

Assiut University
Faculty of Science
Geology Department

PhD Exam in (G703)

الإستكشاف الثقلي والمغناطيسي ٣



July, 2024

Time : 2 hrs

Note: Illustrate your answer with appropriate diagrams

Explain shortly the role of gravity and magnetic methods in Four Only of the following objects (select one application only in each object) : (12½ mark for each)

1. Environmental and Engineering Investigations.
2. Direct Mineral Ore deposits exploration.
3. Lithospheric Studies.
4. Indirect Mineral resources exploration.
5. Archeology investigation.
6. Hydrocarbon and Geothermal exploration and exploitation.

GOOD LUCK !!

Prof. Dr. Awad A. Omran



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Prior and posterior distributions; Loss function; Risk function; Bayes estimation and MCMC techniques

(b) Let $X_1, X_2, \dots, X_n$ be a random sample of size n from the Poisson distribution with parameter λ . Assume that λ has a Gamma (α, β) prior.

(i) Compute the posterior distribution of λ .

(ii) Compute the Bayes estimate of λ based on squared error loss function.

(iii) Compare the MLE of λ , which of the two estimates is better? Why?

السؤال الرابع: (15 Points)

(a) Investigate how we can generate a new family of probability distributions, state three methods. (10 Points)

(b) Discuss the following concepts: Competing Risks and Masked Data? (5 Points)

Best Wishes

Prof. Zainhom F. Jaheen - Prof. Abd EL-Baset A. Ahmad

Prof. Hamdy N. Abd-Ellah - Prof. Shaban Aly

Department of Mathematics		قسم الرياضيات
Faculty of Science		كلية العلوم
رياضيات (إحصاء رياضي)	دكتوراه الفلسفة في العلوم	إمتحان التأهيل الشامل لدرجة
الزمن : 3 ساعات	التاريخ: 2024-7-8	الدرجة الكلية: 80 درجة
ALL THE FOLLOWING QUESTIONS ARE TO BE ATTEMPTED		
أولاً: التخصص العام		
السؤال الأول: (25 Points)		
(أ) أوجد الحل العام للمعادلة التفاضلية : $(D^2 - 6D + 9)y = 2\sinh(3x)$		
(ب) أوجد الحل العام لمعادلة أويلر التفاضلية: $(x^2 D^2 + xD - 4)y = 5\cos(\ln x)$		
(ج) أوجد الحل المكمل والحل الخاص للمعادلة التفاضلية :		
$\frac{d^2 y}{dx^2} + \frac{dy}{dx} + y = -48x^2 - 76x + 44$		
السؤال الثاني: (25 Points)		
a) Define the dual spherical curves in D^3 and hence show that are involute- evolute curve pairs.		
b) Show that the dual spherical curves on dual unit sphere are not involutes of $\hat{\rho} = \frac{\hat{n}}{\ \hat{n}\ }$ (where $\hat{\rho}$ is a fixed pole curve).		
ثانياً: التخصص الدقيق		
السؤال الثالث: (15 Points)		
(a) Explain in detail the following:		

Answer the following questions:

Q1. Write an account on:

- a) DEET and its bioefficacy against mosquitoes
- b) Behavioral methods used in mosquito control

Q2. Describe the following:

- a) The role of rumen volatiles in shaping the response of stable fly
- b) Resting behavior in mosquitoes in relation to house spraying
- c) Oviposition site selection in mosquitoes

Q3. Discuss how human skin microbiome can affect the differential attraction of mosquitoes to man

Q4. Suggest a way to enhance the trapping of stable flies

End of questions

Examiner: Prof. D. Medhat M. Sadek



Botany and Microbiology Department
Final Exam. For Students of the Ph. D. level



{50Marks}

Selected Topics Related to Plant Ecology (B718)

Time: 2 hours

Second Semester 2023/2024

Answer on the following questions:

1- Give an account on the vegetation of tributaries of wadi El Assuiti and wadi Quna?.....(12.5Marks)

2- Compare between the climate and plant communities in sector (or wadi) of Mediterranean and Red Sea coastal areas.....(12.5Marks)

3- Write on only One of the following: - (10 Marks)

- a-Role of soluble proteins with different molecular weight in salt tolerance.
- b-Role of soluble proteins molecular weight types on desert plants during seasonal changes.

Question4: Discuss only One of the following: - (15 Marks)

- a-Different strategies of chlorophyll thermo-stability of plants in desert habitats.
- b- Mechanism of osmotic adjustment in Xero- halophytic plants.

GOOD LUCK

Prof. K.A. Farghali

Dr.Susan A. Tammam



Assiut University Faculty of Science Zoology Department

Level: P h D . students Code: 702 Time: 3 hour

Second Semester Advanced Histology Exam (2024/07/04)

Answer the following questions: (50 marks)

QI- Discusses the followings items with draw :- (20Marks)

- 1- Functions of kidney.
- 2- Spermatogenesis and oogenesis
- 3- Types and function of neuroglia cells.
- 4- Ultrastructure and function of Myofibrils of skeletal Muscle

QII- Write short notes on function of the followings items :- (20Marks)

- 1- Sertoli and ledge cells.
- 2--Motor end plat.
- 3-Different cell types in liver.
- 4-Types of capillaries and macrophages

III-Compare between the following items with draw diagrams:- (10Marks)

- A- Blood testis barrier.
- B- Blood brain barrier (BBB)
- C-Filtration barrier in kidney.

