

MIZORAM PUBLIC SERVICE COMMISSION
DEPARTMENTAL EXAMINATIONS FOR
JUNIOR ENGINEER / DRAFTSMAN-I
UNDER PUBLIC HEALTH ENGINEERING DEPARTMENT, JANUARY 2016

ENGINEERING PAPER – I
(COMMON FOR ALL BRANCHES OF ENGINEERING)

Time Allowed : 3 hours

FM : 100 PM : 40

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

Directions (Questions 1–15): Choose the correct answers. (15×1=15)

1. The commonly used material in the manufacture of cement is
 - (a) sand stone
 - (b) slate
 - (c) lime stone
 - (d) graphite
2. For the construction of cement concrete floor, the maximum permissible size of aggregate, is
 - (a) 4 mm
 - (b) 6 mm
 - (c) 8 mm
 - (d) 10 mm
3. Slump test is done for
 - (a) clay
 - (b) sand
 - (c) lime
 - (d) concrete
4. After casting, an ordinary cement concrete on drying
 - (a) expands
 - (b) mixes
 - (c) shrinks
 - (d) none of these
5. M10 grade of concrete approximates
 - (a) 1 : 3 : 6 mix
 - (b) 1 : 1 : 2 mix
 - (c) 1 : 2 : 4 mix
 - (d) 1 : 1.5 : 3 mix
6. Specified compressive strength of concrete is obtained from cube tests at the end of
 - (a) 7 days
 - (b) 14 days
 - (c) 21 days
 - (d) 28 days
7. The process of mixing, transporting, placing and compacting concrete using Ordinary Portland Cement should not take more than
 - (a) 30 minutes
 - (b) 40 minutes
 - (c) 60 minutes
 - (d) 90 minutes
8. In a mortar, the binding material is
 - (a) cement
 - (b) sand
 - (c) surkhi
 - (d) cinder

9. The initial setting time of lime-pozzolona is
(a) 30 minutes (b) 60 minutes
(c) 90 minutes (d) 120 minutes
10. Sand stone is
(a) sedimentary rock (b) metamorphic rock
(c) igneous rock (d) volcanic rock
11. Water contains
(a) one hydrogen atom and one oxygen atom
(b) two hydrogen atoms and one oxygen atom
(c) one hydrogen atom and two oxygen atoms
(d) three hydrogen atoms and two oxygen atoms
12. The standard height of a standard rain gauge is
(a) 10 cm (b) 20 cm
(c) 30 cm (d) 50 cm
13. Hydrology is the science which deals with
(a) rain water (b) river water
(c) sea water (d) surface and underground water
14. The coagulant widely used for water treatment is
(a) alum (b) ferric chloride
(c) ferric sulphate (d) chlorinated coppers.
15. Out of these wastes, which is not solid?
(a) Garbage (b) Sullage
(c) Rubbish (d) Dust
16. Write down at least five points of the differences between Mark II and Mark III Handpump Tubewell. (5)
17. Write 5(five) hard components of Swachh Bharat Mission. (5)
18. List out various standard sizes of GI Pipe upto 200 mm dia. (5)
19. Write down 5 items which can be reused/recycled from the waste. (5)
20. You are to assemble cylindrical GP Sheet tank over concrete platform having capacity of 25,000 litres. Calculate the proportionate size of the tank. (5)
21. Define any 5(five) of the following: (5×3=15)
(a) Contaminated water (b) Runoff
(c) water hammer (d) Sludge
(e) Conduit (f) Scam
(g) Effluent
22. Fill in the blanks: (5×2=10)
(a) Roof washers is a device that diverts the " _____ " of rain before it enters the storage tank.
(b) _____ joins two or more pipes of threaded ends.
(c) _____ is a drainage running along the slope of the land.
(d) Landfill is one the _____ technique to properly dispose municipal solid waste.
(e) _____ pump is usually used to lift water at high head in Mizoram.

23. You are allotted to do plumbing work in a bathroom with 20 mm dia with 15 mm dia GI pipes at end points. Make the list of special fittings to complete the task. (5)
24. Write the main difference in one point between any 5 (five) of the following terms: (5×3=15)
- (a) Shallow well - Deep well
 - (b) Gravity main - Feeding main
 - (c) Submerged intake - Exposed intake
 - (d) Bend - Elbow
 - (e) Indian commode- European commode
 - (f) Influent - Effluent
 - (g) Aerobic reaction - Anaerobic reaction
 - (h) Link drain - Side drain.
25. Write the full form of any 5 (five) of the following abbreviations: (5×2=10)
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|-----------------|----------|
| (a) VIP Latrine | (b) CRSP |
| (c) kWh | (d) ppm |
| (e) PVC Pipe | (f) IHHL |
| (g) DWSC | (h) APL |
26. Match the following : (5×1=5)
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|---------------|--|
| (a) M30 mix | (a) is caused by water borne disease |
| (b) Bacteria | (b) is used for motor starter |
| (c) Dysentery | (c) is one of the Water treatment plant unit |
| (d) Aerator | (d) for water retaining structure |
| (e) Delta | (e) is killed by Chlorination |

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