

B.Sc. (F. & S.) Sem.-3 (Supple.) Examination

CC-203

Hydraulics & Pumps

Time : 2-30 Hours]

October-2024

[Max. Marks : 70

Instructions :- All questions in Section-I carry equal marks.
Questions in Sections-II are compulsory & Each question carry two marks.

Calculators are allowed.

Section-I

- Q-I A Which device is used to measure discharge? Derive the equation of discharge by using that device. 7
- B Write down the advantages of water hydraulics in fire. 7
- OR
- A Explain working of simple U-tube manometer for gauge pressure and vacuum pressure condition with neat sketch. 7
- B Define Pressure & Explain different types of pressure. 7
- Q-II A Define Energy loss of flow through pipes. List out the classification & Write down any one formula for friction loss calculation. 7
- B Find the head lost due to friction in a pipe of diameter 300 mm and length 50 m, through which water is flowing at a velocity of 3 m/s by using Darcy-weisbach formula. The density and dynamic viscosity of the fluid is 1000 kg/m³ and 0.001 kg/m-s respectively. 7
- OR
- A Derive the equation of total head loss for water flows through three pipes having different diameters and lengths connected in series. 7
- B What is water hammering? & which parameters affect the water hammering action? 7
- Q-III A Give classification of pump and explain working of reciprocating pump with figure. 7
- B Explain types of casing used in centrifugal pump with neat sketch. 7
- OR
- A Explain the parameters which have to be consider during the pump installation & maintenance. 7
- B Explain cavitation & precaution against cavitation. 7
- Q-IV A Describe construction & working of Hydraulic lift with neat sketch. 7
- B Explain construction & working of Hydraulic Ram with neat sketch. 7
- OR
- A Derive the equation of force exerted by a jet on a Stationary flat vertical plate. 7
- B Explain construction & working of Jet Pump with neat sketch. 7

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Section II

Q-V Short Questions.

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1. Write down the major difference between Hydraulic coupling & Torque converter.
 2. Write down the difference between simple U-tube manometer & differential U-tube manometer.
 3. Describe slip of the pump.
 4. Write down the function of NRV & ARV.
 5. Give main two differences between centrifugal pump & reciprocating pump.
 6. Write down the definition of hydraulic machine & Give two examples of Hydraulic machines.
 7. Define Streamline flow & write down Reynold number equation.
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