KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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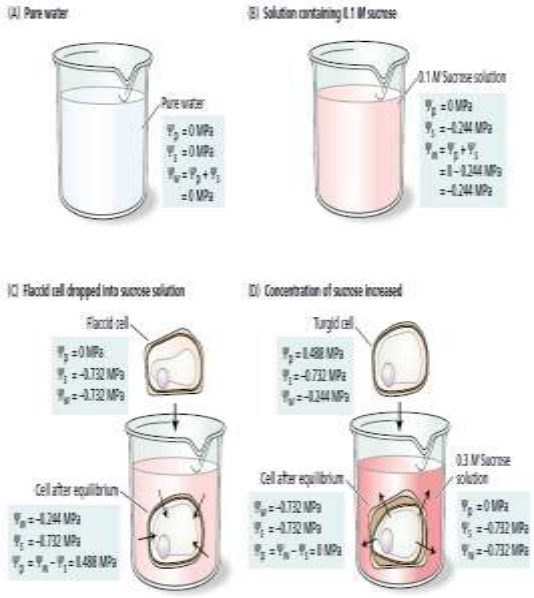
MID-TERM EXAM of EVEN SEMESTER 2019/2020

Course	:	Plant Physiology
Lecturers	:	Dr. Yuni Sri Rahayu, M.Si,
Class		Dr. Yuliani, M.Si,
Day/Date		Sari Kusuma Dewi, S.Si., M.Si.
Time	:	Biology Education 2018
	:	23 March 2020
	:	100 menit

Instructions:
1. This mid-term exam is an open book exam
2. Answer the questions below correctly if it is needed to write a table or picture!
3. Answers made separately (for each lecturer)
4. All mid-term exam answers are submitted to PIC and PIC will make a folder for each lecturer
5. Waited for answer until 18.00 (already to email Mrs. Yuli and Mrs. Yuni)
6. Email Mrs Yuli = yuliani@unesa.ac.id
7. Email Mrs Yuni = yunirahayu@unesa.ac.id

QUESTION A (Mrs. YUNI)

1. A. Observe the following picture. What happens to the condition of the cells in solutions C and D based on the relationship between the concepts of water potential, osmotic potential, and turgor potential? (score 7.5)



B. What happens if we fertilize plants more than the recommended dosage? (score 5)

C. Why in determining the water potential value of a tuber tissue, must first determine the concentration of sucrose which does not cause an increase in tuber tissue length? (score 5)

2. Plants look stunted and leaves are pale. Analyze what elemental deficiency the plant is in? Use at least 2 elements in analyzing the definition (score 7.5)

3. Why the following factors influence the process of transporting water and minerals to plants? Analyze it!
   A. pH of the cell environment (score 5)
   B. light intensity (score 5)
   C. land airing (score 5)

4. A. CAM plants close the stomata during the day and open at night. Analyze whether the K + ion pumping theory can explain this? Why is the photosynthetic theory unable to explain this CAM plant phenomenon? (score 5)
   B. Which theory can explain the opening and closing of stomata in C3 plants? (score 5)

QUESTION B (Mrs. YULI)

5. Enzymes are the controllers of metabolism. Analysis of how enzyme processes regulate and control metabolism in the plant body. Use the concept of Allosteric enzymes, Product inhibition, and Feedback inhibition to answer these questions! (score 5)

6. Analyze how an Aloe vera plant can survive in subtropical, tropical, or dry climatic conditions, how can enzymes overcome these environmental stress conditions, write down the theoretical basis (score 5)

7. The process of photosynthesis begins with a light reaction which is the conversion of sunlight energy into chemical energy in the form of ATP and NADPH through a photophosphorylation reaction. Explain with pictures the difference between cyclic and noncyclic photophosphorylation, write down the difference between the two (score 7.5)

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8. Write down the difference between the light reaction and the dark reaction based on the substrate, product, and reaction site (score 5).

