



امتحان العام الجامعي ٢٠١٤/٢٠١٥

القسم الذي يقدم المقرر : المحاصيل الفرقة : دراسات عليا (قسم النبات و الميكروبيولوجي - كلية العلوم)
اسم المادة وكودها : إحصاء حيوى ٦٤٣ ر الزمن : ٣ ساعات
لجنة الممتحنين : أ.د. عاطف أبو الوفا أحمد د. الحسيني حماده عبدالعظيم
المراجع الداخلى : أ.د. محمد عبدالمنعم المرشدي

السؤال الأول: (١٥ درجة)

أكمل الجدول التالي مع مناقشة النتائج :

S.O.V.	d.f.	SS	MS	F _{cal.}	F _{0.05}	F _{0.01}
Rep. ss	3		5		3.29	5.42
Treat. ss	5	100			2.90	4.56
A. ss		60			3.86	6.36
B. ss	1				4.54	8.68
AB. ss	2	10			3.86	6.36
Error ss				-	-	-
Total ss	23	130	-	-	-	-

السؤال الثاني: (٣٠ درجة)

من البيانات التالية :

Replications	Treatments				Total
	T ₁	T ₂	T ₃	T ₄	
R ₁	9	19	14	18	60
R ₂	8	14	15	19	56
R ₃	12	13	17	18	60
R ₄	15	17	13	15	60
R ₅	11	17	16	20	64
Total	55	80	75	90	300

المطلوب:

- ١- تحليل التجربة تحليلًا إحصائيًا في اتجاهين.
- ٢- تحديد منحنيات الإستجابة إذا كانت المعاملات من النوع الكمي (Equal space) وأن :

Lin: -3 -1 1 3

Qu: 1 -1 -1 1

Cub: -1 3 -3 1

- ٣- المقارنة بين متوسطات المعاملات باستخدام طريقة دانكن (Duncan) إذا كان:

SSR_{0.05} 2 3 4
3.08 3.23 3.33

علما بأن:

		F _{0.05} (tab)		
		1	3	4
12	5%	4.75	3.49	3.26
	1%	9.33	5.95	5.41

أنظر الورقة الثانية ←←←

السؤال الثالث: (٣٠ درجة)

من البيانات التالية

A	B	R1	R2	R3	R4
a ₁	b ₁	16	16	12	9
	b ₂	21	24	21	21
Main plot		37	40	33	30
a ₂	b ₁	20	15	15	12
	b ₂	25	20	18	19
Main plot		45	35	33	31
a ₃	b ₁	11	12	8	9
	b ₂	14	16	14	16
Main plot		25	28	22	25
Total		107	103	88	86

١- حلل البيانات تحليلًا إحصائيًا مع مناقشة النتائج بإعتبار أن العامل B أكثر أهمية في الدراسة من العامل A.

علما بأن قيم F_{0.05} الجدولية هي:

df	1	2	3
6	5.99	5.14	4.76
9	5.12	4.26	3.86

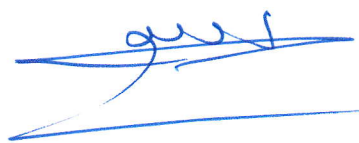
٢- قارن بين مستويات العامل A باستخدام طريقة إختبار LSD إذا علمت أن $t_{0.05} = 2.56$.

السؤال الرابع: (٢٥ درجة)

ما هو الفرق بين كل من:

- Experimental Units & Experimental Error.
- Treatment & Factor.
- 2⁴ Experiment & 5*3 Experiment.
- Randomization & Replication.
- Interaction among the Factors & Simple effect.
- Two way analysis & One way analysis.

انتهت الأسئلة
مع التمنيات بالتوفيق ،،،،،



السيد



Answer the following questions.

• **Question no 1:**

Fill in the blanks with suitable words: (15 marks)

1. Spirogyra, Zygnema, Closterium, Cosmarium, etc. are algal genera belongs to.....
2. Microalgae live inside animals are termed as.....
3. Algae which have symbiotic relationships with fungi called
.....
4. Photosynthetic product is glycogen in.....
5. Herbivory of microalgae by zooplankton is called.....
6. The light zone of water is termed as
7. Microalgae associated with the air-water interface are termed as
.....
8. The sole method of reproduction in Chlorella is occur by
.....
9. The surface mat of algae on water called
10. The algae which associated with solid substrate are referred as
.....
11. Algae attached with stone or rocks referred as
.....
12. Algae found on the polar ice caps are termed as
13. Water in area where river meets the sea is referred as.....
.....
14. *Spirogyra* hasChloroplasts while
has band-shaped Chloroplasts
15. Reproduction of Euglena occur by.....

