المستوى الثاني - مجموعة البيولوجي ع ح.ح

لافقاريات سفلية ١٨

Mansoura University
Faculty of Science
Zoology Department
Second term- Final exam
Code : Z 202

May 2013
Second year biology
Subject: Invertebrates
Date: 29June 2013
Time Allowed: 2hr

Answer the following questions with labeled diagrams

Question One: **(20 Marks)**

a- Explain how the sucking mouth parts modified to suit its type of food.
b- Mention two different types of antennae with sexual dimorphism.
c- The structure of the wing in insects.

Question Two: Answer each of the following: **(20 Marks)**

a- With labeled drawings compare between the circulatory systems of the annelids you have been studied.
b- Give an account on the reproduction of *Daphnia* and *Allolobophora* **OR** the digestive system of *Nereis* and the locomotion of the earth worm.
c- Draw only each of the following: First maxillipeds of *Penaeus* , *Cyclops* , body wall of *Nereis* and the digestive system of *Hirudo*

Question Three: Answer **FOUR** only of the following**:** **(20 Marks)**

a- Compare between *Scolopendra* and *Iulus* (*Julus*).
b- Write briefly on the general characters of Mollusca.
c- Mention the economic importance of Mollusca.
d- Mark (√) or (×) on each of the following:
1- In Chilopoda, development is anamorphic.
2- Cephalopda have an open circulatory system.
3- Gastropods have bilateral symmetry.
4- The genital opening is anteriorly located in Diplopoda.
5- Sense organs are well developed in chitons.
e- Complete the following:
1- The body of Mollusca consists of . . . ., ..., ...
2- . . . . .and . . . . are two important processes in gastropods.
3- The sense organs of Mollusca include . . . . . ., ..., ...
4- Development of Mollusca include . . . . . .or . . . . . . .larva.
5- In Scorpion, excretion takes place by . . . .

With best wishes of success,

Prof, Dr, Ahmed Ebaid, Prof, Dr. Mohamed Fathy Mansour , Dr. Sherif Ramadan

2) Which of the following is most reliable for determining the number of viable bacteria per ml?

a. Turbidity measurement **b. Direct microscopic count**
c. Weighing the bacteria **d. None of the above**

3) In obligate aerobic bacteria, superoxide dismutase and catalase work together to convert the superoxide radical to

a. Hydrogen **b. Hydrogen peroxide** **c. Oxygen and water** **d. Ozone**

4) The process that kills the pathogens in milk and juices is called

a. Filtration **b. Tyndallization** **c. Pasteurization** **d. All**

5) The microbial diversity was illustrated in

a. Shape **b. Size** **c. Structure** **d. All**

6) The first person who observed microorganisms was

a. Antonie van Leeuwenhoek **c. Matthias Schleiden** **b. Robert Hooke** **d. None**

(Q2)

(A) Define: **(6 mark)**

1) Generation time
2) Microaerophiles
3) Cardinal temperatures
4) Oligodynamic effect

(B) Compare between each pair of the following: **(8 mark)**

1) Selective and differential media.
2) Acidophiles and alkaliphiles.
3) Microbicidal and microbistatic agents.
4) Prokaryotic and Eukaryotic cells.

(C) With clear labeled diagrams; compare and contrast between gram positive and gram negative cell wall of bacteria. **(6 mark)**

(Q3)

Discuss with illustrations: **(20 mark)**

1) Growth curve of unicellular microorganisms.
2) Binary fission in bacteria.
3) Nutritional classes of microorganisms.
4) Discuss only **TWO** of the physical methods of microbial growth control.

Examiners:

Ass. Prof. Dr. Mervat H. Hussein **Dr. Adel A. El-Morsi**

المستوى الثاني - رياضيات بحتة ر١٠١

مجموعة البولاص

الشعب: ك+ك.حيوي+ميكروبيولوجي+ك/نبات+ ك/حيوان+جيولوجيا+علوم البيئة. المادة: رياضيات بحتة – ر ٢٠١	كلية العلوم – قسم الرياضيات	دور مايو ٢٠١٣ الزمن: ساعتان التاريخ: ٢٠١٣/٠٦/١٦

أجب على الأسئلة الآتية: [٢٠ درجة لكل سؤال]

[1] أ. ابحث اتصال الدالة : $F(x,y)=\begin{cases}\dfrac{2xy}{x^2+y^2} & ; \ (x,y)\neq(0,0)\\ 0 & ; \ (x,y)=(0,0)\end{cases}$ ، وذلك عند النقطة $(0,0)$.