GoodLuck

Dr.HanemSaadAbdel-Tawab

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Chronic Orchitis

Follow acute orchitis by about 2 weeks ✓

General health disturbances disappeared ✓

Affected testis became less painful either atrophied or enlarged ✓
with abscess formation and scrotal asymmetry

Adhered to surrounding scrotum and felt firmer in consistency ✓

Affected testes lost their functions and affected with fibroses ✓

Remove affected testis and discard animal from breeding if the ✓
other testes degenerated

Examination committee: Prof Dr. Abdel-Razek Khalifa Abdel-Razek

Best Wishes & Good Luck"

5) Orchitis in ram

It is either acute or chronic inflammation of the testis
, usually unilateral and rarely bilateral

Acute Orchitis

Causes

Trauma, wounds and infected injuries
Brucella and other pyogenic organisms

Symptoms

Fever with general health disturbance
Swelling
Pain

Asymmetry of scrotum (normal small)

Redness

Ejaculates: alkaline, dead spermatozoa, pus cells increase sperm
abnormalities (deteriorated semen picture)

Acute Orchitis

Diagnosis :

From symptoms

Agglutination test for brucella and reacted animal should be
slaughtered Bacteriological examination of semen

Treatment:

Sexual rest

Try injection of systematic antibiotics and novalgine

Local application of cold douches, astringent,
iodine paint to reduce pain

Unilateral castration to protect other testis

4) lack of sexual desire in bull

1. Age, - Age and (or) experience of bulls can influence their mating ability and thus their apparent sex- drive.
2. Rearing and Nutritional Effects: Bulls often lose 1 to 2 body condition scores (160 to 200 lbs) during a breeding season (Overfeeding, underfeeding)
3. Bull to Female Ratio (BFR) - Traditional recommendations for bull-to-female ratios (BFRs) in natural breeding herds of 1:20 - 1:30.

Breeding Plan

Yearling bull (young) 1:25

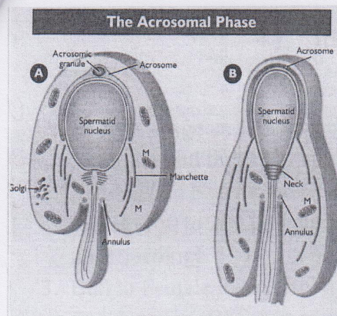
Estrus Synch (natural service) 1:25

Mature bull 1:40

4. Social Effects - Social ranking of bulls within groups can influence their sexual activity Dominance is expressed more strongly and linearly in older bulls (i.e., those 3.5 to 4 years of age or older) and it appears to be more related to seniority than to either age or body weight.

5. Psychology:

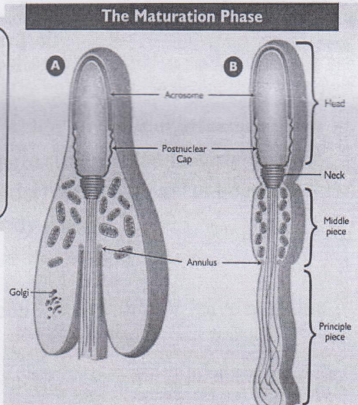
Slipping, Kicking or burn during semen collection with A.V leave negative effect.



A
The spermatid nucleus begins to elongate and the acrosome eventually covers the majority of the anterior nucleus. The manchette forms in the region of the caudal half of the nucleus and extends down toward the developing flagellum.

B
The neck and the annulus are formed and the later will become the juncture between the middle piece and the principal piece. Notice that all components of the developing spermatid are completely surrounded by a plasma membrane. M = mitochondria.

A and B
Mitochondria form a spiral assembly around the flagellum that defines the middle piece. The postnuclear cap is formed from the manchette microtubules. The annulus forms the juncture between the middle piece and the principal piece.



3) Cryptorchidism in stallion

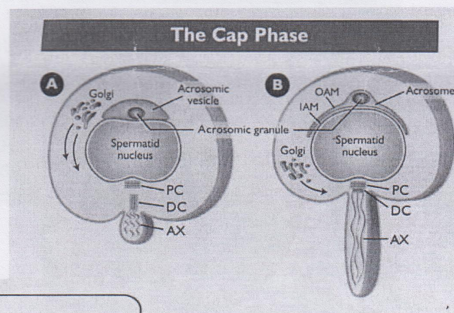
Causes: genetic factors

Symptoms:

- ✓ Normal sexual desire (because Leydig cells not affected by body temperature and still functional producing Testosterone.
- ✓ In some cases the desire may reduced
- ✓ In Bilateral cases the male will be completely sterile
- ✓ Scrotum empty (bilateral), or asymmetrical (normal half is large)

Semen Picture

- ✓ Ejaculate volume: normal
- ✓ Viscosity: watery (Azoospermia)
- ✓ ph: Alkaline
- ✓ Sperm count: (reduced in unilateral, Absent in bilateral)



A

The Golgi migrates toward the caudal part of the cell. The distal centriole (DC) forms the axoneme (AX) or flagellum that projects away from the nucleus toward the lumen of the seminiferous tubule.

B

The acrosomic vesicle flattens and begins to form a distinct cap consisting of an outer acrosomal membrane (OAM), an inner acrosomal membrane (IAM) and the acrosomal contents (enzymes).

6/10/2024

Spermiogenesis

Differentiation consists of the:

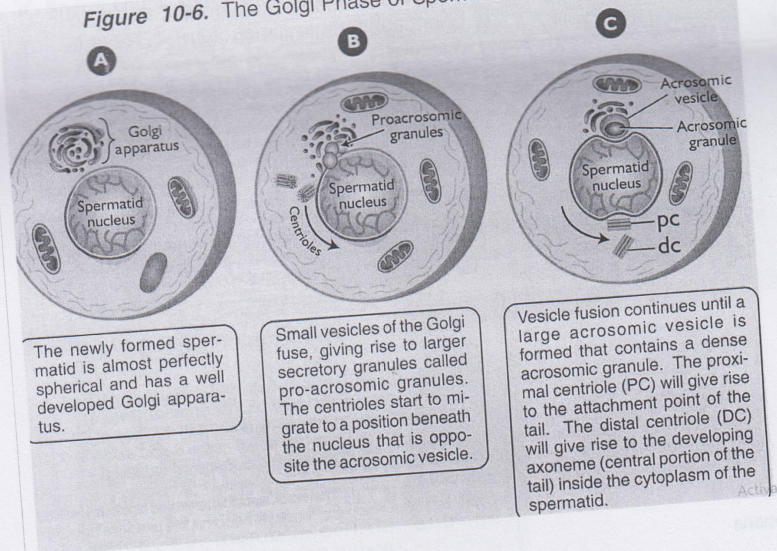
- Golgi phase
- cap phase
- acrosomal phase
- maturation phase