• Question no 2

Write (Yes) or (No) in the front of each sentence from the following and re correct the wrong one : (15 marks)

1	Myxophyta, cyanophyta and Myxophycophyta are used for popularly known name of Bacillariophyta	()
2	The members of chlorophyta are distinguished from all other algae in being prokaryote	()
3	Photosynthetic product is oil in Euglenophyta	()
4	Flagella are completely wanting (absent) in cyanophyta	()
5	<i>Anabaenolium</i> have been found to be parasitic on intestines of men and animals.	()
6	Pseudohormogonia found commonly in Scytonemataceae and in some Nostocaceae	()
7	Food reserves consist of paramylun in case of Oscillatoria sp	()
8	Scalariform conjugation is very common and takes place between the opposite cells in Nostoc sp.	()
9	<i>Chlorella</i> ,genus of single-celled organisms with both plant and animal characteristics	()
10	<i>Staurostrum</i> sp belongs to Desmidiaceae	()
11	Sexual reproduction are absent in chlorophyta	()
12	The most common members Hydrodictyaceae are <i>Hydrodictyon</i> and <i>Pediastrum</i>	()
13	Vegetative reproduction takes place by cell division in Cosmarium	()
14	Chlorococcales includes the common water net or Hydrodictyon and Pediastrum, etc	()
15	<i>Ulothrix</i> has cup Chloroplasts but <i>Spirogyra</i> has band-shaped Chloroplasts	()

Faculty of Science Botany and Microbiology Department	بسم الله الرحمن الرحيم 	كلية العلوم قسم النبات والميكروبيولوجي
Phytosociology Course No. 610 B 100 marks	September: 2015 M. Sc. Degree Final Examination Time allowed: Three Hours	

Answer Four Only of the following questions:

- 1- Comment briefly on each of the following: (25 marks)
 - a- Factors involved in the grouping of species. (8 marks)
 - b- Stratification. (8 marks)
 - c- The indication of "Ronkiaer" frequency diagrams. (9marks)
- 2- Define ONLY each of the following. (25 marks)

The minimal area - Exclusive species - Open groupings - The ecological amplitude - Species vitality.
- 3- Discuss in details each of the following: (25 marks)
 - a- Hydrosere. (12.5 marks)
 - b- The role of life forms in determining the community structure. (12.5 marks)
- 4- Write short notes on each of the following: (25 marks)
 - a-Differences among species in competitive capacity. (8 marks)
 - b- Replacement change within the plant community. (8 marks)
 - c- The association. (9 marks)
- 5- Differentiate between each two of the following: (25 mark)
 - a- The community concept as viewed by Brun- Blanqut and Gleason. (8 mark)
 - b- Random sampling and regular spaced sampling. (8.5 mark)
 - c- Fidelity and constancy. (8.5 mark)

Good Luck



Prof. Dr. Mohamed Abou El-Ela

	Qualifying Examination for M.Sc. Degree September, 2015	
Botany & Microbiology Department	Mineral nutrition B-604	Time: 3 hours

Answer the following questions:

Question (1): i) Write an essay on: (25 marks)

- Mineral deficiencies disrupt plant metabolism and function.
- Mycorrhizal fungi facilitate nutrient uptake by roots.
- Deficiencies in mineral nutrients that are involved in redox reactions.

ii) Write short notes on four of the following:

- Chelators
- Aeroponics
- Hydroponics
- Nitrogenase
- Salt-tolerance plants

Question (2): (25 marks)

i) Explain the role and deficiency symptoms of only four of the mineral essential elements :

Nitrogen - Silicon - Calcium - Manganese - Potassium

ii) Distinguish between:

- Passive and active transport.
- Ions moving through the root cross both symplastic and apoplastic spaces.

Question(3): Discuss: (25 marks)

- The transport of ions across a membrane barrier.
- Channel transporters enhance ion and water diffusion across membranes.
- Carriers bind and transport specific substances.
- The vascular H^+ -ATPase drives solute accumulation into vacuoles.
- Calcium pumps, antiports, and channels regulate intracellular calcium.

Question(4): Explain: (25 marks)

- Nitrate assimilation
- Stored ammonium or nitrate can be toxic
- Conversion of ammonium to amino acids requires two enzymes.
- Sulphate assimilation requires the reduction of sulphate to cystine.
- Cation assimilation.

