



ODD ONLINE MIDDLE SEMESTER EXAM 2021/2022

Subject : Silviculture (SVK322) Question : Prof. Dr Sri Wilarso Budi
Date and : Monday, October 11, 2021 Maker
time
Time : 13.00-15.00 (time limit 80 minutes) PJ Online : Dr Fifi Gus Dwiyanti
Room : newlms

A. Circle the letter B if the statement is true and the letter S if the statement is false.(VALUE 30)

1. B –S Degradation of natural forests is one of the reasons why the government launched the development of Industrial Plantation Forests in the 1970s. (LO 4)
2. B –S Silviculture is the science and art of building and maintaining forest stands with only consideration of economic benefits. (LO 1)
3. B –S Tree growth is the result of the increase in height dimensions due to cell enlargement. (LO 2)
4. B –S The growth of tree diameter occurs due to an increase in the water content in the cells. (LO 2)
5. B –S The principle of the Intensive Silviculture Technique is to manipulate the growing place and use only superior seeds. (LO 4)
6. B–S Narrow spacing can reduce the occurrence of knots. (LO 2)
7. B –S To increase seed production, trees should be fertilized with high doses of nitrogen fertilizer. (LO 6)
8. B– S Seed water content is one of the physiological parameters that must be observed in seed testing.(LO 2)
9. B– S Every living plant cell has totipotency. (LO 6)
10. B –S Propagation of plants using seeds is called vegetative propagation. (LO 6)
11. B -S Offspring from Vegetative Reproduction have different traits from their parents because the inherited genes come from two parents (LO 6)
12. B-S Offspring of generative reproduction have the same traits as their parents because the inherited genes come from one parent (LO 6)

13. B-S Seeds produced from provenance seed gardens are of better quality than seeds from CSO (LO 7)
14. B-S Seeds produced from APB are of better quality than seeds from SSO (LO 7)
15. B-S Seed production taken from SSO seed sources is in the form of seeds (LO 6)
16. B-S Seed production taken from CSO seed sources is in the form of cuttings (LO 6)
17. B-S Teak Forest in Java Island is one of the first Industrial Plantation Forests built in Indonesia (LO 4)
18. B-S Industrial Plantation Forests in Java Island are managed by State Companies only (LO 4)
19. B-S Super Teak and White Teak when planted in the same location have different growth rates because the teak has genetic differences (LO 5)
20. B-S Sea sengon with red sengon if planted in the same location have different growth rates because these sengon have genetic differences (LO 3)
21. B-S If you want to create a mixed plantation forest between *Shorea parvifolia* and *Falcataria moluccana*, the planting time must be at the same time (LO 2)
22. B-S The lack of raw materials for industrial timber from natural forests was one of the reasons why the government launched the development of Industrial Plantation Forests in the 1960s. (LO 4)
23. B-S Silvika and Economics is the basic science of Silviculture (LO 1)
24. B-S Inhutani is a state company that manages Industrial Plantation Forests in Java Island (LO 4)
25. B-S To calculate the number of seeds to be produced in the nursery, data on the area of planting (LO 5) is needed.
26. B-S *Rhizophora mucronata* seeds can be broken dormancy by scarification technique (LO 7)
27. B-S To break the dormancy of Ulin seeds, it can be done by soaking them in hot water for 24 hours (LO 7)
28. B-S Breaking the dormancy of physiologically dormant seeds was carried out using the scarification technique (LO 7)
29. B-S Clandestain seeds are seeds circulating in the market whose origin is unknown (LO 7)
30. B-S The media needed to germinate seeds requires media that have high fertility, are porous and free from potential diseases (LO 7)

**B. Choose the most correct answer by circling the letter in front of the answer.
(VALUE 20)**

1. Which includes Fundamental science and is closely related to Silviculture are: (LO 1)
 - a. **Math and statistics**
 - b. Wood Biology
 - c. Forest Diseases
 - d. Economics

2. What is not included in the duties of a silviculturalist are: (LO 1)
 - a. Controlling the composition and structure of plantation and natural stands
 - b. Harvest facilitation, marketing
 - c. Protection and rescue of treads and trees
 - d. **Processing timber and non-timber forest products**

3. The role of water in photosynthesis is: (LO 3)
 - a. **Proton generator to increase energy**
 - b. CO₂ . solvent
 - c. CO₂ . reagent
 - d. b and c

4. The light reactions in photosynthesis will result: (LO 3)
 - a. **ATP/NADP**
 - b. Carbohydrates
 - c. Fat
 - d. Protein

