Total No. of printed pages = 9

CT-402/WS&SI/4th Sem/2018/M

WATER SUPPLY AND SANITARY INSTALLATION

Full Marks – 70

Time – Three hours

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

PART – A

All the questions are compulsory. 1×25=25

(i) Shrouding is essentially provided in :

(a) Strainer type tube wells

(b) Cavity type tube wells

(c) Slotted pipe tube wells

(d) All of the above

[Turn over

(ii) Cast iron pipes having plain ends are joined by a joint called

(a) Flanged joint

(b) Spigot and socket joint

(c) Dresser coupling

(d) None of these

(iii) A blow off valve is provided in a water distribution system at

(a) low points

(b) high points

(c) junction points

(d) All of the above

(iv) The type of rain gauge, which is installed at hilly and inaccessible areas, is

(a) weighing type

(b) tipping bucket type

(c) Symon's type

(d) None of these

(v) Hand pumps make use of

(a) Centrifugal pumping

(b) Reciprocating pumping

(c) Rotary pumping

(d) None of the above

(vi) The major quantity of rain comes to India as

(a) convective precipitation

(b) cyclonic precipitation

(c) orographic precipitation

(d) None of these

(vii) Which sources of water, among the following, is not a subsurface source ?

(a) Spring

(b) Well

(c) Storage reservoir

(d) Infiltration gallery

(viii) Branch and main sewers are widely made of

(a) RCC (b) PCC

(c) Cast iron (d) Glazed stoneware

(ix) The minimum vertical distance between the bottom of the privy pit and the ground water table is

(a) 0.3m (b) 1m

(c) 3m (d) None of these

(x) An intercepting trap is provided at the junction of

(a) A house sewer and a municipal sewer

(b) An unfoul house drain and a foul house drain

(c) Any two house drains

(d) None of these

(xi) In single stack drainage system in houses, we provide

(a) One soil pipe only

(b) One soil pipe and one vent pipe

(c) One sullage pipe only

(d) One soil pipe and one sullage pipe

(xii) The pipe in building through which human excreta flow is, called

(a) Soil pipe (b) Waste pipe

(c) Vent pipe (d) None of these

(xiii) A flowing well is essentially ——.

(xiv) The gas which is generally present in sewers is

(a) H_2S (b) CO_2

(c) CH_4 (d) All of these

(xv) Manholes are generally located

(a) at all changes of direction of sewer

(b) at all changes of gradient of sewer

(c) at all junctions of different sewers

(d) All of the above

(xvi) Asbestos cement pipes are normally joined by using

(a) bell and spigot joint

(b) simplex joint

(c) lock joint

(d) None of these

(xvii) Sewers are generally laid starting from their

(a) off take point

(b) outfall point

(c) mid-point

(d) any point along the alignment

(xviii) The most prominent force, acting on the underground sewer pipes, would be

(a) compressive force

(b) tensile force

(c) bending force

(d) All of these

(xix) Laying of sewer is usually done with the help of

(a) a theodolite

(b) a compass

(c) a plane table

(d) sight rails and boning rods

(xx) The liquid wastes originating from residential and industrial buildings, are collectively called

(a) domestic sewage

(b) combined sewage

(c) sanitary sewage

(d) None of these

(xxi) A sluice valve is also known as ..... .

(xxii) The refined receptacles which are used for measuring rainfall are called ..... .

(xxiii) The devices, installed for drawing water from different water sources are called ..... .

(xxiv) The most commonly adopted pumps in water supplies are ..... .

(xxv) The waste water coming from kitchen and bathrooms is popularly known as ..... .

PART – B

Answer *all* the questions.

2. Explain with the help of diagram, the water cycle. 6

3. Explain the terms : waste pipe, vent pipe, soil pipe, antisiphonage pipe. 4

4. Explain in brief any one type of privy used in rural area. 5

5. Discuss the various factors that affect the hydraulics of sewer lines. 5

6. (a). Calculate the velocity of flow and corresponding discharge in a sewer of circular section having diameter equal to 1m, laid at a gradient of 1 in 500. The sewer runs at 0.5 depth. Use Manning formula taking N=0.012. 4

(b) Describe in brief the various types of water carriage system, stating advantage and disadvantage of each. 6

7. Explain the important consideration while finalizing alignment and bed line of sewer. 5

Or

Explain the working of a reciprocating pump. 5

8. Describe the procedure for laying and testing of sewers. 10

Or

Explain with neat sketch the working of drop manhole and manhole. 10