Good luck

Dr. Ahmad farag Radi

Dr. Abeer Radi

	Qualifying Examination for M.Sc. Degree September, 2015	
Botany & Microbiology Department	Growth regulator B-602	Time: 3 hours

Answer the following questions:

Question (1): (25 marks)

i) Explain: (20 marks)

- A) The multiple pathways exist for the biosynthesis of IAA.
- B) Gibberellins are synthesized via the terpenoid pathway.

ii) Define: (5 marks)

Phototropism- Gravitropism - Thigmotropism

Question (2): (25 marks)

i) **Write notes on five of the following :**

- A) Auxin transport.
- B) Inhibitors of auxin transport block auxin efflux.
- C) Gibberellins promote fruit set.
- D) Gibberellins promote seed germination.
- E) ABA promotes growth and inhibits shoot growth at low water potentials.
- F) Cytokinins delay leaf senescence.

Question (3): (25 marks)

i) **Write an essay on five of the following :**

- A) Gibberellins stimulate cell elongation and cell division.
- B) Gibberellins from the embryo induces α -amylase production by aleurone layers.
- C) Cytokinins modify apical dominance and promote lateral bud growth.
- D) ABA closes stomata in response to water stress.
- E) Cytokinins induce bud formation in moss.
- F) Gibberellins enhance cell wall extensibility.

Question (4): (25 marks)

i) Describe:

- A) IAA is degraded by multiple pathways.
- B) ABA promotes leaf senescence.
- C) Auxin regulates apical dominance.

Good luck

Dr. Ahmad Farag Radi

Dr. Abeer Radi

Assiut University
Faculty of Science
Botany Department

Academic program: M.Sc.Botany
Studying Year 2014/2015

Course Title : Plant Biochemistry (603 B)

September 2015

Allowable Time : 3 Hours

Total Degree 100 Marks

1- Write on structure of : (20 degree)

- a. photosynthetic apparatus .**
- b. photosynthetic pigments .**

2 – Give a detailed account of C3- pathway in plants .
(20 degree)

3- Give a detailed account of glycolysis or EMP
pathway in plants. (20 degree)

4- Draw of the following pathway of : (20 degree)

- a- Pentose phosphate .**
- b- B-oxidation of fatty acids.**

5- Describe the mechanism of nitrogen fixation in
nodules of leguminous plants as well as converted to
amino acids . (20 degree) .

Good Luck Prof. Dr. M. A. Zidan

Answer FOUR Questions only:

- 1- Describe with labeled diagrams the structure of endoplasmic reticulum and Golgi apparatus of fungal cells, then mention the functions of these organelles..... (25 marks)
 - 2- Discuss the role of: (25 marks)
 - a. Melanin compounds produced by dark colored fungi.
 - b. Vacuoles in fungal cells.
 - 3- Give an account of:(25 marks)
 - a. Autolysis and heterolysis
 - b. Woronin bodies.
 - c. Plasmalemmasomes and lomasomes.
 - 4- Give full illustration of the structure of fungal cell wall, and then discuss the vital functions of this wall.(25 marks)
 - 5- Discuss the structure and function of septa formed in fungal mycelium.(25 marks)
-

Best wishes,

Professor Dr. Ahmad M. Moharram

Faculty of Science Botany & Microbiology Department		كلية العلوم قسم النبات والميكروبيولوجي
Special course Time: 3 hours Degree: 100 marks	M.SC. exam - the academic year 2014/2015 Exam date: Saturday, 12/09/2015	

Answer the following questions:

The first question: (40marks)

- Discus with illustration the ultrastructure of nitrogenase and the mechanism of NH_3 synthesis by this enzyme.
- Account on genetic approach of bacterial classification.

The second question: Answer two only of the following: (30marks)

- The enzyme nitrogenase has different strategies to control O_2 toxicity. Discus in details three factors.
- Answer one of the following:
 - Enzymes involved in DNA synthesis and its restriction enzymes.
 - Discus nodulation in non-legume. Structure of these nodules and the microorganisms involved. Families of this group.
- Account in some details: different methods of nitrogenase assay – Conformational protection.

The third question: (30 marks)

- Discus in details structural classification, mechanism and biological function of hydrogenases.
- Compare: selective and differential media, give examples.
- Compare the photosynthetic apparatus and its mechanism in each purple sulfur and non-sulfur bacteria.

