THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY
SCHOOL OF FORESTRY – TARAKA CAMPUS
FACULTY OF NATURAL RESOURCE

FR 314: FOREST MANAGEMENT PLANNING 1 & 2
SEMESTER ONE (1) EXAMINATIONS / 2024

INFORMATION TO CANDIDATES:

DATE OF EXAMINATION:	29th May 2024
TIME EXAMINATION STARTS:	8:20 am
TIME EXAMINATION FINISHES:	11:20 am
TIME ALLOWED:	3 Hours
VENUE:	School of Forestry Biology Laboratory
TOTAL SCORE:	102 Marks
NO. OF CANDIDATES:	40

THIS EXAM WILL CONTRIBUTE 50% TOWARDS YOUR FINAL ASSESSMENT.

INSTRUCTIONS:

1. Write down your name and Student number clearly on the answer sheet and Attendance slip. Do it now.
2. You have 10 minutes to read through the exam paper.
3. Write all your answers in the separate examination book provided.
4. You are to attempt all questions in this exam
5. Value of each question is indicated by the mark beside it
6. Write and explain as much as possible or do calculations for each of the questions
7. THIS IS A OPEN BOOK EXAM
8. Turn off all cell phones now;.

A. Please choose a correct answer. (Mark: 30)

1. The goal of Forest Management Planning (FMP) could be (1) Develop sustainable forest management, (2) Develop healthy forest, (3) Fast getting revenue.

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

2. Conservation forest area in the FMP could be for (1) ecotourism, (2) healing, (3) log extraction

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

3. Pioneer tree can be found in the forest of (1) plantation, (2) primary, (3) secondary

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

4. Pruning can be happened in the forest of (1) plantation, (2) primary, (3) secondary

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

5. A normal distribution of tree diameter can be found in the forest of

   a. plantation b. primary c. secondary d. all

6. A full covering area at any forest layer can be found in (1) plantation forest, (2) primary natural forest, (3) secondary natural forest.

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

7. Resin can be tapped from tree species of (1) agathis, (2) pine, (3) taun

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

8. Common treatments to the forest for better yield are (1) enrichment planting, (2) intensive fertilizing, (3) pruning.

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

9. Protection forest could serve for (1) prevent soil sliding, (2) resin tap, (3) water reservoir.

   a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

10. Continuous logs productions in PNG from (1) natural forest, (2) plantation forest, (3) SABL.

    a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

11. Allowable cutting area (ACA) is (1) total area, (2) conservation area, (3) unproductive area.

    a. 1 - 2 b. 1 - 3 c. 2 - 3 d. 1 - 2 - 3

12. Carbon sequestration process needs (1) CO_2, (2) H_2O, (3) O_2, (4) sunlight.

    a. 1, 2 & 3 b. 1, 2 & 4 c. 2, 3 & 4 d. 1, 2, 3 & 4

13. In the photosynthetic process, it can be produced (1) energy, (2) oxygen, (3) cellulose.

    a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

14. Multi time horizon planning ensures to (1) enforce the advantages, (2) get more revenue, (3) reduce disadvantages.

    a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

15. Advantages of plantation forest (1) fast getting revenue, (2) get prime logs quality, (3) shorten cutting cycle with fast growing species plantation.

a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

16. Logs from PNG are mostly dominated by (1) broadleaf, (2) hardwood, (3) softwood.

a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

17. Environmental Impact Assessment activities should be applied for the projects of (1) forest concession, (2) plywood mill, (3) sawmill.

a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

18. Environmental Impact Assessment is important to ensure (1) affordable impact, (2) great revenue, (3) green activity.

a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

19. Annual Allowable Cut is applied in the

a. natural forest b. plantation forest c. SABL project d. all activities

20. Non timber forest products from PNG could (1) agarwood, (2) massoy oil, (3) rattan.

a. 1 & 2 b. 1 & 3 c. 2 & 3 d. 1, 2 & 3

B. Please answer accordingly. (Mark: 72)

B. 1. Please answer these questions accordingly (Plantation Forest)

Note: i = your number (1 to 40).

1 How much the yield of yours (number i) (m3/ha)

Formula:

2 How much the diameter of yours (cm)

Formula:

3 How much the annual increment (AI) of yours (i to i+1) (m3/ha/y)

Formula:

4 How much the periodic annual increment (PAI) of yours (i to i+2) (m3/ha/y)

Formula:

5 How much the mean annual increment (MAI) of yours (i+2) (m3/ha/y)

Formula:

6. Write down please. Equation and R^2 of the yield with (x axis for age [year]; y axis for yield [m^3/ha]), using polynomial approach at order 2.

   a. Equation:

   b. R^2:

7. Which age the stand is recommended for cutting. Please approach with AI & MAI graphics.

   a. Age:

   b. Why:

B. 2. Please answer these questions (Natural Forest)

1 Total tree volume of Protected species
Formula:

2 Total tree volume of cutting species
Formula:

3 Total tree volume of all species
Formula:

4 Total tree volume of cutting species, Ø ≥ 40 cm

If the data is from 3,000 ha

5 How much AAC if the area is for 15 years operation (m3)