

M. TECH. ENVIRONMENTAL BIOTECHNOLOGY 1ST SEM. EXAM 2024

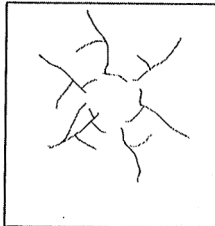
Subject: NATURAL RESOURCES

Time: Three Hours

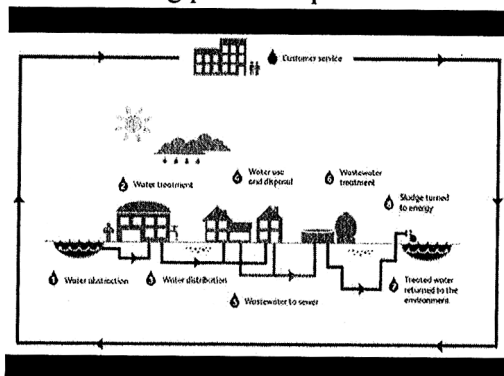
Full Marks: 100

Answer all questions from question no 1 to 30 (30X1=30) and answer any seven questions from 31 to 40.

1. The nation is the most affected by deforestation
 - a) Honduras
 - b) Indonesia
 - c) Brazil
 - d) Kenya
2. In joint forest management, each area has FPC consist of -(1)Range officer, (2) Forest guard, (3) Local people, (4) Representative of NGOs
 - a) Only 1 and 2
 - b) Only 2 and 3
 - c) Only 3
 - d) All of them
3. The following figure will be drainage pattern -



- a) Radial pattern
 - b) Dendritic pattern
 - c) Trellis
 - d) None of them
4. The following picture explains-



- a) Water cycle
 - b) Water service cycle
 - c) Water purification

[Turn over

- d) Wastewater treatment
- 5. Fresh water running underground is called
 - a) River
 - b) Stream
 - c) Brook
 - d) Aquifer
- 6. The correct three stages of water cycles is-
 - a) Condensation, precipitation, hibernation
 - b) Precipitation, evaporation, dehydration
 - c) Evaporation, dehydration, Precipitation
 - d) Evaporation, condensation, precipitation
- 7. Sometime water evaporates directly from glacial ice, known as
 - a) Condensation
 - b) Transpiration
 - c) Sublimation
 - d) Precipitation
- 8. Which state of India has maximum areas of forest cover-
 - a) Kerala
 - b) Assam
 - c) Mizoram
 - d) Madhyapradesh
- 9.State of India has largest area under dense evergreen forest.
 - a) Uttrakhand
 - b) Arunachal Pradesh
 - c) Mizoram
 - d) Kerala
- 10. The main causes of deforestation is
 - a) Agriculture
 - b) Volcanic activities
 - c) Forest fire
 - d) Soil erosion
- 11. The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs on a sustainable basis is called:
 - a) Afforestation
 - b) Silviculture
 - c) Restoration of forest land
 - d) Arboriculture
- 12. When wind transported materials and soil formed is known as-
 - a) Fluvial deposit
 - b) Aeolian deposit
 - c) Ice deposit
 - d) None of them
- 13. Dark coloured pipedon with alkaline in nature is called

- a) Umbric
 - b) Histic
 - c) Ochric
 - d) Antropic
14. Azotobactor fixes nitrogen
- a) As symbiounts on sugarcane
 - b) As symbiounts on rice
 - c) In free soil
 - d) symbiounts on pea plant
15. Vertisol are..... when wet and very hard when dry
- a) Very hard
 - b) Very soft
 - c) Soft
 - d) Hard
16. How would you compare young soil to soil that has been around a long time?
- a) Young soil has more organic materials
 - b) Young soil has less organic materials
 - c) Young soil has more plant growth
 - d) None of these
17. Soil formation is a
- a) Rapid process
 - b) First process
 - c) Slow process
 - d) Mechanical process only
18. Find out the outcome of multipurpose river valley project-
- a) Interstate water dispute
 - b) Excessive sedimentation of Reservoir
 - c) Displacement of population
 - d) Flood control
19. The materials on which soil is formed
- a) Regolith
 - b) Parent rock
 - c) Boulder materials
 - d) All of them
20. The main cause of surface runoff is
- a) Initial rain
 - b) Residual rain
 - c) Rain in the net supply interval
 - d) All of the above
21. Chemical weathering governs mostly by the process
- a) Solution
 - b) Hydrolysis
 - c) Hydration
 - d) All of these