Good luck

Prof Dr. Ahmed Abdel-Wahab
Dr. Amal Danial

Faculty of Science Botany and Microbiology Department			
Subject: Environmental Pollution	M. Sc. Degree Final Examination September : 2014-2015		
Course No. (627 B) 100 marks	Time allowed: Three Hours		

Answer the following questions

1- Write about only (two points only) from the following:

(50 marks)

- a- Factors affecting plant damage and permeation of pollution into plant cells. (25 marks)
- b- Biodegradation (25 marks)
- c- Role of volcanic ash particles in air pollution. (25 marks)

2- Comment briefly on (four points only) of the following:

(50 marks)

- a- Effects of air pollution on chloroplast structure. (12.5 marks)
- b- Thermal pollution and its effects on aquatic organisms. (12.5 marks)
- c- Carbon monoxide pollution. (12.5 marks)
- d- Factors affect the toxicity of water. (12.5 marks)
- e- Dry acid deposition. (12.5 marks)

Good Luck

Prof Dr: Suzan Abd El- Moneim Sayed

M.Sc. Exam in Plant water Relations

Time Allowed : Three hrs.

Year : 2014/2015

Answer Four Questions Only:

I- Give reasons about the occurrence of :

- a- Development of water deficits in plants .
- b- The effect of " Root/Shoot " ratio on plant water relations .
- c- Development of " Vapour Gap " around roots .

II- Discuss the general effects of :

- a- Climatic factors on transpiration .
- b- Soil factors affecting water absorption by plants .
- c- Effects of water deficits on plant growth.

III- Define and indicate the role of each of the following in plants:

- a-Relative turgidity
- b- Stomatal resistance
- c-Water use efficiency
- d- Vapour pressure deficit

IV- Explain the kinds of resistances to water movement in the " Soil-plant –atmosphere continuum", especially the relative effect of each.

V- Indicate the effect of each of the following on plant water relations :

- a- Components of soil water potential .
- b- Components of plant cell water potential.
- c- Physico-chemical properties of water.

Good Luck

H.M.El-Sharkawi

Answer Three Questions only

- 1- Which cell wall material is aromatic in structure. Give an account of its chemistry, pathway of its microbiological decomposition, and examples of some organisms involved in this process.
- 2- Compare between the chemistry of cellulose and chitin, and enzymes responsible for their microbiological decomposition in soil.
- 3- Write an essay on the chemistry of hemicelluloses and microbial break-down in soil.
- 4- a- What is the main hydrocarbon produced under anaerobic conditions in soil, and what are the reactions leading to its production.

b- Give an account on the chemistry of pectic materials and inulin, and the enzymes involved in their break-down in soil.

Best wishes
Prof. A. H. Moubasher

Assiut University
Faculty of Science
Botany & Microbiology
Department



جامعة اسيوط
كلية العلوم
قسم النبات والميكروبيولوجي
الزمن: ٣ ساعات

Especial Course Exam. (Environmental Pollution) for M.Sc. Students (627B)
Sept. 2015

Answer two only of the following questions:

- 1) Write a brief account on sources and components of sewage and processing of wastewater purification. (50 marks)

- 2) What is meant by water pollution, trace the steps of determination of Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD), refer to the types of the former. (50 marks)

- 3) What is meant by heavy metals, write briefly the different mechanisms played by algae in their removal, referring to the effect of photosynthesis which elevate the pH resulting in their elimination as well. (50 marks)

With my best wishes

Prof. Dr./ Mahmoud. S. Adam

Assiut University
Faculty of Science

Department: Botany & Microbiology,

Course Title: Industrial microbiology

Total Degree: 100 marks

Academic Program: M. Sc. (Microbiology)

Studying Year : 2014/ 2015

Course Code 613B

September 2015

Allowable Time : Three hours

1. Describe Three only of the following: (36 marks, 12 for each one)

- a) Different methods for isolation and biological assay of antibiotics producing fungi.
- b) Microbial hydroxylation of progesterone with special reference to medicinal useful, using microbes and chemical structure of the different products.
- c) The most widely used method for development of inoculum for gibberellin and acetone – butanol production.
- d) Factors influencing the choice of carbon and nitrogen sources for a fermentation process.

2- Explain Three only of the following: (36 marks, 12 for each one)

- a) Chemical structure, producing microbe, raw material and production conditions of penicillin.
- b) Production of male and female sex hormones using bio-transformation technique.
- c) The major factors in scale - up of a fermentation process with special reference to scale – up window.
- d) Construction material used in designing ethanol and citric acid producing fermentors on industrial scale.