[١٠ درجات]

ب. إذا كانت $z=\sin^{-1}\left(\dfrac{x^4+y^4}{5x-3y}\right)$ فاثبت أن $x\dfrac{\partial z}{\partial x}+y\dfrac{\partial z}{\partial y}=3\tan z$. [١٠ درجات]

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[2] اذكر بدون برهان نظرية "جرين". حقق نظرية "جرين" بحساب كلا الطرفين لمعادلة "جرين" بالنسبة للتكامل :

$$\oint_c (x^2-6xy)\,dx+(y^2+2x)\,dy$$

حيث c هو المثلث المحيط بالمنطقة R المحدودة بالمستقيمات: $y=0$ ، $x+y=0$ ، $x=0$ مأخوذا في الاتجاه ضد عقارب الساعة. [٢٠ درجة]

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[٣] أ. اوجد قيمة التكامل $\iint_R (x^2+y^2)\,dx\,dy$ حيث R هي المنطقة الواقعة في الربع الأول للمستوى والمحصورة بين الدائرتين : $x^2+y^2=9$, $x^2+y^2=1$. [١٠ درجات]

ب. حل مسألة الشروط الإبتدائية :

$(\cos y+2x\sin y-4)dx+(x^2\cos y-x\sin y)dy=0 \quad ; y(1)=0$ [١٠ درجات]

---

[٤] اوجد الحل العام لكل من المعادلات التفاضلية الآتيـــة :

(i) $(x^2+xy+3y^2)\,dx=(x^2+2xy)dy$ [١٠ درجات]

(ii) $dx-(3\cos^2 y+x\tan y)dy=0$ [١٠ درجات]

مع التمنيات بالتوفيق ☺

المستوى الثاني - رياضيات بحتة ١٠١/

الشعب: ك+ك.حيوي+ميكروبيولوجي+ك/نبات+ ك/حيوان+جيولوجيا+علوم البيئة. المادة: رياضيات بحتة – ر ٢٠١	كلية العلوم – قسم الرياضيات	دور مايو ٢٠١٣ الزمن: ساعتان التاريخ: ٢٠١٣/٠٦/١٦

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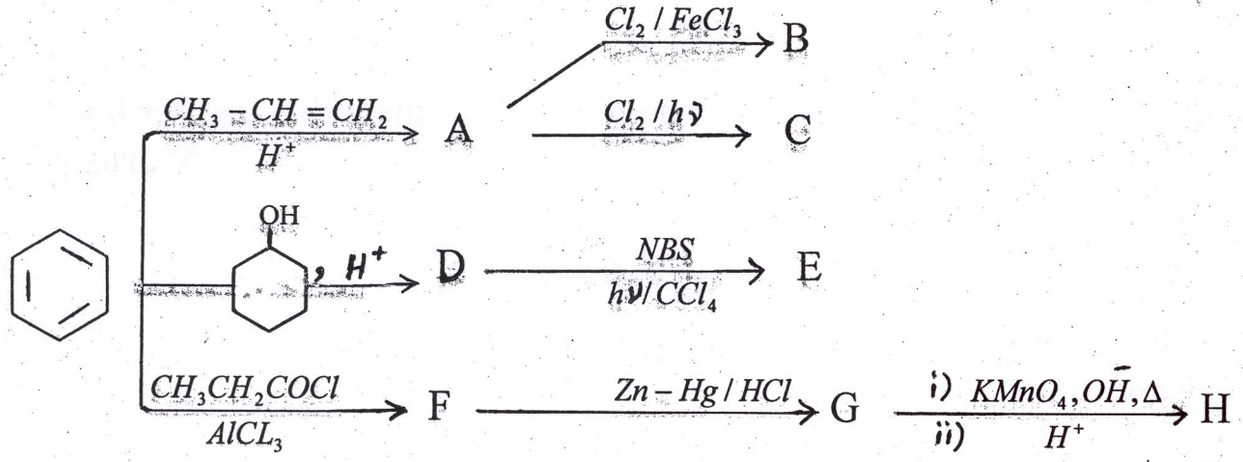
مع التمنيات بالتوفيق ☺

Mansoura University **Faculty of Science** **Chemistry Department** **Subject: Chemistry** **Course(s): Org. Chemistry 236**		**Second Term** **2 Level Chem. Students** **Time Allowed: 2 hours** **Full Mark: 80 Marks** **Date: May, 2013**