5. The dark reaction is the process of binding by ATP/NADP (LO 3)
 - a. **CO₂**
 - b. water
 - c. Light
 - d. Carbon

6. Mycorrhizae are: (LO 6)
 - a. Fungi
 - b. Bacteria
 - c. **Symbiosis of fungi and roots**
 - d. Symbiosis of bacteria and roots

7. Rhizobium are: (LO 6)
 - a. Fungi
 - b. **Bacteria**
 - c. Symbiosis of fungi and roots
 - d. Symbiosis of bacteria and roots

8. The roles of Mycorrhizae in tree growth include: (LO 6)
 - a. **Releasing nutrients, especially P which is bound by other elements**
 - b. Absorbs nutrients, especially N which cannot be absorbed by plant roots
 - c. Fixing P
 - d. Fixing N

9. The role of Rhizobium in Tree Growth is: (LO 6)
 - a. Absorbs nutrients, especially P which cannot be absorbed by plant roots
 - b. **Changing nutrients, especially N from N₂ to NH₄⁺ so that it can be absorbed by plant roots**
 - c. Fixing P
 - d. Absorb N

10. Trees that can form ectomycorrhizae: (LO 7)
 - a. *Intsia bijuga*
 - b. *Swietenia mahagoni*
 - c. *Tectona grandis*
 - d. *Melia azedarach*

11. Trees that can form endomycorrhizae: (LO 7)
 - a. *Intsia bijuga*
 - b. *Peronema canescens*
 - c. *pine merkusii*
 - d. *Dipterocarpus retusus*

12. Trees that can form root nodules: (LO 7)
 - a. *Shorea leprosula*
 - b. *Intsia bijuga*
 - c. *Tectona grandis*
 - d. *Melia azedarach*

13. Nutrients that regulate the opening and closing of stomata: (LO 3)
 - a. N
 - b. P
 - c. K
 - d. Ca

14. Transport of seeds from the nursery to the field is good: (LO 6)
 - a. Low seedling damage and mortality
 - b. Easy and practical
 - c. Inexpensive
 - d. a, b and c are correct

15. Uses of nursery administration: (LO 5)
 - a. Nursery work efficiency
 - b. Easy control
 - c. a and b are correct
 - d. a and b are wrong

16. Seeds of forestry plants need to be sown in sow beds first, except: (LO 2)

a. The percentage of sprouts is usually low	c. The price is expensive
b. The size is very small	d. Many pests and diseases

17. Seed treatment is mainly required for, except: (LO 7)

a. break seed dormancy	c. accelerate germination
b. uniform germination	d. kill pests and diseases

18. The following are types of seed treatment, except: (LO 7)

a. soaked in water accuc	c. thought
b. burning	d. seed coat removed

19. Media for sow beds should be: (LO 6)
- a. sterile sand
 - b. sterile soil
 - c. **sterile compost**
 - d. sterile parchment paper

20. The following materials can be used as weaning media: (LO 6)
- a. sawdust compost
 - b. rice husk compost
 - c. *top-soil*
 - d. **everything is correct**

C. Choose the most appropriate statement by crossing (X) the letter in front of the most appropriate statement (if there is more than one correct statement, then choose the statement that states it, more than one answer).(VALUE 20)

1. a. Plant biomass will increase if respiration is greater than photosynthesis. (LO 3)
b. Plant biomass will increase when catabolism occurs.
c. Plant biomass will increase when anabolism occurs.
d. **Plant biomass will increase if photosynthesis is greater than respiration**
2. a. Photosynthesis can occur in the presence of light, carbon dioxide (CO₂) and water (LO3).
b. If all the components are met, photosynthesis can occur with the help of fluorescent light rays.
c. Photosynthesis also occurs in other creatures besides plants.
d. **Statements b and c are true.**
3. a. Sow beds are used because we are not sure that the germination of the seeds sown is 100%. (LO 6)
b. Sow beds are used because we want to have relatively uniform sprouts.
c. Sow beds are used because we want to make a selection of sprouts.
d. **Statements a, b, and c are true.**
4. a. Compost in the seedling media makes the seedling media more compact. (LO 7)
b. Compost in the seedling media will make the nutrient content in the seedling media higher.
c. Compost in the seedling media will make the seedling media lighter.
d. **All statements above are true.**
5. When germinating sengon seeds, start to germinate after; (LO 5)
a. **4 days;** b. 8 days; c. 12 days; d. 16 days.
6. Generally, the pine nursery lasts for (from the date of sowing to the date the seedlings leave the nursery): (LO 5)
a. 2 months; b. 3.5 months c. 5 months d. **12 months.**
7. Generally Sengon seeding lasts for (from the date of sowing to the date the seedlings leave the nursery): (LO 5)
a. 2 months; **b. 3.5 months;** c. 5 months; d. 12 months.
8. Pre-treatment of walnut seeds is: (LO 5)
a. **Soaked at night and dried in the sun during the day.**
b. Soaked in hot water (85 oC for 3 minutes) then soaked in plain water.