3- Comparing between each of the following: (28 marks, 4 for each one)

- 1- Mode of action of streptomycin and cephalosporin.
- 2- Chemical structure of tetracycline and prednisone.
- 3- Control of aeration and temperature in vinegar production.
- 4- Chelating agents and anti-foam as additives in fermentation medium.
- 5- Advantages & disadvantages of separate hydrolysis - fermentation (SHF) and simultaneous saccharification - fermentation (SSF) techniques.
- 6- Aseptic operation and containment in a fermentation process with discuss the criteria for assess the microbial risk.
- 7- Methods used for removal and disruption of microbial cells from fermented mash.

WITH MY BEST WISHES

Prof. Dr.: S. S. El-Maraghy

Prof. Dr.: A. A. Zohri

بسم الله الرحمن الرحيم

إمتحان درجة الماجستير

كورس مقرر خاص كود رقم ٦٢٢ ح

Answer the following questions :

- 1-What are the most important types of cell swelling and the microscopic features of each types. (20 d.)
- 2- Describe in details different types of disturbance of pigment metabolism, it's occurrence and it's microscopic features. (20 d.)
- 3- What are the causes of necrosis, it's different types, gross and microscopic feature of each type. (20 d.)
- 4- What's meant by hemorrhage, its causes and different types. (20 d.)
- 5- Classify inflammation according to exudates & point out features of each type. (20 d.)

GOOD LUCK



أ.د/ محمود عبدالظاهر عبدالسميع



University: Assiut

Department: Botany & Microbiology

Allowable Time: Three hours

Course code: 629 B

Course Title: Special Course



Faculty: Science

Academic program: Ms C

Studying Year: 2014 & 2015

Final examination

Total degrees: 100 marks

Answer the Following Questions

I- Answer with (✓) or (X) and correct the (false) statements [10 marks]:-

1. Mannitol, erythritol and gluconic acid are formed from glucose pathways. ()
2. Cephalosporin is an antibiotic formed from aromatic amino acids pathway ()
3. Metabolism regulation occurs by strain selection, metabolic and genetic engineering ()
4. Glycogen is an amino sugar acts as stored material in yeast cells. ()
5. Anthraquinones are octaketide and have C₁₆ atoms. ()
6. Sterols are terpenoids and act as precursors of the steroidal fungal hormones. ()
7. Polyketide antibiotics include asperline, penicillic acid and zearalenone. ()
8. Zymosan is polysaccharide synthesized by *A. terreus* from glucose pathway. ()
- 9- Oleic acid is saturated carboxylic acid formed from TCA pathway. ()
10. Gibberellins are produced by *Fusarium* and act as plant growth regulators. ()

II- Classfy in table TWO ONLY of the following microbial metabolites [20 marks]:-

- a) Phenolic compounds.
- b) Unsaturated fatty acids.
- c) Sesquiterpenoids & meroterpenes.

III-Compare between THREE ONLY of the following and classify it [30 marks]:-

- a. Yeast metabolites formed under aerobic and anaerobic conditions.
- b. Asperline & aflatoxin.
- c. Terreic acid & tetracyclines.
- d. Chitin and Chitosan

See The Next Page



University: Assiut

Department: Botany & Microbiology

Allowable Time: Three hours

Course code: 629 B

Course Title: Special Course



Faculty: Science

Academic program: Ms C

Studying Year: 2014 & 2015

Final examination

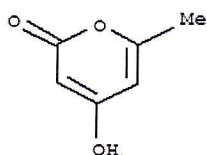
Total degrees: 100 marks

Answer the Following Questions

Discusses how you obtain TWO ONLY of the following metabolites [30 marks]:-

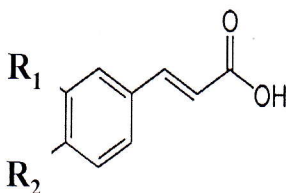
- Phenylalanine.
- Itaconic acid.
- Different terpenoids.