Answer All Questions

1. **A)** Draw the structures of organic products (A – H) in the following reaction sequences : **[16 Marks]**



B) On chlorination of propane, it was found that reactivity ration between 1° : 2° H – atoms is 1 : 3.25 Calculate the percentage of each isomer **[10 Marks]**

2. Predict the products : **[27 Marks]**

i) $(CH_3)_2C{=}CH_2 + ICl \longrightarrow$

ii) $CH_3-C(CH_3)_2-CH=CH_2 \xrightarrow[H_2O]{H_2SO_4}$

iii) $CH_3-CH=CH_2 \xrightarrow[H_2O]{Br_2}$

iv) $CH_3-CH_2-C(CH_3)=CH_2 \xrightarrow[ii)\,H_3O^+]{i)\,KMnO_4, \bar{O}H, \Delta}$

v) $(CH_3)_2C=CH-CH_3 \xrightarrow[ii)\,Zn/AcOH]{i)\,O_3, CH_2Cl_2, -78°C}$

المستوى الثاني - مجموعة البيولوجي - ع ح ح
لافقاريات سلوكية ومشترك

Mansoura University
Faculty of Science
Zoology Department
Second term- Final exam
Code : Z 202

May 2013
Second year biology
Subject: Invertebrates
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Time Allowed: 2hr

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With best wishes of success,

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المستوى الثاني - ديناميكا حرارية   ك ٢٤١
برامج (صيدلة - مجموعة البيولوجي)

Mansoura University
Faculty of Science
Chemistry Department
Course: Physical Chemistry
Date: 2/ 06/ 2013

Second term Examination
Subject: Chemistry (241)
Second level, Biology students
Full Mark: 60 Marks
Time Allowed: 2hours

Answer the Following Questions:

IA- Choose the response that best complete each statement: (14marks)

1- With thermodynamics, one cannot determine __________.
(a) The speed of a reaction
(b) The direction of a spontaneous reaction
(c) The extent of a reaction
(d) The value of the equilibrium constant

2- A reversible process is one that __________.
(a) Can be reversed with no net change in either system or surroundings
(b) Happens spontaneously
(c) Spontaneous in both directions
(d) Must be carried out at low temperature

3- When a system is at equilibrium, __________.
(a) The reverse process is spontaneous but the forward process is not
(b) The forward and the reverse processes are both spontaneous
(c) The forward process is spontaneous but the reverse process is not
(d) The process is not spontaneous in either direction

4- The property of a working substance which increases or decreases as the heat is supplied or removed in a reversible manner is known as
(a) enthalpy (b) internal energy
(c) entropy (d) external energy.

5- In an irreversible process there is a
(a) loss of heat (b) no loss of work
(c) gain of heat (d) no gain of heat.

6- Which of the following is the intensive property?

(a) temperature (b) viscosity

(c) density (d) all of these

7- The temperature of the system .decreases in an _____.

(a) adiabatic compression (b) isothermal expansion

(c) isothermal compression (d) adiabatic expansion

8- Which of the following is not true?

(a) $\Delta H = q_p$ (b) $\Delta E = q_u$

(c) ΔH is always equal to ΔE (d) none of these answers

9- The specific heat capacity of air increases with

(a) Pressure (b) Temperature

(c) Both pressure and temperature (d) Volume

10- Which of the following is a reversible process?

(a) melting of ice at 0°C and 1 atm

(b) melting of ice at 25°C and 1 atm

(c) evaporation of water at 25°C and 1 atm

(d) freezing of water at -10°C and 1 atm

11- An organism can exchange matter and energy with its surroundings. Thus, any change in an organism's energy content must be balanced by a corresponding change in the energy content of the surroundings. As such, an organism is referred to as:

(a) closed system. (b) open system.

(c) isolated system (d) none of these answers

12- If a gas is heated against a pressure, keeping the volume constant, then work done will be equal to

(a)Positive (b) negative

(c) Zero (d) pressure x volume

13- Which of the following is the property of a system?

(a) Pressure and temperature (b) Internal energy

(c) Enthalpy and entropy (d) All of the above

14- When a gas expands adiabatically-

(a) No energy is required for the expansion

(b) The required energy comes from the walls of the container

(c) The internal energy of the gas is used up in doing the required work.

(d) The law of conservation of energy does not hold good.

