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| CSM – 30/21 |
| Forestry |
| Paper – I |

Time : 3 hours

Full Marks : 300

The figures in the right-hand margin indicate marks.

*Candidates should attempt Q. No. 1 from Section – A and Q. No. 5 from Section – B which are compulsory and any **three** of the remaining questions, selecting at least **one** from each Section.*

SECTION – A

1. Answer any **three** of the following :
 - (a) (i) Explain the terms frost cracks, frost hardy and frost tender with names of suitable species. 10
 - (ii) Write on internal and external factors responsible for forest resistance in trees. 10

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- (b) (i) Write down the classification of forests on the basis of age, regeneration, composition and growing stock. 10
- (ii) Discuss the importance of texture, structure and porosity of soil on tree growth 10
- (c) (i) Discuss the importance and effect of light on vegetation
- (ii) Write down the classification of rocks based on the origin.
- (d) Discuss various operations which are helpful to obtain natural regeneration of tree species in desired quantity. 20
2. (a) What do you know about different categories of nurseries in India ? Write a note on advantages of raising nursery. 20
- (b) (i) Explain the main objectives of reforestation.
- (ii) List out the advantages and disadvantages of sowing and planting.

- (c) Discuss the methods of natural regeneration by coppice and root suckers with suitable examples. 20
3. (a) Write notes on the following : 5+5+10 = 20
- (i) Effects of overgrazing on forests
 - (ii) Epiphytes
 - (iii) Parasitism and symbiotic relationship
- (b) What are indigenous and exotic species ? Write down the advantages and disadvantages of using exotic species in plantations. 20
- (c) List out the guidelines adopted for selecting tree for collection of seeds. Write on the methods for seed collection from forest trees. 20
4. (a) Write notes on the following : 20
- (i) Crown thinning
 - (ii) Free thinning

(b) Write down the silvicultural characteristics, artificial and natural regeneration of following tree species : 20

(i) *Acacia auriculiformis*

(ii) *Gmelina arborea*

(iii) *Shorea robusta*

(iv) *Tectona grandis*

(c) (i) Write down the various stages of growth and development of a tree. 5

(ii) Write down the factors which affect the height and diameter growth in trees. 15

SECTION – B

5. Answer any three questions of the following :

(a) (i) Write on role of forests in checking flood and erosion. 10

(ii) Discuss the different preventive measures taken for protection of forest against injury by insects. 10

(b) Discuss the types and causes of succession. 20

- (c) (i) "Forest fire is the major culprit of climate change." Justify this statement. 10
- (ii) Write a note on Global Warming. 10
- (d) Discuss the methods of determination of normal growing stock.
6. (a) (i) Write on advantages and disadvantages of sustained yield. 5
- (ii) Write a note on hydrological cycle. 10
- (iii) What do you know about muck fires and ground fires ? 5
- (b) Write on advantages and disadvantages of following silvicultural systems. $10+10 = 20$
- (i) Shelterwood system
- (ii) Clear felling system
- (c) (i) Define rotation. Write on types of rotation. 10
- (ii) Define various types of yield. 5
- (iii) Write a note on goal and objectives of working plan. 5

7. (a) (i) List out the adverse effects of wind on vegetation. 5

(ii) Write on advantages and disadvantages of Taungya system.

(iii) What are the criteria for choice of species to be raised in shelterbelt ? 5

(b) Write notes on following : 10+5+5 = 20

(i) Pruning

(ii) Improvement felling

(iii) Girdling

(c) (i) Explain the forms of soil moisture. 10

(ii) What are the functions of soil organic matter for good growth of vegetation ? 10

8. (a) (i) Write down the mechanical measures to control the damage by crickets and cutworms. 5

(ii) What are causes of illicit felling and illicit removal of forest produce ? How can these be reduced ? 10

(iii) Where the mangroves occur in India ?

Write on role and characteristics of mangrove plants. 5

(b) Write notes on the following : 10+10 = 20

(i) Simple coppice system

(ii) Watershed and its management

(c) (i) What are wastelands and the main causes of their formation ? Write on classification of wastelands as given by National Wasteland Development Board. 10

(ii) What are the features of mined areas ? Discuss the methods of soil working in these areas. List out the name of five species used for afforestation in mined areas. 10