V-Give the name, producers and metabolic pathways of the following metabolites [10 marks]:-



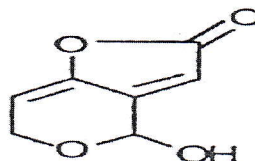
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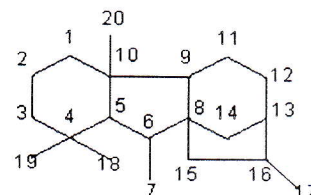
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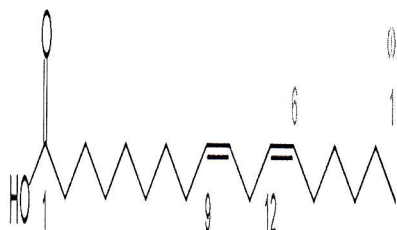
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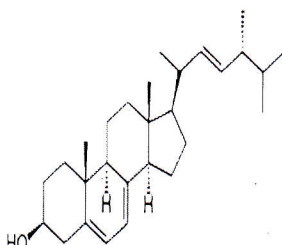
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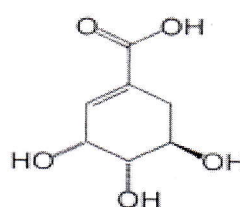
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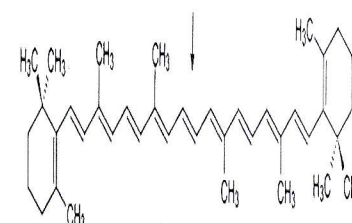
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Good Luck

Prof. Eman Mostafa M

Assiut University
Faculty of Science
Botany Department

Total Degree 100/2 Marks
September 2015

Academic program: M.Sc.Botany
Studying Year 2014/2015

Course Title : Enzymes

Course Code : 601B

Allowable Time : 3/2 Hours

Exam 2 Pages

1 -Explain in details Two of the following:(5 marks)

- a. Features of enzyme catalyzed reactions.
- b. Allosteric modulation.
- c. Metal ion cofactors

2-Give the systematic names SEVEN ONLY of the enzymes of the following reactions:(14 marks).

- a. (S)- malate + NAD^+ = pyruvate + CO_2 + NADH
- b. Aldehyde + acceptor + H_2O = a carboxylate + reduced acceptor
- c. $\text{ATP} + \text{D-hexose} = \text{ADP} + \text{D-hexose 6-phosphate}$
- d. $\text{L-asparagine} + \text{H}_2\text{O} = \text{L-aspartate} + \text{NH}_3$
- e. $\text{ATP} + \text{H}_2\text{O} + \text{Na}_{\text{in}} = \text{ADP} + \text{phosphate} + \text{Na}_{\text{out}}$
- f. a 2-oxo acid = an aldehyde + CO_2
- g. Maleate = fumarate
- h. $\text{ATP} + \text{L-aspartate} + \text{NH}_3 = \text{AMP} + \text{diphosphate} + \text{L-asparagine}$
- i. $\text{ATP} + \text{NH}_3 = \text{ADP} + \text{phosphoramidate}$
- j. An aldehyde + $\text{H}_2\text{O} + \text{O}_2 = \text{a carboxylic acid} + \text{H}_2\text{O}_2$

3- Give the first three digits in the E.C. classification SEVEN ONLY of the enzymes catalyzing the following reactions : (14 marks)

- a. An alcohol + NAD^+ = an aldehyde or ketone + $\text{NADH} + \text{H}^+$
- b. An L-amino acid + $\text{H}_2\text{O} + \text{NAD}^+ = \text{a 2-oxo acid} + \text{NH}_3 + \text{NADH} + \text{H}^+$
- c. L-alanine = D-alanine

- d. $\text{ATP} + \text{citrate} + \text{CoA} = \text{ADP} + \text{phosphate} + \text{citryl-CoA}$
- e. $\text{H}_2\text{CO}_3 = \text{CO}_2 + \text{H}_2\text{O}$
- f. $\text{Diphosphate} + \text{H}_2\text{O} = 2 \text{ phosphate}$
- g. $\text{A carboxylic ester} + \text{H}_2\text{O} = \text{an alcohol} + \text{a carboxylate}$
- h. $\text{Acetyl-CoA} + \text{malonate} = \text{acetate} + \text{malonyl-CoA}$
- i. $\text{NADH} + \text{H}^+ + \text{H}_2\text{O}_2 = \text{NAD} + 2 \text{ H}_2\text{O}$
- j. $\text{Pyruvate} + \text{CoA} + \text{NADP}^+ = \text{acetyl-CoA} + \text{CO}_2 + \text{NADPH}$

4-Identify the most likely coenzyme which would be involved in the following reactions or roles and give the structure of them: (15 marks)

- a. It is involved in redox reactions , carrying electrons from one reaction to another.
- b. It is used in decarboxylations , transaminations and racemases.
- c. It is a coenzyme , notable for its role in the synthesis and oxidation of fatty acids , and the oxidation of pyruvate in the citric acid cycle.

Good Luck Prof. Dr. M. A. Zidan