IB- Calculate the amount of work done for the conversion of 1.00 mole of Ni to $Ni(CO)_4$ in the reaction below, at 75°C. Assume that the gases are ideal. The value of R is 8.31 J/mol-K.**(4marks)**

$$Ni(s) + 4\ CO\ (g) \rightarrow Ni(CO)_4(g)$$

IC- 3.00 moles of an ideal gas is expanded isothermally against a constant pressure of 1 atm from 2.0 liters to 10.0 liters at a temperature of 20.0 °C. Is this process spontaneous (explain why or why not)? **(4marks)**

IIA- Choose the response that best complete each statement: (14marks)

1- The internal energy U is an unique function of any state because the change in U:
(a) does not depend upon the path
(b) depends upon the path
(c) corresponds to an adiabatic process
(d) corresponds to an isothermal process

2. The specific heat of a substance is defined as the amount of the heat required to raise:
(a) the temperature of the whole substance through $1C^{o}$ at constant volume
(b) the temperature of the whole substance through $1C^{o}$ at constant pressure.
(c) the temperature of the whole substance through $1C^{o}$
(d) the temperature of the one gm, of substance through $1C^{o}$

3- When heat is added to a system, all of the following may happen EXCEPT
(a) increase in internal energy.
(b) decrease in the system's temperature.
(c) external work is done by the system.
(d) increase in the pressure in the system.

4- A system does no work even when heat is added to it. Which of the following may happen to the system?
(a) The system expands (b) The internal energy of the system increases
(c) Both a and b (d) Neither a nor b

5- Which of the following is TRUE about thermodynamics?
(a) It is based on conservation principle. (b) It deals with energy.
(c) It discusses direction of heat movements. (d) All of the above

6- In an isolated system, boundary of the system is crossed by
(a) Heat (b) Work
(c) Mass (d) Both (a) and (b)

7- Which term is not correctly matched?

(a) endothermic – energy is absorbed

(b) universe – system plus surrounding

(c) thermodynamic state – conditions specifying the properties of a system

(d) state function – property dependent on the process takes place

8- Which of the following statement is incorrect?

(a) For a pure gas, the standard state is the gas at a pressure of one atmosphere.

(b) For a substance in solution, the standard state refers to one – molar concentration.

(c) A superscript zero, such as $\Delta H°$, indicates a specified temperature of 0°C.

(d) For pure substance in the liquid or solid phase, the standard state is the pure liquid or solid.

9- Consider the following reaction at constant pressure. Which response is true? $N_2(g) + O_2(g) \rightarrow 2NO(g)$

(a) Work is done on the system as it occurs.

(b) Work is done by the system as it occurs.

(c) The amount of work depends on the pressure.

(d) No work is done as the reaction occurs.

10- Which of the following set contains only extensive properties?

(a) mol, V, P (b) T, P, V

(c) H, U, V (d) density, S, C_P

11- The enthalpies of free elements in their standard are

(a) Zero (b) unity

(c) < zero (d) > zero

12- The difference between molar heat capacities of ideal gas at constant pressure and at constant volume is equal to

(a) Equilibrium constant (b) universal gas constant

(c) entropy (d) enthalpy

13- At 500 K, $\Delta_f G^\circ$ of CO is –155 kJ mol^{-1} and of FeO is –240 kJ mol^{-1}. At 1250 K, the values are –225 kJ mol^{-1} for CO and –190 kJ mol^{-1} for FeO. Which statement is incorrect for the reaction C + FeO → CO + Fe ?

(a) At 500 K, CO is thermodynamically stable with respect to graphite and O_2.

(b) Carbon will reduce FeO at 1250 K.

(c) FeO is less thermodynamically stable at 1250 K than at 500 K.

(d) At 500 K, C is oxidised to CO by FeO.

14- At any temperature T the entropy of a Solid substance (S_T) given by expression

(a) $C_P\, dT$ (b) $\int_0^T C_P \frac{dT}{T}$ (c) $C_P\, dT$ (d) $\frac{C_P - C_V}{T}$

IIB- A Carnot heat engine receives 500 kJ of heat per cycle from a high-temperature heat reservoir at 652°C and rejects heat to a low-temperature heat reservoir at 30°C. Determine. **(4marks)**

a) The thermal efficiency of this Carnot engine.

b) The amount of heat rejected to the low-temperature heat reservoir.

