Module(Course Syllabus)Catalogue

2022-2023

College/ Institute	Khabat Technical Institute	
Department	Medicinal Plants Production	
Module Name	Botany and plant physiology	
Module Code	BPP104	
Semester	1	
Credits	7	
Module type	Prerequisite [ ] Core [*] Assist. [ ]	
Weekly hours	5	
Weekly hours (Theory)	(2)hr Class	( )hr Workload
Weekly hours (Practical)	(3)hr Class	()hr Workload
Lecturer (Theory)	Nazar Mohammed Samein	
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Lecturer (Practical)	Nahla Mohammed Ali Khaleel, NazarAljaf,	
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Course Book

Course Description	**Students benefit from General Botany to identify the parts of the plant in general and on the plant cell and its parts and to know the types of plant tissues and types of cellular divisions also roots and their movements, stems and their types, parts of the plant leaf r and their types, flowers, fruits and seeds and identify the effects of the environment on the structure and the appearance of the plant.** **Students benefit from plant physiology in identifying the biochemical reactions occurring within the cell of the plant.** **In addition , to know the physiological interactions and their effects on plant life**
Course objectives	**The plant and its parts, and the knowledge of the types of plant tissues and types of cellular divisions and roots and their movements and stems and types and parts of the paper and types, flowers, fruits and seeds and identify the effects of the environment on the structure and the appearance of the plant. Students become able to distinguish the parts of the plant and the types of each part and its variations.** **Identify the chemical reactions that occur in plants to determine their effects on plants.** **At the end of the course, students will become understand the mechanism of physiological interactions that affect plant life.**
Student's obligation	**Attendance of students in classes is necessary, as non-attendance has negative effect on student's perception.** **Writing reports particularly in practical lessons as well as to scientific excursion.**
Required Learning Materials	**Use white board** **Data show** **Power point**

	Internet **Real parts of plant** **The lectures are presented in classes to students in different ways including data show, PowerPoint, manual papers and white boards. However, they are presented to student via lecturers' portal in university's website.**
Assessment scheme	**16% Mid Term (Theory and practical)** **4% Quiz** **40% Assignment (report, paper, homework, seminar..)** **25% final practical** **15% final theory**
Specific learning outcome:	**There are different methods to evaluate students in lessons; involving:** **1- Quiz the students or debate the subject to be more students included in the discussions.** **2- Writing reports for most subjects especially student projects to be ready for seminars.** **Testing students is required seasonally as well as final exam of year.**

Course References:	**1. Schmidt, Diane., Davis, Elisabeth B. (Eds.) (2006) Guide to reference and information sources in plant biology.** **2. Taiz&Zeiger (2006) Plant Physiology. 4th Edition. Sinauer.** **3. Taiz L &Zeiger E (2002) Plant Physiology. 3 rd Edition .** **4. Curtis, Lersten and Nowak(2002) Plants And Their Structure**

Course topics (Theory)	Week	Learning Outcome
1 -Botany and its relationship to other sciences- The importance of the plant	**1**	
2- Plant shapes and types- plant body composition	**2**	
3 - Plant Cell -Cell wall - Types of cells- Protoplast	**3**	
4 - Plant Tissue	**4**	
5 - Cell divisions	**5**	
6 - Root - types of roots according to origin and function	**6**	
7 - Introduction to plant physiology	**7**	
8 - Osmotic pressure - inflation pressure - factors affecting the osmotic pressure - the relationship of the plant cell to the osmotic property	**8**	
9 - Photosynthesis - chloroplasts - photosynthetic pigments - absorption of light energy - the mechanism of photosynthesis	**9**	

10 -Respiration - respiratory ratio - mechanism of respiration - aerobic stage - anaerobic stage	**10**	
11-Transpiration - factors that affect transpiration - types of transpiration	**11**	
12 - Growth regulators - auxins - gibberellins Cytokinins - ethylene - abscisic acid	**12**	
Practical Topics	**Week**	**Learning Outcome**
1. Compound microscopy and preparation permanent slide	**1**	
2. Plant cell and types of plant cells and their functions	**2**	
3. Plant tissue	**3**	
4. Root and their functions and types	**4**	
5. Stem and Bud and their functions and types	**5**	
6. leaves and their functions and types	**6**	
7. Flower, inflorescence and their functions and types	**7**	
8. The fruit, The seed and its types	**8**	
9.The relation between water and plant, photosynthesis	**9**	
10. Respiration and Transpiration	**10**	
11. Plasma - Types of Plasma - Common Types of Plasma	**11**	
12.The plant movement and plant growth hormones	**12**	

Questions Example Design(in practical botany and plant physiology)

