600 minutes
24. What is the working principle associated with Solar Chimney?
(a) Thermal storage (b) Radiant cooling
(c) Stack effect (d) Geothermal energy
25. A septic tank is a water tight tank where the following operations take place:
(a) Sedimentation
(b) Sedimentation + Digestion
(c) Digestion
(d) Decomposition of organic & inorganic material

Direction (Question No. 26 - 35) : Short answer type questions. Attempt all questions. (10×5=50)

26. Explain with diagram the typical arrangement of disposal of soil and waste pipes from a residential building.
27. What is the difference between an S- Trap and a P-Trap? How is the application different in toilet construction?
28. Why do we need waterproofing treatment for RCC flat roofs? Suggest waterproofing treatment for an RCC flat roof in Mizoram.
29. What is the full form of WPC Board and its composition? Where does it find application in building construction?
30. What is the difference between PPGI and PPGL roofing sheets?
31. What is thermal comfort? What are the factors of thermal comfort that are considered in the design of buildings?
32. What are the factors that affect the strength of cement?
33. Draw a sketch of a septic tank specifying size for 10 users.
34. Name various types of fire fighting provisions that can be incorporated in the design of buildings with special reference to Aizawl.
35. What design considerations will you give to an RCC building when designing in a high seismic zone like Mizoram?