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MGGE-004

M. SC. (GEOGRAPHY) (MSCGG)

Term-End Examination

June, 2025

**MGGE-004 : HYDROLOGY AND WATER
RESOURCES**

Time : 3 Hours

Maximum Marks : 100

Note : *Attempt all questions. Marks are indicated against each question.*

Section—A

1. Answer any *five* questions. Your answer should be in about **200** words each : $5 \times 5 = 25$
 - (i) Define hydrology. Explain the scope of hydrology in brief.

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- (ii) Describe the concept of river basin with a suitable diagram.
- (iii) Describe any *two* components of direct runoff.
- (iv) Define drought. Discuss in brief drought prone areas of arid and semi-arid regions of the world.
- (v) Briefly explain water as a resource.
- (vi) Write a short note on 'Water Footprint'.
- (vii) What are flat rate and uniform rate of water pricing ? Explain in short.

Section—B

2. Answer any *three* questions. Your answer should be in about **400** words each :

$$3 \times 10 = 30$$

- (i) Elaborate the role of water in Mesopotamian and Indus Valley Civilization in detail.

- (ii) Define hydrological cycle. Explain different elements of hydrological cycle with a diagram.
- (iii) Discuss any *four* stream patterns of drainage basin with rough sketches.
- (iv) Describe the concept of valuing water. Explain any *two* use and non-use values of water each.
- (v) Write a detailed note on 'National Mission for Clean Ganga'.

Section—C

Note : Answer any **three** questions. Your answer should be in about **600** words each.

3×15=45

- 3. Explain the unit hydrograph with its concept, principles, limitations and applications in detail.

4. Describe any *three* types of floods. Explain any *two* structural and non-structural measures of flood control each.
5. Describe water quality and its importance. Explain various natural and anthropogenic factors affecting the quality of water.
6. What are the different principles of water and sustainable development ? Discuss in detail the 'SDG-6 : Clean Water and Sanitation' with its targets.
7. Discuss in detail any *five* inter-state water disputes in India.

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