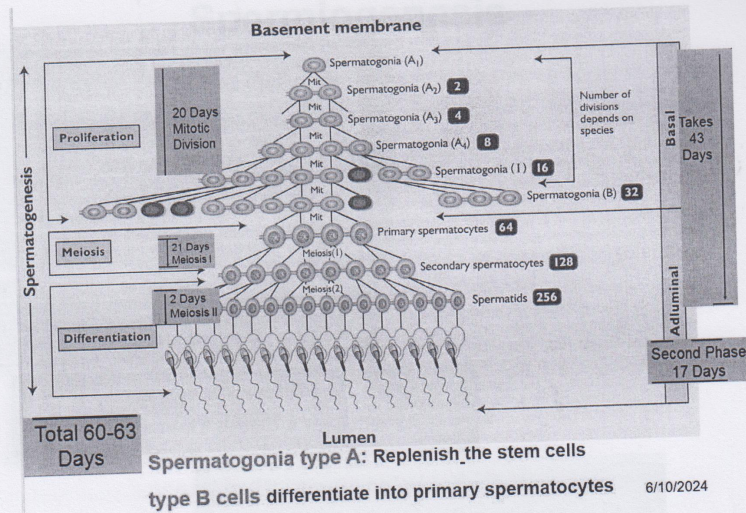
The Golgi phase = acrosomic vesicle formation

The cap phase = acrosomic vesicle spreading over the nucleus

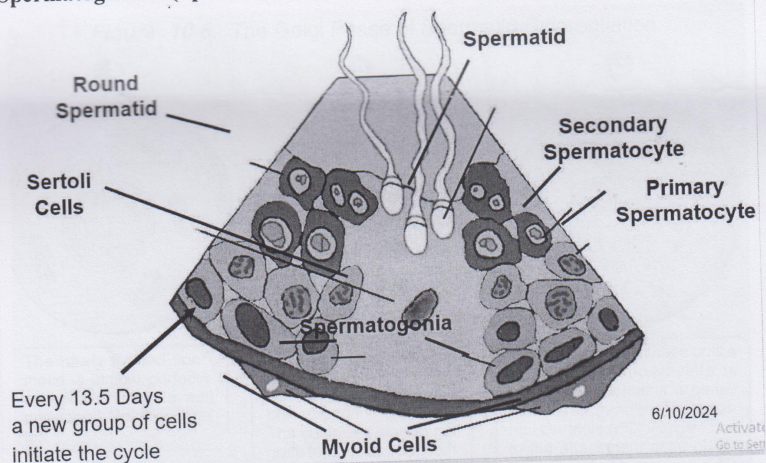
The acrosomal phase = nuclear and cytoplasmic elongation

Figure 10-6. The Golgi Phase of Spermatid Differentiation





Spermatogenesis (Spermatocytogenesis and Spermiogenesis)



Bleeding will be minimum

Preputial cavity may be flushed with antiseptic solutions for 2-3 weeks

Short retractor penis muscle

Cause

- Hereditary
- After injury to the penis or prepuce.
- Symptoms

Affected bulls have normal libido, but during attempted service the penis is only partially protruded from the sheath

Treatment:

Tran section of retractor penis muscle, but paraphimosis is a bad sequelae of such operation so it is better to cull bull by fattening and slaughter.

Prolapse of the prepuce:

is a common defect in bulls,

-Predisposing inherited factors or abnormalities:

A long, pendulous sheath

A large preputial orifice,

Absence or poor development of the retractor prepuce muscles .

Prolapse of the prepuce predisposes the animal to injury, which can lead to abscess formation, scarring, adhesions, or phimosis.

Treatment:

Surgical correction of the prolapse is possible, but as genetic predisposition may play a role, culling should be considered

2) Spermatogenesis in bull

2- Second question (25 Mark; 5 marks for each)
Please answer all of the following questions
Write short essay on the following:

1) Phimosis in bull

Definition: Inability to protrude the penis

Causes:

- 1- Under development of sigmoid flexure or the erectile tissue of the penis.
- 2- Persistent penile frenulum.
- 3- Short retractor penis muscle.
- 4- Stenosis and hypoplasia of preputial orifice.
- 5- Prolapse of the prepuce.
- 6- Adhesions of the sigmoid flexure of the penis
- 7- Psychological disturbances.

Persistent penile frenulum

- is a band of CT linking the ventral aspect of the glans penis to the preputial mucosa

- Regarded as an inherited defect.

Affected bulls are unable to protrude the penis from the sheath (phimosis).

In prepubertal calves the glans penis is adherent to the prepuce and cannot be extruded.

Treatment:

- 1- If this condition is recorded in young immature animals, testosterone injection is advised.
- 2- In adult mature animals, surgical correction could be used

Surgical treatment:

Under local anaesthesia, double ligature is applied on the band of tissue and severed

D. None of the above.

21- Presence of the blood or pus in the semen of the bull mean

A. Orchitis

B. Hypoplasia

C. Degeneration

D. All of the above.

22- In case of unilateral Segmental aplasia of epididymis

A. The male is infertile

B. Female could suffer from repeat breeder

C. Both of the above

D. None of the above

23- Semino-vesculitis characterised by

A. Straining & arched back.

B. Reduced appetite

C. Symptoms similar to traumatic reticulitis.

D. All of the above

24- On a structurally sound bull, the front hooves slightly turned outward about.

A. 20 degrees

B. 30 degrees

C. 90 degrees

D. 120 degrees

25- To make an accurate progeny test for bull, it will take at least

A. 5 years & bull mount 30 females

B. 3 years & 10 female

C. 6 months to & 20 female

D. 15 years & bull mount 50 females

14- Unilateral cryptorchid testis is usually..... and most common in

- A. larger than normal testis - bull
- B. Smaller than normal - dog
- C. Equal in size to the normal testis - stallion
- B. Smaller than normal - ram

15- The spermatogenesis of the cryptorchid testis is

- A. Similar to the normal testis
- B. Larger than normal testis
- C. Lower than normal testis
- D. Non of the above

16- The animal with unilateral cryptorchidism is

- A. Fertile
- B. Infertile
- C. Sterile
- D. Fertile or infertile .