Question:
What is the scientific meaning of Botany is used in biological sciences?
Biological Sciences:
Biological science is also known as life science or biology subject. This subject has various concepts which are very important, so every person

should have a clear understanding of the basic concepts of biological sciences.

botany, branch of biology that deals with the study of plants, including their structure, properties, and biochemical processes. Also included are plant classification and the study of plant diseases and of interactions with the environment

1. **Which of the following is a gaseous hormone?**
   a) Ethylene
   b) ABA
   c) GA
   d) Auxin
   Answer:a
   Explanation: Ethylene is a volatile gaseous hormone. GA, ABA and Auxin are acidic in nature. GA and Auxin are growth promoters while ABA is a growth inhibitor

   Which of the following hormone is a stress hormone?
   a) Ethylene
   b) ABA
   c) Auxin
   d) GA

   Answer: b
   Explanation: ABA is a hormone which works in stressful conditions. GA acts antagonistic to ABA. Auxin leads to apical dominance. Ethylene is related to early ripening of fruits.

   Which among the following is incorrect about the root?
   a) Radicle grows to form a primary root inside the soil
   b) From the primary roots grows the secondary roots from lateral surfaces
   c) Most of the monocotyledons adopt tap root system
   d) Adventitious roots are present in Banyan tree

View Answer

Answer: b

Explanation: Radicle grows to form a primary root inside the soil. Radicle grows to form a primary root inside the soil. Most of the dicotyledons adopt tap root system. Adventitious roots are present in Banyan tree.

. Which among the following is incorrect about aestivation?

a) Arrangement of sepals or petals in a floral bud with respect to the other members of the same whorl is called aestivation

b) In valvate aestivation, sepals or petals in a whorl just touch each other at the margin, without overlapping

c) In twisted aestivation, margin of a sepal overlaps with that of the next one and so on in either clock-wise or counter clock-wise direction

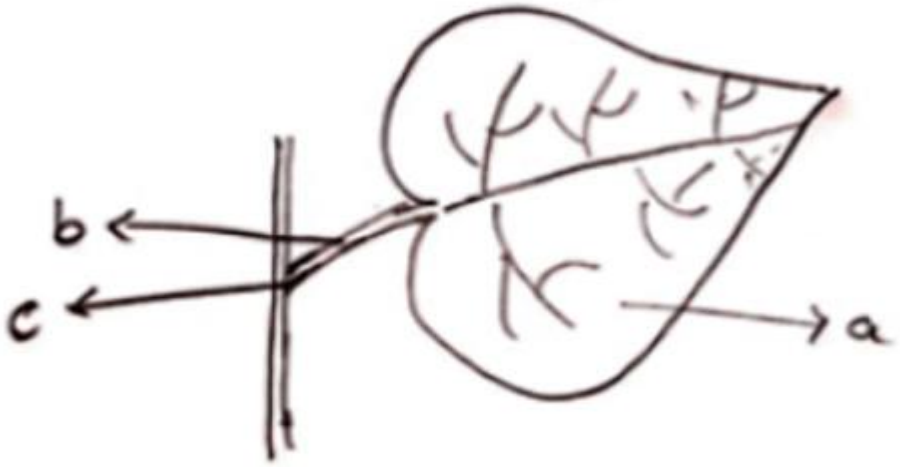
d) Gulmohar flower is an example of twisted aestivation

View Answer

Answer: d

Explanation: Arrangement of sepals or petals in a floral bud with respect to the other members of the same whorl is called aestivation. In valvate aestivation, sepals or petals in a whorl just touch each other at the margin, without overlapping. In twisted aestivation, margin of a sepal overlaps with that of the next one and so on in either clock-wise or counter clock-wise direction. Gulmohar flower is an example of imbricate aestivation

Which among the following is correct about the following structure?



a) a-Petiole; b-Lamina; c-Leaf base
b) a-Leaf base; b-Lamina; c-Petiole
c) a-Petiole; b-Leaf base; c-Lamina
d) a-Petiole; b-Leaf base; c–Leaf blade
Answer: a
Explanation: The green expanded surface on the leaf is called Lamina or leaf blade. The stalk like structure that attaches the leaf to the stem is called petiole. The part of the leaf at one end of the petiole and attaches the leaf to the node is called the leaf base.

9. Spines in cactus are due to _____
a) modifications of leaves
b) modifications of stem
c) modifications of flower
d) modifications of bud
View Answer
Answer: a
Explanation: Spines in cactus are due to modifications of leaves. Cactuses are mainly found in arid regions. So, in order to reduce transpiration of water leaves modify themselves into spines.

Extra notes:

External Evaluator