22. Clay can be considered as
- Primary mineral
 - Secondary mineral
 - Tertiary mineral
 - None of them
23. The different layers of the soil profile called
- Top soil
 - Bed rock
 - Horizon
 - Regolith
24. Mention the reason for water scarcity in a region with sufficient water to meet the need of the citizen
- Huge population
 - Power requirement
 - Less rainfall
 - pollution
25. Which of the following is not caused by over-pumping groundwater?
- Intrusion of salt water
 - Depletion of an aquifer
 - The higher the permeability of an aquifer the slower the groundwater will flow
 - Gravity drives the flow of ground-water
26. The largest forest of India-
- Tropical wet evergreen forest
 - Tropical moist deciduous forest
 - Montane wet temperate forest
 - Tropical dry deciduous forest
27. In which of the following location Forest Research Institute (FRI) is located?
- Kolkata
 - Agartala
 - Dehradun
 - Jabalpur
28. Consider the following statement (s) related to Sustainability.

I. It refers to a process or state that can be maintained indefinitely.

II. Natural resources must use in ways that do not create ecological debts by over-exploiting the carrying and productive capacity of the earth.

III. A minimum necessary condition for sustainability is the maintenance of the total natural capital stock at or above the current level.

- Only I
- Only II
- Only II & III
- I, II & III

29. Thermocline presents between hypolimnion and epilimnion.

Reason : Thermocline acts as a barrier between hypolimnion and epilimnion.

Reason : Thermocline acts as a barrier between the two layers.

- a) If both the assertion and the reason are true and the reason is a correct explanation of the assertion
- b) If both the assertion and reason are true but the reason is not a correct explanation of the assertion
- c) If the assertion is true but the reason is false
- d) If both the assertion and reason are false

30. Epilimnion and hypolimnion are terms that deal with:

- a) pressure stratification in the sea
- b) density stratification in a lake
- c) thermal stratification in a lake
- d) turbidity currents in the sea

31. Briefly describe the procedure of soil formation. What are the two major approaches of soil study? Mention major causes of soil degradation in India. 4 + 1 + 5

32. Briefly mention the present status of forest in world. State the determining factors of forest land classification. Write a short note on JFM in India. 2 + 2 + 6

33. What do you understand by NTFP? Briefly describe the significance of NTFP in India. 2+8

34. What are the major forest types of India? Differentiate between social forestry and agroforestry. 4 + 6

35. Write brief composition of soil air. What is soil structure? Explain soil major textural classification with their utilization in agriculture. 3+ 2 +5

36. What are the purposes of land use planning? Mention different types of land use practice in India. How can mine land be eco-restored? 3+3+4

37. What do you understand by water foot print. Distinguish among virtual water, gray water and blue water. Briefly explain how global climate changes impacts on fresh water resource. 3 + 4 + 3

38. Classification of river on the basis of water discharge. Briefly explain the advantages and limitation of multipurpose river valley. 2 + 8

39. What problems are caused by saltwater intrusion? Briefly describe the impact of this problem on human society. Briefly describe the process of salt water intrusion in coastal aquifer with suitable diagram. 2+ 3+ 5

40. Write short note any two: 5+5

- a) Thermal stratification of deep-water lake
- b) Soil profile
- c) Biofertilizer and land management
- d) Valuation of mangrove forest

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