17- In Bilateral cryptorchidism the animal showing

- A. Normal sexual behavior
- B. Lack of sexual desire
- C. Exaggerated libido
- D. Non of the above.

18- Role of gubernaculum in descending testis is

- A. To contract and draw the testicle from the abdominal cavity to the scrotum.
- B. To relax and so the testis get through the abdominal cavity to the scrotum
- C. To contract and draw it from the abdominal cavity o the pelvic cavity
- D. All of the above

19- Animal with one testis and one ovary considered as

- A. Unilateral hermaphrodites
- B. Bilateral hermaphrodites
- C. Lateral hermaphrodites
- D. None of the above

20- Unilaterla abscess formation orchitis in ram

- A. The affected testis smaller in size
- B. Symmetrical two scrotal pouches
- C. Ram fertility will not changed

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- 6- Clinically in bull, the will be never felt, whilesecrets the main amount of fructose in seminal plasma.
A. Tail of the epididymis – prostate **B.** Body of the epididymis – seminal gland
C. Cowper's gland - ampullae **D.** Seminal gland – Testis
- 7- The Penile haematoma in the bull treated surgically..... of the fracture occurrence.
A. at first day **B.** at 5 days **C.** after 5 weeks **D.** after 5 hours
- 8- The firmness of the penis of the dogs is due to
A. Retractor penis muscle **B.** Bulbus glandis **C.** Pampiniform plexus **D.** Os penis
- 9- The Scrotal hernia in bulls could leads to Impotentia coeundi due to..... and the ideal handling is treatment.
A. Paraphimosis – medicinal **B.** Phimosis – surgical
C. inability to copulate - medicinal **D.** Pain - surgical
- 10- Lack of sexual desire in bull may be due toand in this case could be treated with
A. Exhaustion – sexual rest.
B. Arthritis – antibiotic treatment.
C. Deviated penis – surgical correction.
D. Psychological cause – force him to mount the female.
- 11- Preputial prolapse in bull leads to and that is form of
A. Phimosis – Impotentia coeundi
B. Paraphimosis – Impotentia generandi
C. Lack of sexual desire – Infertility **D.** lack of libido – Inability to fertilize
- 12- All of the following diseases in the male lead to asymmetry in the scrotal pouches and the normal sides are the smaller except in unilateral
A. Acute orchitis **B.** Scrotal hernia
C. Testicular tumor **D.** Testicular aplasia
- 13- All of the following diseases in the male lead to asymmetry in the scrotal pouches and the normal sides are the larger except in unilateral
A. Testicular hypoplasia, extreme form **B.** Sperm granuloma
C. Cryptorchidism **D.** Chronic orchitis



Assiut University

Faculty of veterinary medicine

Department of Theriogenology

PhD exam., Faculty of Science, Dept. Zoology

Course: *Reproduction and fertility problems* (2745)

Date: 4.7.2024

Time allowed 3 hours

I- First question (25 Mark; ONE for each)

Please, answer all of the following questions by choosing ONE correct answer only:

- 1- The sigmoid flexure is well developed in and its adhesion to the surrounding tissues leads to
A. Camel - paraphimosis B. Bull - paraphimosis
C. Stallion - phimosis D. Ram - phimosis
- 2- The descending of the testes into the scrotum in bovine occurs at and if it fails that called
A. Directly after parturition - Cryptorchidism
B. Half of the pregnancy - Cryptorchidism
C. during first 1.5 year after foaling - Testicular Aplasia
D. Sexual puberty - Sperm granuloma
- 3- The tunica dartos contains many and responsible for of the scrotal pouches during hot weather.
A. Blood vessels - the wrinkling B. Smooth muscle fibers - pendulous appearance
C. Blood vessels - pendulous appearance D. Smooth muscle fibers - the wrinkling
- 4- The process of spermatogenesis starts with cells which contain numbers of chromosomes.
A. Spermatogonia - diploid B. Spermatogonia - haploid
C. Primary Spermatocyte - diploid D. Primary Spermatocyte - haploid
- 5- Maturation of sperm cells occurs in where it loss.....
A. Accessory genital glands - acrosome B. Testes - plasma membrane
C. Epididymis - cytoplasmic droplet D. Female uterus - protoplasmic droplet

	Assiut University-Faculty of Science- Botany and microbiology department Second semester (2023/2024) Final exam of Selected topics in microbiology course (B752) Doctor degree Date: 4/7/2024 Time: 2 hour degree: /75	
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Answer the following question

Question 1: Write on the following points: (75 marks)

- 1- The costless method for production of levan by bacteria?
- 2- Method for recovery of levan?
- 3- Characterization of levan using UV-Vis spectrophotometer?
- 4- Enzyme for degradation of agrowaste?
- 5- FTIR analysis of a levan?
- 6- NMR analysis of a levan?
- 7- Detection of Molecular weight of levan?