IIIA- Choose the response that best complete each statement: (14marks)

1- If a gas expanded at constant pressure and temperature increases. Which of the following statement is true?

(a) Work is +ve, q is –ve and ΔU is –ve

(b) Work is +ve, q is +ve and ΔU is +ve

(c) Work is -ve, q is –ve and ΔU is –ve

(d) Work is -ve, q is +ve and ΔU is +ve

2- Which statement is **false**?

(a) If a reaction is thermodynamically spontaneous it may occur rapidly.

(b) If a reaction is thermodynamically spontaneous it may occur slowly.

(c) Activation energy is a kinetic quantity rather than a thermodynamic quantity.

(d) If a reaction is thermodynamically nonspontaneous, it will not occur spontaneously.

3- For an isothermal process, the entropy change of the surroundings is given by the equation:

(a) $\Delta S = q_{sys}\, T$ (b) $\Delta S = -q_{sys}\, T$

(c) $\Delta S = q\, \ln T$ (d) $\Delta S = -q_{sys} / T$

4- Which of the following statements is false?

(a)The change in entropy in a system depends on the initial and final states of the system and the path taken from one state to the other.

(b) Any irreversible process results in an overall increase in entropy.

(c) The total entropy of the universe increases in any spontaneous process.

(d) Entropy increases with the number of microstates of the system.

5- Which of the following statements is true?

(a) Processes that are spontaneous in one direction are spontaneous in the opposite direction.

(b) Processes are spontaneous because they occur at an observable rate.

(c) Spontaneity can depend on the temperature.

(d) All of the statements are true.

6- Which of the following statements is correct?

(a) The increase in entropy is obtained from a given quantity of heat at a low

temperature

(b) The change in entropy may be regarded as a measure of the rate of the availability of heat for transformation into work

(c) The entropy represents the maximum amount of work obtainable per degree drop in temperature

(d) All of the above

7- The efficiency of the Carnot cycle may be increased by

(a) increasing the highest temperature

(b) decreasing the highest temperature

(c) increasing the lowest temperature

(d) decreasing the lowest temperature

8- Which of the following is the correct statement?

(a) All the reversible engines have the same efficiency

(b) All the reversible and irreversible engines have the same efficiency

(c) Irreversible engines have maximum efficiency

(d) All engines are designed as reversible in order to obtain maximum efficiency.

9- In which of the following process, a maximum increase in entropy is observed?

(a) dissolution of salt in water (b) condensation of water

(c) sublimation of naphthalene (d) melting of ice

10- Which of the following explains why it is **NOT** possible to extract heat from a reservoir to do work and to expel the heat to a reservoir of the same temperature as the source reservoir?

(a) Heat does not travel for objects of the same temperature.

(b) Energy is not conserved for interactions of objects of the same temperature.

(c) The working substance is not present for such a system.

(d) The engine would be very inefficient.

11- A heat engine takes in heat from a reservoir, does work using this energy and expels heat at another reservoir with

(a) the same temperature as the source reservoir.

(b) lower temperature than the source reservoir.

(c) higher temperature than the source reservoir.

(d) either higher or lower temperature than the source reservoir.

12- Who introduced the concept of heat engine and reversibility on thermodynamics?

(a) Rudolf Clausius (b) Sadi Carnot

(c) Blaise Pascal (d) Robert Boyle

13- The natural direction of heat flow is from high-temperature reservoir to a low temperature reservoir, regardless of their respective heat contents. This fact is incorporated in the

(a) first law of thermodynamics.

(b) second law of thermodynamics.

(c) law of conservation of energy.

(d) law of conservation of entropy.

14- A reaction that is not spontaneous at low temperature can become spontaneous at high temperature if ΔH is _____ and ΔS is _____

(a) +, + (b) -, - (c) +, - (d) -, +

IIIB- Given the following table of thermodynamic data, For $TiCl_4(l) \rightarrow TiCl_4(g)$.

At what temperature will the process be spontaneous? **(4marks)**

Substance	$H_f°$ (kJ/mol)	S° (J/mol)
$TiCl_4(g)$	-763.2	354.9
$TiCl_4(l)$	-804.2	221.9

IIIC-Prove for spontaneous process $\Delta A < 0$. **(2marks)**

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المستوى الثانى - مجموعة البيولوجى - مقدمة فى علم وظائف الأعضاء ج ٢

Mansoura University
Faculty of Science
Zoology Department
Final Exam. of Second Term
2nd Level

Subject: Functional Morphology
Code No: (Z 203)
Time Allowed: 2hr
Date: 5/6/2013

Programs: Chemistry/Zoology & Chemistry/Botany & Ecology & Microbiology

Answer all the following questions:

First question: [15 mark]

A- Define each of the following terms:
- a- Vital capacity.
- b- Gluconeogenesis.