- c. The seed coat is scraped or filed.
 - d. Soaking with sulfuric acid.
9. With hardening off, then: (LO 2)
- a. The shoot-root ratio will increase.
 - b. The root-shoot ratio will increase.**
 - c. The nutrient content in the plant body will increase.
 - d. Statements a and c are true.
10. The principles of the Intensive Silvicultural Technique (Silin) are: (LO 4)
- a. Growing Place Manipulation
 - b. Use of Superior Seeds
 - c. Plant Protection
 - d. All statements (a, b and c) are true.**
11. The stages of selecting tree species for planting activities that must first be considered are: (LO 4)
- a. Ecological suitability of species with planting area.**
 - b. planting purpose.
 - c. Availability of planting seeds.
 - d. Mastery of silvicultural techniques.
11. Sengon seed requirements for planting an area of 1 ha are (4 x 5 m spacing, number of seeds/kg 40,000, % seed failure 20, % manure 20, % sprouts 90) (LO 5)
- a. **0.26 kg**
 - b. 0.36 kg
 - c. 0.21 kg
 - d. Nothing is right
12. Orthodox seeds, in their storage require the following conditions: (LO 5)
- a. **Dry and cold**
 - b. Dry and warm
 - c. Humid and cold
 - d. Moist and warm.
13. Recalcitrant seeds, generally have the appearance and show the impression: (LO 7)
- a. Relatively small and hard.
 - b. Relatively small and soft.
 - c. Relatively large and hard.
 - d. Relatively large and soft.**
14. If one of the following nutrients is given a little too much in the nursery, it will make the seedlings become succulent (looking like overweight): (LO 6)
- a. Calcium (Ca)
 - b. Phosphorus (P)
 - c. Nitrogen (N)**
 - d. Potassium (K)
15. Fertilizing seeds must pay attention to: (LO 7)
- a. Fertilizer dosage
 - b. Fertilizing time
 - c. Fertilizer placement

d. a, b and c are correct

16. The functions of P elements include: (LO 7)
- Components of ATP as chemical energy for metabolism
 - Helps active nutrient absorption
 - a and b are correct
 - a and b are wrong

17. The functions of the N elements include: (LO 7)
- Protein Builder
 - Chlorophyll
 - a and b are correct
 - a and b are wrong

18. When a seed germinates, the first to appear are: (LO 6)
- Root
 - shoots
 - Roots and shoots
 - Everything is correct

19. When planting cuttings, generally the first to appear is (LO 6)
- Root
 - shoots
 - Roots and shoots
 - Everything is correct

D. Match the statements in column B with the correct pairs in column C, and write the answers in column A (Score 30)

No	A	B	C
1	B	Soil fertility in wet tropical forests (LO 1)	A. Natural forest and plants
2	G	Characteristics of wet tropical forest soil (LO 1)	B. Pseudo
3	F	Techniques for getting superior seeds (LO 6)	C. <i>Drobalanops aromatica</i>
4	E	Requirements for mangrove nursery locations (LO 5)	D. Same as parent
5	D	Vegetative reproduction (LO 6)	E. tidal
6	A	Application of Silin (LO 4)	F. Genetic engineering
7	J	Types of trees planted for HTI Carpentry (LO 4)	G. Sour
8	I	Types of trees planted for Fiber HTI (LO 4)	H. <i>Callaindra calothirsus</i>
9	H	Types of trees planted for HTI Energi (LO 4)	I. <i>Paraserianthes falcataria</i>
10	C	Types of trees planted for non-timber forest product HTI (LO 4)	J. <i>Swietenia macrophylla</i>
11	O	Kind of Tree of Life (LO 4)	K. Seed Mutation

12	N	Seed mortality rate (LO 7)	L. Rawang forest
13	L	HTI location (LO 4)	M. Prerequisites for building HTI
14	M	Environmental, economic and social aspects (LO 5)	N. Transportation Method
15	K	Nursery Administration (LO 5)	O. IUPHHK-HTI Spatial Planning