With best regards

Professor: Sanaa Mohamed Fahmy

1) Re-write and complete the [value] and (unit) of the following Physical constants [15 grades] :

Constant	Symbol	Value	units
Speed of light in vacuum	C	2.9979×10^8	()
Elementary electron charge	e	1.602×10^{-19}	()
Electron rest mass	M_e	9.11×10^{-31}	()
Electron charge to mass ratio	e/m	[]	(coul/kg)
Proton rest mass	M_p	1.67×10^{-27}	()
Boltzmann constant	k	1.38×10^{-23}	()
Proton to electron mass ratio	M_p / M_e	[]	()
Gravitation constant	G	6.67×10^{-11}	()
Acceleration of gravity	g	[]	(m/(sec) ²)
Permittivity of free space	ϵ_0	8.854×10^{-12}	()
Permeability of free space	μ_0	$4 \pi \times 10^{-7}$	()
Planck's constant	h	6.6256×10^{-34}	()
Impedance of free space	η_0	$\sqrt{(\mu_0 / \epsilon_0)} = []$	$= 120 \pi ()$
Avogadro's number	A_r	6.023×10^{23}	()

Answer (17 grades for each) the following :

- 2.(a) Write the expressions for vector magnetic potentials for two of the three standard current configurations : current filament, sheet current and volume current.
- (b) wire is bent into a plane to form a square of 30cm side and a current of 10 A is passed through it. Calculate H at the centre of the loop
- 3.(a) Derive Poisson's equation and also its analogous one for static magnetic field.
- (b) A 1m diameter loop carries 25 Amp. Find the magnetic flux density (B):
 - (i) at the center of the loop (ii) on the loop axis 1m from the center
- 4.(a) Prove that the field $V = [A \rho^4 + B \rho^{-4}] \sin(4\phi)$ obeys Laplace's Equation
- (b) Show that characteristic impedance of free space is 377ohm
5. (a) Prove that any solution to Laplace's equation which satisfies the same boundary conditions must be the only solution regardless of the method used.
- (b) Write Maxwell's field equations in the differential and integral form for time harmonic fields
- 6.(a) What are the properties of uniform plane wave?
- (b) A series RLC circuit offers a good review in solving linear constant coefficient ordinary differential equations. A step voltage V_0 is applied to the circuit at $t=0$.
 - (1) Guess an exponential solution of form $i(t) = I e^{st}$, find the natural frequencies of the circuit.
 - (2) What are the steady-state voltages across each element?

$$(R/2L)^2 < (1/LC) \quad , \quad (R/2L)^2 = (1/LC) \quad , \quad (R/2L)^2 > (1/LC)$$

*** The End *** Prof. Galal S. Hassan *** Good Luck ***

1) Re-write and complete the (value) and (unit) of the following physical constants (15 grades):

1	B	13	✓	25	2	37	1	49	4
2	C	14	✓	26	2	38	3	50	3
3	A	15	X	27	2	39	1	51	3
4	B	16	✓	28	1	40	2	52	2
5	B	17	✓	29	3	41	1	53	4
6	A	18	X	30	2	42	2	54	2
7	B	19	2	31	4	43	3	55	3
8	C	20	1	32	3	44	4	56	3
9	✓	21	C	33	4	45	4	57	3
10	✓	22	B	34	3	46	4	58	3
11	x	23	1	35	3	47	4	59	4
12	✓	24	2	36	1	48	1	60	2

1	B	13	✓	25	2	37	1	49	4
2	C	14	✓	26	2	38	3	50	3
3	A	15	X	27	2	39	1	51	3
4	B	16	✓	28	1	40	2	52	2
5	B	17	✓	29	3	41	1	53	4
6	A	18	X	30	2	42	2	54	2
7	B	19	2	31	4	43	3	55	3
8	C	20	1	32	3	44	4	56	3
9	✓	21	C	33	4	45	4	57	3
10	✓	22	B	34	3	46	4	58	3
11	x	23	1	35	3	47	4	59	4
12	✓	24	2	36	1	48	1	60	2

Part IV Cell Biology (17 Marks)

Q1. Choose the best correct single answer:

(7 marks)

- 1- What is a stem cell?
 - a) A cell that can make copies of itself and specialized types of cell.
 - b) A cell that is specialized.
 - c) A cells that helps to fight against infections.
 - d) A cell that can produce all the cell types of the body
- 2- are responsible for proliferation function
 - a) HIF-1 and wnt
 - b) B-catenine
 - c) a & b
 - d) non of them
- 3--The pathways of Trophic function are mediated by.....
 - a) BDNF
 - b) HGF
 - c) VEGF
 - d) All previous answers.
- 4--.....are unspecialized cells that develop and renew that make up the different types of tissue in the human body.
 - a) Progenitor cells
 - b) Stem cells
 - c) Specialized cells
 - d) Induced pluripotent stem cells
- 5-- can efficiently disperse adipose tissue while maintaining high cell viability.
 - a)Collagenase
 - b) DEMSO
 - c) Trypsin/EDTA
 - d) SDS
- 6- Adipose tissue-derived stem cells (ADSCs) are isolated fromtissue.
 - a)Fat
 - b) bone marrow
 - c) umbilical cord
 - d) dental pulp
- 7- Why subculture of cells is necessary?
 - a) No enough space for cell growth
 - b) Accumulation of toxins
 - c) No enough nutrients for cell growth
 - d) All of the above

Q2. Write on the following questions:

- 1- What are general characteristics of stem cell? **(5 marks)**
- 2- Why passage cells and cryopreserve ells were necessary for culture? **(5 marks)**

With my best wishes
Prof. Dr. Mona M. Atia

Q2-(MCQ): Choose the appropriate letters A, B,C or D. (5 Marks: one mark each):-

1-Examples of simple proteins are:-

- A: Albumin, Globulin and glycine.
- B Albumin, Globulin,Collagen and Gelatin.
- C: Albumin Globulin,Collagen and cholesterol.
- D: Albumin, Globulin,Collagen and glycerin.

2-Pathologic heart sounds that are produced as a result of:-

- A:Valvular stenosis
- B :Valvular insufficiency
- C: hole in the wall or septum separating between the two atria or two ventricles.
- D: All the above.

3-Function of pericardium is:-

- A: Anchors the heart and Prevents overfilling of the heart with blood
- B: Gas exchange of blood.
- C: Allows for the heart to work in a relatively friction-free environment
- D: All the above except B

4-There are factors affecting basal metabolic rate BMR such as:-

A: Diet – Severe calorie restriction reducing BMR.

B:Increased body temperature will decrease basal metabolic rate.

C:Food type – carbohydrates increase BMR.

D:All the above except B.