9. A. Give theoretical reasons why plants are classified into C3, C4, and CAM plants, what environmental conditions cause the responses of the three plants to be different? (score 5)
   B. Make 4 comparisons of the three groups of plants, one of which is taken from the reaction process. (Score 5)

10. Analyze the meaning of the pentose phosphate pathway for plants (score 5)

11. Make a table, write down the complete stages of respiration by writing down the substrate, product, place, function, and energy yield (energy form and writing down the amount of energy) obtained from breaking down 1 glucose molecule (score 7.5)

12. Explain in the picture the difference between photophosphorylation and oxidative phosphorylation! (score 5)

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GOOD LUCK

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MID-TERM 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	:	Friday, 27 March 2020
Time	:	200 menit

Instructions:

a. Do Problem I and II separately in two Microsoft Word files.
b. The file names are in the following format: NIM_Nama_Soal I / II (example: 17030244039_Alif Pratama_Soal I)
c. Answers to Question I sent to the email address: endangsusantini@unesa.ac.id cc pramitayakub@unesa.ac.id, and answers to Question II sent to sifakindana@unesa.ac.id cc pramitayakub@unesa.ac.id. The deadline for submissions is Friday, March 27 at 16.50 WIB.
d. Doing it individually, prohibited from cooperating or cheating. Allah is All-Seeing.

Question I (Prof. Dr. Endang Susantini, M.Pd)

A. Choose the most appropriate statement, write down the reasons, and circle the level of your confidence!

1. The purpose of the DI learning model is to achieve completeness ....
   A. Well structured knowledge and skills
   B. complex skills and high thinking
   C. Simple skills and high thinking
   D. unstructured knowledge and high thinking
   E. Unstructured knowledge and skills

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

2. The theory that underlies the Direct Instruction learning model is ....
   A. Pavlov's information processing
   B. Bandura's behavioral learning theory
   C. Piaget's theory of social learning
   D. Bandura Modeling
   E. Piaget's cognitive

Reason:

_____
_____

Confidence level: A. Sure, B. Not sure, and C. Not sure

3. Like other teaching models, direct teaching able to describe in terms of three features that is...
   A. syntax, types of learning outcomes, and thorough knowledge
   B. syntax, learning environment, and thorough knowledge
   C. syntax, thorough skills, and type of learning process
   D. types of learning outcomes, syntax, and learning environment
   E. Types of learning processes, syntax, and learning environment

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

4. The teacher needs to provide feedback to students with the following guidelines, except...
   A. Concentration on behavior and not desire for interpretation
   B. Immediately and follow the student's level of development
   C. helps students focus their attention on results, not processes
   D. Be specific and match the level of development of the student
   E. Give negative feedback and show you how to carry out properly

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

5. The following is an example of a knowledge test that fits the DI learning model ...
   A. Make a summary of the Ecosystem material for a maximum of 1 page
   B. Calculate the phenotypic ratio at crosses between sour fruit and fruit sweet heterozygous
   C. Draw the preserved specimens of the Echinodermata group on the existing sheet provided
   D. Construct a simple respirometer to measure the insect's respiratory rate during 15 minutes
   E. Make recycled plastic waste products used in the school environment

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

6. The learning strategy is a cognitive strategy used...
   A. teachers to solve learning problems
   B. teachers to improve higher thinking skills
   C. students to improve critical thinking skills
   D. students to solve complex problems
   E. students to solve learning problems

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

7. The following characteristics of an independent learner are as follows, except...
   A. Monitor the effectiveness of the strategy
   B. choose a specific learning strategy
   C. able to work individually
   D. diagnose specific learning situations
   E. Be motivated in learning situations until the problem is resolved

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

8. The stages of making a mind map are as follows, except...
   A. Save the mindmap in an image file, PowerPoint, or pdf
   B. reading and underlining the material reading book
   C. Give color to branches and words
   D. placing the central idea / main concept at the center of the mind map
   E. Provide a picture/symbol on each branch

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

9. The following are the essential principles of learning using learning strategies, except...
   A. students are given the opportunity to master the application of learning strategies
   B. learning strategies are taught explicitly through the learning model
   C. the type of learning strategy must be adapted to the characteristics of the material
   D. The teacher determines the learning strategies that must be used by students
   E. The teacher asks students to monitor the implementation of learning strategies and how to improve effectiveness

Reason:

_____
_____

Confidence level: A. Sure B. Not sure C. Not sure

10. The following are the stages of a metacognitive strategy using an Assessment Sheet Self-understanding / LPPD:
    1) Identifying the problem
    2) Determine the initial knowledge
    3) Finding a concept
    4) Demonstrating knowledge
    5) Comparing concepts
    6) Provide self-assessment
    7) Determine the level of confidence

The sequence of the metacognitive stages using the correct LPPD is ....
A. 1, 2, 4, 3, 5
B. 2, 3, 4, 5, 6
C. 1, 4, 3, 5, 7
D. 2, 7, 3, 5, 6
E. 1, 7, 5, 3, 6

Reason:

_____

_____

Confidence level: A. Sure B. Not sure C. Not sure

B. Answer the following questions briefly and clearly.

Questions 1-3 are based on the following story.

Mrs. Ani is a Biology teacher in class XI SMA. In cell material, Mrs Ani choose to do it learning using the Direct Instruction model. At the beginning of Bu Ani's learning presents a video in which there is a cross-section of the following plant cells the function of these cell parts, followed by conveying learning objectives. Bu Ani also explained that the cell cross-section of each plant is different, therefore to find out how the cell of a plant we need to observe the cell under the microscope. Bu Ani gives an example of how to cut plant parts (leaf), put it on the glass object that has been dripped with water, cover it using cover glass, and observe it in a microscope. After that, Bu Ani asked the students to form groups and conduct cell observations leave as has been exemplified. After a while, Mrs. Ani asked for some of the group comes to the front of the class presenting the results obtained during the work in the group (there are groups that succeed and there are groups that fail). So that Mrs. Ani and students can analyze what mistakes are not allowed carried out during the observation activity. At the end of the lesson, Ani asked each group to observe different plant parts or leaves of a kind different plants, as well as presenting the results in the form of power points.

1. Is it in accordance with the learning model was chosen by Bu Ani with the characteristics of the material taught and the learning objectives to be achieved? Give reasons!

_____

_

_____

_____

_____

_____

Confidence level: A. Sure B. Not sure C. Not sure

2. Write down the DI phase according to the scenario of the learning process !

_____

_

_____

_____

_____

Confidence level: A. Sure B. Not sure C. Not sure

3. Including declarative or procedural knowledge of the material taught by Bu Ani? Explain your answer ! and what is the difference between the two?

   _____
   _
   _____
   _
   _____
   _
   _____
   Confidence level: A. Sure B. Not sure C. Not sure

4. Why is system memory included in one of the theories that support the strategy learn?

   _____
   _
   _____
   _
   _____
   _
   _____
   Confidence level: A. Sure B. Not sure C. Not sure

5. The Biology teacher is teaching acronyms on the Nitrogen Base learning material. What is the goal of the Biology teacher? Included in what kind of learning strategy create the acronym, explain!

   _____
   _____
   _____
   _____
   _____
   Confidence level: A. Sure B. Not sure C. Not sure

6. Syllabus for Biology Class XI subject matter 6, the structure and function of constituent cells tissue in the respiratory / respiratory system, the Assessment column lists:
   Test: A concept map / mind map / outline that explains the relationship between cell structures tissue constituent of the respiratory system with its function and relation to health aspects due to smoking.
   Question: Create a short learning scenario by a teacher biology, if applying the Test Assessment as suggested in the Syllabus above.

   _____
   _____
   _____
   _____
   Confidence level: A. Sure B. Not sure C. Not sure

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Question II (Dr. Sifak Indana, M.Pd.)

Look at the following lesson plan (RPP), then answer Question number 1-3.

