

# **GOVT. POLYTECHNIC MAYURBHANJ TIKARPADA**



## **DEPARTMENT OF CIVIL ENGINEERING**

**QUESTION BANK FOR THE SUBJECT OF:  
SUBJECT:HYDRAULICS & IRRIGATION ENGG.**

**PREPARED BY: PADMABHUSAN NAIK**

**DESIGNATION: LECTURER**

**SEMESTER:4<sup>TH</sup>**

## QUESTION BANK

### SECTION-A

( 4<sup>th</sup> sem:- H & IE)

- Define density and specific weight.
- Differentiate between steady and unsteady flow.
- Differentiate between uniform and non uniform flow.
- Define Capillarity and surface tension.
- Differentiate between gauge pressure and vacuum pressure.
- Differentiate between real fluids and ideal fluids.
- What is intensity of pressure?
- Differentiate between cohesion and adhesion.
- Define Capillarity and surface tension.
- Differentiate between gauge pressure and vacuum pressure.
- Define Total pressure, resultant pressure and pressure head.
- Explain the continuity equation of flow.
- Define Pascal's law and what is its application?
- State Bernoulli's theorem and its applications.
- Find the discharge of water flowing through a rectangular notch of 4m length when constant head over notch is 200 mm. Take  $C_d = 0.65$ ?
- Explain the total energy line and hydraulic gradient line.
- Explain the differences between an orifice and mouthpiece.
- What is open channel?
- What is centrifugal pump?
- What is reciprocating pump?
- What do you understand by hydrological cycle? Explain with neat sketch.
- Define G.C.A and C.C.A.
- Explain the various factors affecting run-off of a catchment area.
- What are the advantages and disadvantages of automatic rain gauge?
- What is irrigation? Why irrigation is essential?
- Difference b/w Furrow method and sprinkler method of irrigation.
- Define duty, delta and base period.
- Define crop period and crop ratio.
- What are the advantages of crop rotation?
- What are the ill effects of irrigation?
- Enlist the factors affecting duty of a canal system?
- How rain gauge stations are located?
- Explain the factors effecting rainfall in India.
- What is the difference between weir and barrage?
- What are the various components of flow irrigation system?
- Differentiate between perennial and inundation irrigation.
- What is difference between sprinkler irrigation and drip irrigation?
- What do you mean by water logging? What are its effects on crops?
- Write a note on silt excluder and silt ejector?
- What are the functions of river training works?
- What are the functions of guide bank?

## **SECTION-B**

- Explain different types of fluid flows in detail?
- Calculate the mass density, specific weight and specific gravity of one liter of liquid which weighs 9 N.
- A triangular plate of base 3 m and height 4 m lies immersed vertically in water with the apex downward. The base of plate is 1 m below the free water surface. Determine the total pressure and center of pressure.
- Calculate the flow of water in liters/hour through a 40x15 cm venturimeter when differential gauge connected to the inlet end of the meter and its throat shows 25 cm of mercury. Assume the discharge coefficient as 0.98.
- A rectangular channel has a cross section of 8 m<sup>2</sup>. Find the discharge and size through the most economical section. If the bed slope is 1 in 1000. Take  $c=55$ .
- What are the losses in pipelines? Explain minor and major losses.
- Define Bernoulli's theorem. Explain its assumptions and limitations.
- A rectangular channel has a cross-sectional area of 72 m<sup>2</sup>. Calculate the discharge through the most economical section, when the bed slope is 1 in 1500 and  $C=55$ .
- The quantity of water flowing through a pipe line of diameter 100 mm is found to be 0.2 m<sup>3</sup>/sec. Find discharge in liters/sec and average velocity of flow.
- A rectangular plate 6 meters long and 2 meters wide are immersed vertically in water in such a way that its 6 m side is parallel to water surface. Find total pressure and centre of pressure on plate if its top surface is 1 m below the free surface of water.
- What is a reciprocating pump? Write down in detail about the main parts and working of single acting reciprocating pump along with neat sketch.
- Differentiate between automatic and non-automatic rain gauge in detail?
- Explain various types of rain gauges in detail with the help of sketches.
- What is water logging? Give its causes and the effects of water logging and how will you prevent it.
- What is an aqueduct? What are the different types of aqueduct? Describe them with neat sketches.
- What is super passage? Describe them with neat sketches.
- What is a gravity dam? What are their advantages and disadvantages?
- Explain in detail various causes of failure of earthen dams.
- What is canal head works? Describe the various components of canal head works.
- Draw the sketch of a Weir and explain the function of each part. What are the causes of Weir failures?
- What is canal head work? Describe the various components of canal head work?
- What is dam? Why it is constructed? What are the different types of earth dams? Explain any one
- Explain various types of cross drainage works used in detail with the help of sketch.
- What is level crossing? Describe them with neat sketches.
- What is spillway? Name the various types of spillways. Explain any one.