5-The arrival of food to the stomach stimulate the stomach is wall to secrete hormone:-

- A: Secretin which stimulates gastric mucosa to secrete gastric juice.
- B: Gastrin which stimulates gastric mucosa to secrete gastric juice.
- C: Enterokinase which stimulates three enzymes of protein digestion
- D:A & B.

Q3: Answer the following questions:

(15 Marks: 7½ marks each)

1- What are the Advantages of additives? 8 items

2-Discuss the constituents of bile juice? Mention its functions? 5 items .

With my best wishes and great success,
Professor Dr. Mohamed Bassam Al-Salahy Elbradei

Part III Physiology (30 marks)

Q1- Answer by √ or X for these sentences: (10 marks, one mark each)

1-When the body decrease the dependence on body fat to produce energy leading to increase the level of keto bodies (acetone acetoacetic acid, B- hydroxy buterate) which are very toxic and called ketonemia. ()

2-Fats enter in synthesis of some hormones. Ex. sex hormones, adrenocortical hormones (aldosterone and cortisol. ()

3- Excess of vitamin K in food leads to probability of clot formation particularly in blood-disease patients. ()

4- Hepatocellular Jaundice leads to increase only conjugated (direct) bilirubin in blood. .()

5- Pernicious anemia is only resulted from inherited (or genetic) damage of gastric (inflammation) mucosa, however other megaloblastic anemia due to inflamed intestine is not called pernicious anemia. ()

6- Excess of vitamin D leads to the deposition of calcium salts in soft tissues such as kidney and ureter stones. ()

7- Rods of the retina are responsible for vision in dim light. (They contain a photosensitive pigment called rhodopsin (or visual purple) in Rods of retina. ()

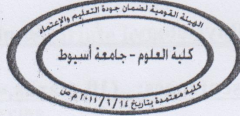
8- In the heart, sino-atrial node (S-A) is located at the superior lateral wall of the left atrium near the opening of the superior vena cava. .()

9- Calcium deficiency leads to rickets , osteomalacia , muscle contraction and delay the clot formation. ()

10- Cardiac valvular stenosis leading to murmurs which leads to blood flowing backward (regurgitation) through a damaged, leaky valve. ()



Assiut University
Faculty of Science
Zoology & Entomology
Department



Time: 3 hours

Date : 8 / 7 / 2024

Final Comprehensive Qualifying Exam
Answer the following questions: (80 marks)

Part I Physiology (16.5 marks)

Q1. Mention the hormones released by testes and ovaries. Discuss the functions of each of these hormones. (4.5 marks)

Q2. Focusing on the renal endocrine functions of the kidney (4 marks)

Q3. Write short notes on the following: (8 marks)

- a- The mechanism of Atrial Natriuretic Peptide.
- b- Define diffuse hormonal system
- c- Prostaglandins.
- d- Secretin.

With my best wishes
Prof. Dr. Abdel Baset Mohammed Ahmed

Part II Toxicology And Pesticides (16.5 Marks)

Q1. Complete the following sentences: (12 Marks, one M. for each point).

- 1- The disadvantages of additives in the food industry are.....(5 items).
- 2- The advantages of additives in food are..... (7 items).

Q2. What are the classifications of food additives? Based on criteria for their technological? (3 Marks)

Q3. What do you mean by additives? (1.5 Marks)

With my best wishes
Dr. Fatma El-Zahraa A. Abd El-Aziz



Answer the following sections:

Section (I)

- 1) Illustrate by example how Heck coupling, Still coupling and Sonogashira coupling have been employed in the synthesis of conjugated polymers.
- 2) The Ritter and Micheal reaction enables the easy preparation of polyetheramides in high yield at room temperature, illustrate your answer using examples of polymers synthesis.

Section (II)

"Conducting polymers (CPs) have drawn significant interest of researchers for more than 30 years because of their economic importance". Based on this, explain some examples of the synthesized, characteristics and applications of the conducting polymers and its nanocomposite.

Section (III)

Discuss in detail some of physical properties utilized in the characterization of polymers based on

- XRD
- Thermal analysis (TGA)
- Surface area

Section (IV)

- a) Show by reaction mechanism Photocatalytic atom transfer radical addition reactions including in Photocatalytic intermolecular atom transfer radical addition reaction of haloalkanes and α -halocarbonyls with olefins?
- b) Illustrated by equation Intermolecular carbonatization of inactivated alkenes utilizing O-vinylhydroxylamine derivatives as bifunctional reagents through an energy transfer mechanism?
- c) Based on your study show by equation Catalytic radical carbo-sulfation, silylation and amino-fluorination reactions (Carbo-sulfation of unactivated alkenes)?

Good Luck

Prof. Dr. Ahmed Abdo Geies & Prof. Dr. Ali Abd EL-Hameed Othman &
Prof. Dr. Otafy Abd EL-Gaffar & Prof. Dr. Kamal I Aly



Faculty of Science
Physics Department

Date: 8 July, 2024
Time: 3 hours

الأختبار التأهيلي الشامل

PART 1 (50 Marks)

Answer the following questions:

- 1- (a): What is The Principle of Silicon Solar Cells? (b): What is Dye-sensitized Solar Cells?
- 2- (a): What is the Perovskite Solar Cells (PSC)? (b)- Explain the Typical Structures of PSC?
- 3- (a): Explain, with the aid of diagrams, some Properties of Perovskite materials?
(b): Explain how Perovskite materials find application in many devices?

PART 2 (30 Marks)

Answer 5 questions from the following:

- 1- Write on both: i- Scanning electron microscope [SEM] and ii- High Resolution Transmission electron microscope [HER-TEM].
- 2- Describe briefly the working principle of HRTEM. Explain why a Field Emission Electron Microscope (FESEM) gives higher resolution than conventional Scanning Electron Microscope (SEM).
3. Describe in brief some nanotechnological applications of STM.
4. What is the difference between resolution and magnification?
5. What are the basic differences between an SEM and TEM?
6. Why is spatial resolution of STM better than AFM?

