

M. Tech.-III (Civil-Hydraulic Engineering) (CBCS – 2015 Course) :
WINTER - 2018

**SUBJECT: SELF STUDY PAPER – I: OPERATION & MAINTENANCE OF
HYDRAULIC STRUCTURES**

Day: Saturday
Date: 08/12/2018

W-2018-3170

Time: 11.00 AM TO 02.00 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.
- 3) Assume suitable data if necessary.

SECTION-I

Q.1 What is major classification of Hydraulic structure? Explain the need for (10)
maintenance for the dam.

OR

Q.1 Enlist the various hydraulic structures which need care to be taken during (10)
operation for safety purpose.

Q.2 What is the significance of uplift pressure and pore pressure for the safety of (10)
the dam?

OR

Q.2 Write various causes and modes of failures of concrete dam with reference to (10)
erosion on downstream side and uplift pressure.

Q.3 As an Engineer in charge, which general guide liner you will suggest for proper (10)
operation and maintenance to be taken for the embankment dam.

OR

Q.3 Elaborate how operation and maintenance of spillway and energy dissipation (10)
system affects the safety of dam.

SECTION-II

Q.4 What is significance of periodic inspection of the dam structure for the (10)
maintenance schedule and the smooth operation for concrete dam?

OR

Q.4 What is the roll of inspection for the maintenance of U/S and O/S slope and toe (10)
and seepage control for the safety of earthen dam?

Q.5 What is general criteria for collection of data through instrumentation for (10)
earthen dam, with reference to pore pressure, seepage, settlement etc.?

OR

Q.5 Draw a neat sketch locating minimum no. of instruments required for (10)
monitoring performance of concrete dam in order to take necessary measures.

Q.6 Explain how proper and periodic maintenance of the earthen dam through (10)
analysis of field data is useful for the longer life of structure and efficacy.

OR

Q.6 Which instrument and its location you will choose for the monitoring of stress (10)
distribution and uplift pressure in gravity dam.

* * * *