



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
JURUSAN BIOLOGI

Kampus Ketintang, Jalan Ketintang, Surabaya 60231

Telepon: +6231- 8296427, Faksimil: +6231- 8296427

Laman: <http://biologi.fmipa.unesa.ac.id>, email: biologi@unesa.ac.id

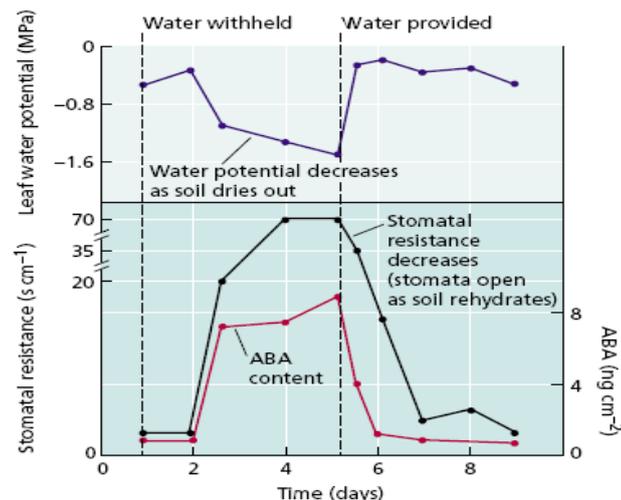
FINAL EXAM of EVEN SEMESTER 2019/2020

Course : Plant Physiology
Lecturer : Dr. Yuni Sri Rahayu, M.Si., Dr. Yuliani, M.Si., Sari Kusuma Dewi, S.Si., M.Si
Class : Biology Education/2018/A/B/U
Day/Date : Monday/11 May 2020
Time : 100 minutes

Instruction:

Please answer the questions below briefly and clear if you think necessary to add graphics or pictures!

1. Explain the relationship between Photosynthesis, Respiration, and Nitrogen (N) Metabolism using the schematic! (Score 10).
2. List the stages of fatty acid synthesis! (Score 10).
3. The process of seed germination and seed dormancy is controlled by the composition of the Plant Growth Regulators. State what ZPT effects and explain how the mechanism is. The sequence starts from seed germination and seed dormancy! (Score 15)
4. Look at the picture below. What physiological mechanisms occur in these plants when they are under water stress and well supplied with water? (Score of 20)





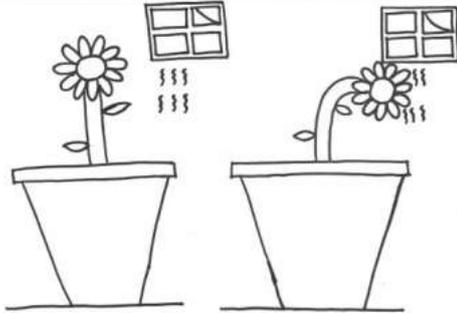
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5. Biology students plant sunflowers near windows that exposure to light. After several weeks, the direction of the sunflowers' plant growth turns to the windows. (Score 15)



Why did this event happen? Give your opinion and the underlying theory?

6. In ancient times, the Chinese had the custom of placing citrus fruits near the incense for praying places. It is believed can accelerate fruit ripening. Explain your opinion scientifically! (Score 15)
7. From the picture below, it can see that plants are moving. (Score 15)
- State what motion the plant does?
 - Explain the mechanism that causes the plant motion to occur?





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FINAL EXAM of EVEN SEMESTER 2019/2020

Course : Innovative Learning I
Lecturers : Prof. Dr. Muslimin Ibrahim, M.Pd dan Tim
Class : Biology Education 2018
Day/Date :
Time : 100 menit

INSTRUCTIONS:

Final Exam is carried out in the form of a Performance Test which consists of: (1) Performance Learning Design According to Certain Models and (2) Learning Implementation

1. Design Performance:

Compose a lesson plan with supporting devices, which refer to the one learning model or Learning Strategies derived from Innovative Learning 1: namely Direct Instruction, Learning Strategies, SET, Concept Attainment Model, Meaningful Learning, or discussion. (Assessment based on the design product)

2. Learning Performance:

Record your performance in Learning process by implementing the design that you made it on number 1. Learning is not involving students. Focus a recording is on your performance implementing the lesson plan (An assessment based on your working on the video recording)

Note : The design selected must be the same as that shown in the video. Send all design products and video recordings of your performance to the google drive address that already set