B- Write a short notice on each of the following:
- a- Conversion of food proteins into amino acids.
- b- Respiratory acidosis and its effects on O2 dissociation curve.

Second question: [15 mark]

A- Put (√) or (X), and correct the wrong sentences:
- a- Citric acid cycle but not electron transport system is required for energy production from food oxidation.
- b- Glycolysis does not work in the absence of O2.
- c- Amino acids are used for energy production when they directly enter the citric acid cycle for oxidation.
- d- Adhesion of the pleural membranes facilitates lung expansion during expiration.
- e- The electrical impulses which cause the heart muscle to contract are firstly propagated by sinoatrial node.

B- Complete the following sentences:
- a- Vitamin A maintains ..... at night because ....., while vitamin ..... protects the body against megaloblastic anemia because .....
- b- Gastric acid secretion occurs in response to....., while emptying of gall-bladder is regulated by.....
- c- Deficiency of Co-enzyme A (CoA) causes .....
- d- Dicuspid valve (mitral valve) regulates ..... blood flow from ..... into .....
- e- Glucose $\xrightarrow{E1}$ .....X.....

  .....X..... $\xrightarrow{E2}$ .....Y.....

  .....Y..... $\longrightarrow$ Glycogen

[3] Third question:

Compare between each of the following:

(Illustrate your answer with labeled diagram).

a- Functional units of the kidney and the skeletal muscle [5] Mark

b- Hormones regulate the level of glucose and calcium ion in the blood. [5] Mark

C-Different types of nerve cell [5] Mark

[4] Fourth question:

Write short notes on the following.

a- Synaptic transmission [4] Mark

b- Adrenal cortex hormones. [4] Mark

c- Steps of urine excretion. [4] Mark

d- Changes accompanying muscle contraction. [3] Mark

مع التمنيات بالتوفيق

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جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
Second Term: May 2013

Students: 2nd Level Chemistry/Zoology

Course: Plant Growth and development & Cytogenetics (Bot 203)

Time: 2 hours.
Full mark: 60

Date: 09/6/2013
Question mark: 20

Answer The Following Questions:

Q1: **A- Complete the following sentences:- (10 marks)**

1- Seeds with rudimentary embryo could be classified as……., or …….
2- The last stage of seed development is called …… at which …… are synthesized in response to ……
3- ……., ……., and ……. Are examples of strategies used by gardeners and horticulturists to break seed dormancy
4- All monocotyledons plants commit …… germination at which both radicle and shoot are covered by …… and …… respectively.
5- …… seeds are undormant seed, do not germinate due to unfavorable conditions, whereas …… seed that germinate while still attached to the parent plant.
6- Among the environmental factors that control flowering, …… Is considered as primary factor because…….
7- To enable fruit softening, several enzymes such as …… are inducibly expressed by ……
8- Endogenous dormancy is caused by ……. however combinational dormancy is caused by …….
9- Inducible resistance mechanism is ……..

B- Explain the following terms: (10 marks)

1- Desciccation postponers
2- Autonomous pathway for flowering.
3- Juvenile vegetative phase.
4- Fruit set.
4- Chemical dormancy.

Q2: **A- Write on the followings: (10 marks)**

1- Environmental factors affecting leaf growth.
2- Physiological effects of both IAA and ABA on plant growth and development.
3- Phases of cell growth.
4- Differentiation, de-differentiation and re-differentiation of the cell.

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B- Choose the correct answer: (5 marks)

1- A person with klinefelter syndrome is considered a :

a) monosomic b) triploid c) trisomic d) nullosomic

2- Pseudo-dominance may be observed as a result of :

a) deletion b) inversion c) duplication d) translocation

3- If the garden pea has 14 chromosomes in its diploid complement, how many chromosomes could be exist in a double trisomics one ?

a) 7 b) 16 c) 28 d) non of the above

4- During meiosis , synapsis occurs in the stage called :

a) telophase b) pachytene c) zygotene d) diplotene

5- During synapsis, an abnormal chromosome is forced to loop away from its normal homologue , the abnormality is :

a) inversion b) deletion c) translocation d) duplication

B- Fill in the spaces using suitable words or phrases: (5 marks)

1- Cytokinesis is the division of the .....