Best Wishes

III) Short Answer

15 Marks

1. Compare between Hemoglobin A and Hemoglobin F.
2. What the different between Hb- A and Hb-S?
3. How the concentrations of CO_2 and H^+ promote the release of O_2 from hemoglobin in the body?
4. What is the difference between corrin and porphyrin ?
5. Why has cobalt been given an essential role in cobalamins despite its very low availability?
6. What happens to oxygen in our body and where does it happen?
7. What is the reasons for the toxicity of Pb?
8. Explain why cyanide anion inhibits catalase activity for the decomposition of hydrogen peroxide (H_2O_2) into water and oxygen but carbon monoxide does not.
9. Compare between DNA and RNA in function and Sugar.
10. What causes the color change in the blood?

IV). Long Answer

11Marks

- 1.. Explain the mechanisms of the interaction of cis-platin complex with cancer DNA.
2. Discuss the Changes at the active site during oxygenation of Myoglobin and the evidence of oxidation of Fe.
3. Explain transport, formation and degradation of hydrogencarbonate in our body.

Good Luck

Examiner: Prof. Dr. Amna S. A. Zidan

Final Exam. for Ph.D .Degree Students (C723) in Bioinorganic Chemistry

I) Answer the following

15Marks

- 1) Zinc ions act as.....
- 2)is bulky organic materials and natural sources of plant nutrient.
- 3) carry oxygen in the blood of most mollusks, and they have two atoms at the active site are oxidized to and the dioxygen molecules are reduced to
- 4) The toxic forms of Hg are.....and.....
- 5) Holoenzyme is an enzyme composed fromand
- 6) Most widely used fertilizer throughout the world is
- 7)..... transports oxygen in the bloodstream. while stores oxygen in muscle tissues.
- 8) Paramagnetic metal ions used as contrast agents in MRI is: (Gd, Ga, Tc).
- 9)..... ions are the metalloenzym of cytochrome oxidase.

II) a. Match the following :

9Marks

- | | |
|-----------------|---------------------------|
| 1) Zn | Nitrogenase. |
| 2) Cu | It's an electron carrier. |
| 3) Fe | Carboxypeptidase. |
| 4) Cytochrome-c | Peroxidase . |
| | Haemocyanin. |

b. Match the following

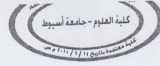
- | | |
|---------|--|
| 1) mRNA | replicates and stores genetic information. |
| 2) rRNA | is responsible for bringing amino acids |
| 3) DNA | is made in the nucleus, and it copies portions of genetic code |
| 4) tRNA | is found as part of ribosomes. |
| 5) ATP | Universal currency for energy in living systems. |
| | can be used to treat Down syndrome and Alzheimer's disease. |

See Next Page



Faculty of Science

Zoology and Entomology
Department



الامتحان التأهيلي الشامل لدرجة الدكتوراة

8/7/2024



Assiut University
Time: 3 hour
Level: PHD
Code: -

Answer the following (80 marks)

I: Answer the following (16 marks)

- What is the nanoparticles technique used against mosquitoes, and what is the mode of action or the mechanism of that application?
- Could you tell the disadvantages of this application?
- Do you know the four things that attract mosquitoes to human, and why do mosquitoes bite me especially after eating banana?
- What odor (do you think?) in nature mosquitoes are afraid of

II: Answer the following questions (24 marks)

- How can you distinguish between different kinds of common mosquito in both larval and adult stage?
- How do you design IPM program to control mosquitoes in your province? Referring to IPM components available in your state
- Discuss mosquito biology and behavior

III: Discuss THREE only of the following :- (30 marks)

- Recent trials to use nanoparticles in mosquito control (in the literature)
- RDL mutation as a form of insecticide resistance in mosquito
- Based on your background what are the major changes induced by nanoparticles on mosquito larval midgut?
- Role of insecticides (such as nanoparticles) in induction of ER stress in mosquito larvae

IV: Design a full experiment to calculate LC50 of silver nanoparticles on mosquito larvae (use arbitrary concentrations) (10 marks)

End of questions

Good luck

Prof. Dr. Medhat Sadek

Prof. Dr. Azza Awad

Prof. Dr. Mohamed Alaa

Prof. Dr. Ahmed Mostafa

Prof. Dr. Ali Mohamed

	Assiut University-Faculty of Science- Botany and microbiology department		
	First semester (٢٠٢٢/٢٠٢٣)		
	Final exam of Bacterial biotechnology course (B٧٢٩)- Doctor degree ٢١/٢/٢٠٢٤	Date:	
	Time: ٢ hour	degree: /٧٥	

Answer the following question

Question ١: Write on the following points: (٧٥ marks)

- ١- The method for production of levan by bacteria?
- ٢- Detection of above product concentration?
- ٣- Characterization of levan?
- ٤- Optimum conditions of levan?
- ٥- Structure of a levan monomer?
- ٦- Biosynthesis enzyme of levan?
- ٧- Detection of Molecular weight of levan?

With best regards

Professor: Sanaa Mohamed Fahmy



**Final Exam on Electric and Electromagnetic Prospection (G701)
For PhD Students – First Semester**

July: 2024

Time: 2 hours

Write in details on only FIVE of the following:

1. The protocol for the selection of the appropriate geophysical method for subsurface characterization
2. The ambiguity in geophysical interpretation
3. The source mechanisms of induced polarization in rocks and minerals
4. The ground penetrating radar in archaeological prospection
5. Basic theory of electromagnetic method, applications and advantages and limitations
6. The azimuthal resistivity method
7. A case study for the application of self-potential method in biogeophysics

End of questions

Prof. Dr.: Gamal Zidan AbdelAal

Good luck.....

3- a) [5pts] Derive the dispersion relation for a two-stream instability occurring when there are two cold electron streams with equal and opposite v_0 in a background of fixed ions. Each stream has a density $\frac{1}{2}n_0$.

b) [5pts] Calculate the maximum growth rate.