LESSON PLAN
Study Material: Research / scientific research
Time Allocation: 4 x 40 minutes

A. Learning Objectives
1. Students can explain the steps of the investigation procedure correctly
2. Students can formulate problems in observations/experiments about life around
3. Students can formulate goals in these activities
4. Students can name reference sources that can be used in investigation / research
5. Students can make conclusions
6. Students can carry out observation/investigation activities following the procedure right
7. Students can work together in groups
8. Students can participate in brainstorming

B. Learning
- Learning Model: Buzz Group Type Class Discussion Learning
- Learning Activities:

I. Introduction
1. The teacher motivates students by asking the question What is the difference in work done by a mother when cooking with a researcher? Then from the students' answers directed at the delivery of today's learning objectives related to competencies students must master scientific work. Before the core activities begin the teacher asks students to organize yourself into small group discussions (Phase-1)

II. Learning Core
2. The teacher directs the focus of the discussion by asking students to open and study the worksheets 1a about scientific methods. The teacher asks students in groups to pay close attention to the questions in the LKS (Phase - 2)
3. Based on the questions in the LKS students are asked to discuss in small groups with active group discussion type, the teacher controls (giving questions, listening to students 'ideas, responding to students' ideas, organize the equal distribution of student activeness in the discussion, directing and delivering alternative solutions set a grace period for discussion, including taking notes discussion. The teacher also reminds students to fill out the group evaluation sheets and individual LEK 1a and LED 1a. Meanwhile, the teacher assesses the group's good performance ability and individual PK 1. (Phase-3)
4. The teacher ends the discussion, asking students to conclude the results of the discussion about work science. If it turns out that concluding something is not right, it needs to be discussed again with students until the correct results are obtained (Phase-4)
5. Based on the discussion process the teacher asks students to check the stages and their thinking process, especially from the self-evaluation they have filled (Phase-5)

III. Closing
6. The teacher ends the lesson by asking students to summarize the subject matter for the day based on the activities that have been done

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C. ASSESSMENT

1. Attitude: journal notes
2. Knowledge: written test = Quiz
3. Skills: Practice (PK 1)

Question Number 1

Based on the lesson plans, write them in the syntax table for the models and types in the lesson plans

Question Number 2

Based on the lesson plans presented what learning outcomes objectives are obtained from the learning model?

Question Number 3

Based on the Lesson plan

a. Why is it necessary to develop student worksheet?
b. Why is it necessary to develop an assessment instrument?
c. What do you think are the instruments used to measure attitudes?
d. What is form knowledge invoiced?
e. What form are skills invoiced?
f. What are media needed in teaching this learning model? Give the reason.

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MID-TERM EXAM of EVEN SEMESTER 2019/2020

Course	:	Genetics
Lecturers	:	Prof. Dr. Endang Susantini, M.Pd. and Team
Class	:	P.Biologi/2018
Day/Date	:	
Time	:	100 minutes

Anwer the question in the answer sheet.

1. Two wavy haired people (one male and one female) marry and have eight children. Of these eight, how many would you expect to be curly haired, how many wavy haired and how many straight haired, assuming that the family follows the expected statistically predicted pattern? Suppose you examine the actual children and discover that three of the eight have curly hair. What do you suppose went wrong?

2. In cats, again, black color is dominant to a special, temperature-sensitive albino gene which produces cats with dark legs, faces and tails (Siamese cats, in case you don't recognize it). A short haired (dominant) Siamese colored female is bred to a long-haired black male. They have eight kittens: 2 black, short-haired; 2 black, long-haired; 2 Siamese, short-haired; and 2 Siamese, long-haired. What were the genotypes of the two parents?

3. In cats, there is a gene which produces ticked fur (bands of different colors on each hair) called Agouti (H). The recessive allele (h) for this gene produces hair which is a solid color from end to end. In addition, there is a coat color gene which has a recessive albino allele (a) which, in the homozygote, prevents the production of any coat color pigment, resulting in a white cat with pink eyes, the traditional albino. Note that this problem has described two completely different genes. These genes are unlinked. An albino female cat is mated to a solid brown male cat. All of their offspring are Agouti. The males and females among these offspring are allowed to freely intermate, producing a flock of F2 kittens. Predict the phenotypic ratio for fur color among these many grandkittens.

4. It was suspected that two babies had been exchanged in a hospital. Mr. and Mrs. Jones received baby #1 and Mr. and Mrs. Simon received baby #2. Blood typing tests on the parents and the babies showed the following:

Mr. Jones: Type A Mrs. Jones: Type O	Mr. Simon: Type AB Mrs. Simons: Type O
Baby 1: Type A	Baby 2 : Type O

Were the babies switched? How do you know whether they were or they weren't?