2- The number of chiasmata per bivalent depend on..... and .....

3- In meiosis , the homologous chromosomes come together in pairs called ....., and the pairing process called .....

Q3: **A- Explain the following : (10 Marks)**

1- phases in the cell cycle of eukaryotic cells (3 marks)

2- Identification and types of inversion and translocation (3 marks)

3- Types of duplication and give an example . (4 marks)

B- Describe the Watson and Crick model of DNA and explain the stability of DNA

(10 Marks)

Examiner: Dr. Linda Z. Samaan Dr. Amany Kazamel

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جامعة المنصورة
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المنصورة - مصر

Educational Year: Second Level | **Final Examination in Botany** | **Subject: Botany**

Course: General Microbiology | **Second Term: May 2013** | **Program: Microbiology, Chemistry and Botany, Chemistry and Zoology and Environmental Sciences.**

Code: B 204

Time: 2 hours | **Date: 12/6/2013** | **Full Mark: 60 Question Mark:20**

Answer the following questions: (الإمتحان في صفحتين)

(Q1)

(A) Complete the missing parts: **(7 mark)**

1) Microbial growth could be determined directly using…........and indirectly by……….
2) ………./…….......and…………..are the most used chemical antimicrobial agents.
3) Activities of microorganisms may be harmful as…….......or beneficial as…...........
4) Bacteria are classified according to their oxygen requirements to **aerobes/anaerobes/**………....…/…………..and………….
5) …………is one of the sterilization methods that removes microorganisms rather than killing them.
6) Chemical substance that can be added to microbiological nutrient media and changing their physical properties is called……..……….
7) Microbiology is the branch of science that studies…………..

(B) True or false (Circulate T or F letters) and correct the false statement(s): **(7 mark)**

1) **(T - F)** Living organisms are classified into two domains according to Woese system of classification.
2) **(T - F)** Streak-plate method is used for enumeration of microorganisms.
3) **(T - F)** Glycocalyx is one of the cell wall external structures.
4) **(T - F)** Some components of the chemically defined media are of known exact formula.
5) **(T - F)** Carbon is the most macronutrients required by microorganisms.
6) **(T - F)** Osmotolerant microorganisms can survive in high salt concentrations.
7) **(T - F)** Endospore formation in bacteria is a method of reproduction under unfavorable conditions.

(C) Choose the correct answer: **(6 mark)**

1) Which of the following structures prevent the dehydration of a bacterium?
   a. Fimbriae **b. Capsule** **c. Murein layer** **d. Plasma membrane**

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2) Which of the following is most reliable for determining the number of viable bacteria per ml?

a. Turbidity measurement **b. Direct microscopic count**
c. Weighing the bacteria **d. None of the above**

3) In obligate aerobic bacteria, superoxide dismutase and catalase work together to convert the superoxide radical to

a. Hydrogen **b. Hydrogen peroxide** **c. Oxygen and water** **d. Ozone**

4) The process that kills the pathogens in milk and juices is called

a. Filtration **b. Tyndallization** **c. Pasteurization** **d. All**

5) The microbial diversity was illustrated in

a. Shape **b. Size** **c. Structure** **d. All**

6) The first person who observed microorganisms was

a. Antonie van Leeuwenhoek **c. Matthias Schleiden** **b. Robert Hooke** **d. None**

(Q2)

(A) **Define:** **(6 mark)**

1) Generation time
2) Microaerophiles
3) Cardinal temperatures
4) Oligodynamic effect

(B) **Compare between each pair of the following:** **(8 mark)**

1) Selective and differential media.
2) Acidophiles and alkaliphiles.
3) Microbicidal and microbistatic agents.
4) Prokaryotic and Eukaryotic cells.

(C) With clear labeled diagrams; compare and contrast between gram positive and gram negative cell wall of bacteria. **(6 mark)**

(Q3)

Discuss with illustrations: **(20 mark)**

1) Growth curve of unicellular microorganisms.
2) Binary fission in bacteria.
3) Nutritional classes of microorganisms.
4) Discuss only **TWO** of the physical methods of microbial growth control.

Examiners:

Dr. Adel A. El-Morsi **Dr. Ghada Samir Abou-ElWafa**

المستوى الثاني - مجموعة الميكروبيولوجيين - ميكروبيولوجيا عامة B 204

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