KATHMANDU UNIVERSITY
End Semester Examination
January 2025

Marks Scored:

Level : B.Sc.
Year : IV

Course : ESEE 405
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 31 JAN 2025

SECTION "A"
[20Q. × 1 = 20 marks]

Choose the most appropriate answer from the given alternatives and ***encircle.***

1. Drop structure are more effective when combined with _____
   a. Gabion wall b. Bridge c. Check dams d. Drainage

2. Ditches and hedgerows are used to prevent _____
   a. landslide b. erosion c. flood d. liquefaction

3. The seepage loss of the Earthen Canal(un-lined) is _____
   a. highest of all canal types. b. lowest of all canal types.
   c. intermediate seepage loss. d. changes seasonally.

4. Which of the following is also known as micro-irrigation?
   a. Sub- irrigation. b. Sprinkler irrigation.
   c. Furrow method. d. Drip irrigation.

5. Which of the following method provides moisture to crops by upward capillary action?
   a. Sub-irrigation b. Micro-irrigation c. Boom irrigation d. Sprinkler irrigation

6. The type of lake which has very low nutrient concentration is called _____ lake.
   a. mesotropic b. oligotropic c. eutropic d. nanotropic

7. Elemental hydrograph is plotted against _____
   a. area vs time b. discharge rate vs time
   c. volume vs time d. none of the above

8. The irrigation system which allows application of water under high pressure with the help of a pump is _____
   a. sprinkler irrigation method. b. surface irrigation method.
   c. drip irrigation method. d. sub-surface irrigation method.

9. _____ involves down-slope flow from rivers, streams or springs.
   a. Artesian well b. Gravity flow c. Base Flow d. Interception

10. _____ describe mathematically the relation between rainfall and surface runoff without describing the physical process by which they are related.
    a. Distributed model b. Black box model
    c. Event model d. R- GIS model

11. _____ used to cross-check and confirm data.
a. Triangulation b. Reversal of learning
c. Flexible d. Iterative

12. Rainfall greater than 2.5 mm/hr. is consider as _____
a. heavy rainfall b. light rainfall c. low rainfall d. moderate rainfall

13. Lifting of warm air above colder denser air is _____
a. orographic b. frontal c. cyclonic d. convection

14. Which of the following system characteristics has highest conveyance efficiency?
a. Only canal lined. b. Whole system lined.
c. Canal and distributaries lined. d. Entire system unlined

15. Looking at the global availability of water, percentage of water present in ice caps and glaciers is _____%
a. 2.43 b. 2.23 c. 1.35 d. 1.74

16. The systematic study of the current status and future trends in water supply, demand, accessibility and use within a specified spatial domain is _____
a. hydrology b. water resource accounting.
c. hydropower production d. IWRM

17. Integrated Water Resources Management is a _____
a. cross-sectoral policy approach b. fragmented sectoral approach
c. traditional approach d. new approach

18. Grasses, legumes, fruit trees and cassava are commonly used to stabilize the _____
a. gullies b. ridges c. trenches d. catchments

19. Participatory Planning avoids _____
a. economic development b. unrealistic situations
c. involvement of outside people d. validate data

20. Dissolved O2 is highly variable and fluctuates rapidly in _____
a. monsoon clouds b. natural ponds
c. sewage spilled river d. salty ocean

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Year : IV
Time : 2 hrs. 30mins.

31 JAN 2025

Course : ESEE 405
Semester : I
F. M. : 50

SECTION "B"
[3Q. × 7 = 21 marks]

Attempt *ALL* questions.

1. Write comprehensive definition of land. Discuss different functions of land. Discuss data sources and types for land evaluation. [1+2+4=7]

2. What is community envisioning exercise? What are the Dynamics involved in the Community envisioning exercise? How do you plan a community envisioning exercise for natural resource management at the watershed level through people's participation? [2+2+3=7]

3. What is watershed? Describe watershed hydrology. How can you estimate rainfall over an area? [2+2+3=7]

SECTION "C"
[34 marks]

4. Write Short Notes (***ANY THREE***) [3Q× 4=12]
   a. Perched water Table
   b. Adverse impacts of irrigation
   c. Common problem related to hedgerows
   d. Write short note on grass strips

5. Give Reasons (***ANY FOUR***) [4Q× 4=16]
   a. The larger the watershed, the greater the volume and peak of stream flow for rainfall
   b. Mulching protects soil
   c. Watershed is an ecosystem in itself
   d. Contour farming important in slopy land
   e. Distribution of water in nature is uneven over space and time

6. Differentiate Clearly (***ANY THREE***) [3Q× 2=6]
   a. Clean Zone and Decomposition Zone
   b. Participatory Planning and Participatory Monitoring
   c. Direct type outlet and Siphon type outlet
   d. Surface water divide vs. Subsurface water divide