



c09-c-304

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BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2021

DCE - THIRD SEMESTER EXAMINATION

HYDRAULICS

Time : 3 hours]

[Total Marks : 80

PART—A

4×5=20

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **four** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define surface tension and capillarity.
2. Define atmospheric pressure and gauge pressure.
3. Write the Bernoulli's equation and name the terms.
4. List out any two types of mouthpieces according to the shape.
5. Write any two advantages of triangular notch over rectangular notch.
6. Define notch and weir.
7. What is the major loss in a pipe flow? Write the Darcy's equation for calculating friction.
8. List out any two conditions for most economical rectangular channel section.
9. Define pump and turbine.
10. What is the function of surge tank in a hydroelectric power plant?

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[*Contd...*

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PART—B

15×4=60

- Instructions :** (1) Answer *any four* questions.
(2) Each question carries **fifteen** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** Explain total pressure and centre of pressure.
- 12.** Water is flowing through a horizontal tapering pipe *AB* with a discharge of $0.5 \text{ m}^3/\text{sec}$. The diameters at *A* and *B* are 0.30 m and 0.60 m respectively. If the pressure at *A* is 7 m of water, find the pressure at *B* neglecting the losses.
- 13.** Write down the formulae for :
- (a) Coefficient of discharge (C_d);
 - (b) Coefficient of velocity (C_v);
 - (c) Coefficient of contraction (C_c)

Write their relationship.

- 14.** Find the discharge over a rectangular notch when the head over a rectangular notch is 0.2 m . Take $C_d = 0.62$.
- 15.** Explain hydraulic gradient line and total energy line in a pipe flow.
- 16.** What is the role of civil engineer in the field of construction works?
- 17.** Write the Chezy's formula for calculating velocity in open channel flows and write down Kutter's formula for calculating the *C* value.

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- 18.** Differentiate between 'centrifugal pump and reciprocating pump'.

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