Assessment Sheet of Learning Design Product

Number	Aspect Assessed	Score			
		1	2	3	4
1	The learning design has an identity which at least contains units Education, Topic or subject, class, semester, and Time Allocation				
2	There is a basic competency formula quoted from the related curriculum				
3	There is a representative indicator formula basic competence. Indicator formula consists of a verb operational and content (material) lessons				
4	There is a complete goal formula contains components A, B, C, and D or minimum A and B and C is the assessment condition				
5	There are subject matters in accordance with indicator				



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Number	Aspect Assessed	Score			
		1	2	3	4
6	Has an early learning activity stage in the form of motivating activities, apperception, and delivery of that goal packaged as one the intact activity aims to emerge problem or learning topic				
7	Have outlined the core activity stages in the form of problem-solving activities that appears in the initial activity or activities to elaborate on emerging topics on activities early. In the end, there are core activities answer to a problem or elaboration on topics				
8	Has a closing activity stage aims to increase student retention such as summarize or evaluate or give follow-up or search assignments application form learned concept				
9	In the three stages of learning (items 6, 7, 8) explicitly designed steps (syntax) modeled learning or strategy3				
10	Have an adequate assessment design (according) with indicators or objectives which is designed to be assessed				
	<i>Total score 40 (Forty)</i>				

Observation Sheet Learning Performance (Based) VIDEO

Number	Aspect Assessed	Score			
		1	2	3	4
1	Students do an induction set for do apperception, motivation, delivery of objectives in order raises problems, question or subject matter				
2	Students do the core activities relevant to the problem, question, or topic as well as following the model syntax steps selected completely				
3	The media used is very suitable to convey messages during learning				
4	The teacher's voice is not monotonous there are times when the sound is loud, to emphasize there are moments of silence allow students to think.				
5	Time allocation is enough according to plan which has been made.				



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Number	Aspect Assessed	Score			
		1	2	3	4
6	Communication skills, use of language, selection of vocabulary and skills explain shows every skill under the the current learning situation				
7	Have a draft assessment adequate (according) with indicators or that purpose designed to be assessed				
8	At the end of the core activities, all problems or questions answered and the topic of the lesson has been elaborated according to the content the learning that must be conveyed				
9	Students do closing activities for strengthening student retention in a way make a summary, evaluation, or form of application forms concepts that have been learned.				
10	In general, the whole process learning that has been done shows the learning model or learning strategy ones selected				
	<i>Total score 40 (Forty)</i>				

Assessment rubric:

For each item, give a maximum score (5) if the student's performance shows design/activity such as a description of the aspects being assessed, and gradually reduced (4, 2 or 1) in line with the reduced quality of the design/performance so that it differs from demands description



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FINAL EXAM of EVEN SEMESTER 2019/2020

Course : Genetics
Lecturers : Prof. Dr. Endang Susantini, M.Pd. and Team
Class : Biology Education/2018
Time : 100 minutes

Answer the question in the answer sheet.

- An inbred strain of plants has a mean height of 24 cm. A second strain of the same species from a different country also has a mean height of 24 cm. The F1 plants from a cross between these two strains are also 24 cm high. However, the F2 generation shows a wide range of heights; the majority are like the P1 and F1 plants, but approximately 4 of 1000 are only 12 cm high, and 4 of 1000 are 36 cm high.
 - What mode of inheritance is occurring here?
 - How many gene pairs are involved?
 - How much does each gene contribute to the plant height?
 - Indicate one possible set of genotypes of the P1 and F1 plants that could explain their heights.
 - Indicate one possible set of genotypes to account for F2 plants that are 18 cm or 33 cm high
- Marian's father is colorblind, as is her maternal grandfather (her mother's father). Marian herself has normal color vision. Marian and her husband, Martin, who is also colorblind, have just had their first child, a son they have named Mickey. Please answer the following questions about this small family.
 - What is the probability that this child will be colorblind?
 - Three sources of the colorblindness allele are mentioned in this family. If Mickey is colorblind, from which of these three men (Marian's grandfather, Marian's father, or Martin) did he inherit the allele?
- An individual is heterozygous for four genes, named a, b, c and d. The mutations are recessive. This individual is test-crossed with another individual who is homozygous recessive for all 4 traits. 1,000 progeny are found as follows:

phenotype	progeny
$ab^+c^+d^+$	42
a^+bcd	43
$a^+b^+c^+d$	140
$abcd^+$	145
ab^+cd^+	6
a^+bc^+d	9
a^+b^+cd	305
abc^+d^+	310



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Which genes, if any, are linked?