4- In laser fusion experiments one often encounters a hot electron distribution with density n_h and temperature T_h in addition to the usual population with n_e , T_e . The hot electrons can change the damping of ion waves and hence affect such processes as stimulated Brillouin scattering. Assume $Z=1$ ions with n_i and T_i and define $\theta_e = T_e/T_i$, $\theta_h = T_h/T_i$, $\alpha = n_h/n_i$, $1 - \alpha = n_e/n_i$, $\varepsilon = m/M$ and $k_{Di}^2 = n_i e^2 = \varepsilon_0 K T_i$.

a) [3pts] Write the ion wave dispersion relation for this three-component plasma, expanding the electron Z-functions.

b) [3pts] Show that electron Landau damping is not appreciably increased by n_h if $T_h \gg T_e$.

c) [4pts] Show that ion Landau damping is decreased by n_h , and that the effect can be expressed as an increase in the effective temperature ratio T_e/T_i .

5- A Langmuir-wave soliton with an envelope amplitude of 3.2 V peak-to-peak is excited in a 2 eV plasma with $n_0 = 10^{15} \text{m}^{-3}$. If the electron waves have $k\lambda_d = 0.3$, find.

a) [4pts] The full width at half maximum of the envelope (in mm).

b) [3pts] The number of wavelengths within this width.

c) [3pts] The frequency shift (in MHz) away from the linear-theory Bohm-Gross frequency.

*End of question
Good Luck
Dr. Hadeer El-Hawary*



Answer all the following: (10 Points each)

- 1- Calculate the resistive damping of Alfvén waves by deriving the dispersion relation from the single-fluid equations

$$\rho \frac{\partial \mathbf{v}}{\partial t} = \mathbf{j} \times \mathbf{B} - \nabla p + \rho \mathbf{g}, \quad \mathbf{E} + \mathbf{v} \times \mathbf{B} = \eta \mathbf{j}$$

and Maxwell's equations

$$\nabla \times \mathbf{E} = -\dot{\mathbf{B}}, \quad c^2 \nabla \times \mathbf{B} = \mathbf{j}/\epsilon_0 + \dot{\mathbf{E}}$$

Linearize and neglect gravity, displacement current, and ∇p .

- a) [5pts] Show that:

$$\omega^2/k^2 = c^2 \epsilon_0 (B_0^2/\rho_0 - i\omega\eta)$$

- b) [5pts] Find an explicit expression for $\text{Im}(k)$ when ω is real and η is small.

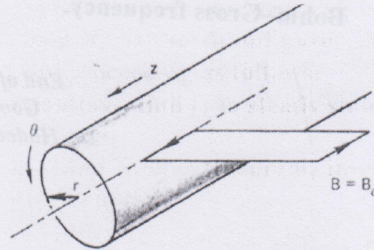
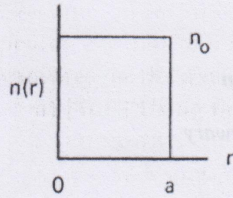
- 2- Consider an infinite, straight cylinder of plasma with a square density profile created in a uniform field B_0 as shown in figure. Show that B vanishes on the axis if $\beta = 1$, by proceeding as follows.

- a) [4pts] Using the MHD equations, find $j_\perp$ in steady state for $KT = \text{constant}$.

- b) [3pts] Using $\nabla \times \mathbf{B} = \mu_0 \mathbf{j}$ and Stokes' theorem, integrate over the area of the loop shown to obtain.

$$B_{ax} - B_0 = \mu_0 \sum \int_0^\infty \frac{\partial n / \partial r}{B(r)} dr, \quad B_{ax} \equiv B_0 = 0$$

- c) [3pts] Do the integral by noting that $\partial n / \partial r$ is a δ -function, so that $B(r)$ at $r = a$ is the average between B_{ax} and B_0 .



Assiut University

June 2024

Faculty of science

Time allowed: 3 hours

Chemistry Department

Final Exam for course No.C-725 for Ph.D. students in inorganic chemistry

Answer the following questions

Question No. 1

Discuss briefly the interaction of radiation with matter taking into consideration the following items

- A) Interaction of heavy charged particles.
- B) Interaction of light charged particles.
- C) Interaction of neutrons.
- D) Interaction of EMR.

Question No. 2

Discuss briefly the synthesis, properties and applications of Benzoxazine monomers and its polymers.

Prof.Dr/ R. M. Mahfouz

Prof.Dr/K. I. Aly

5. Choose the correct answer for the following: (14 Marks)

- a) How many oxygen atoms lined up in a row would fit in a one nanometer space?
1) None. 2) one. 3) seven. 4) seventy.
- b) Which of the following is an example of top-down approach for nanomaterials synthesis?
1) Gas-Phase agglomeration. 2) Molecular self-assembly.
3) mechanical grinding. 4) optical beam epitaxy.
- c) Which of the following is an example of bottom-up approach for nanomaterials synthesis?
1) Etching. 2) Dip pen nanolithography.
3) Lithography. 4) Erosion.
- d) The properties like melting point, solubility, color, ...etc, changes on varying...
1) Size. 2) surface properties.
3) composition. 4) none of the mentioned
- e) The properties like dispersibility and conductivity changes on varying
1) Size. 2) Surface properties.
3) Composition. 4) None of the mentioned
- f) What is the general name for the class of structures made of rolled up carbon lattices?
1) Nanorods. 2) Nanotubes. 3) Nanosheets. 3) Fullerenes.
- g) What is the measurement tool needed to measure the length of DNA?
1) Ruler. 2) Electron Microscope. 3) Optical microscope.

With my best wishes

Prof. Dina Fouad and Dr. Haitham El-Bery

Assiut University
Faculty of Science
Chemistry Department



Date: 27/06/ 2024

Time: 3 hours

Marks: 50

**Selected topics in Inorganic Chemistry (C-725)
For Science Postgraduate Ph.D students**

Answer the following questions: (50 Marks)

1. Define only three of the following terms (6 Marks)

Nanotechnology; photocatalysis; quantum dots, electrolysis cell

2. Differentiate between only two of the following (15 Marks)

- I. Single atom, nanocluster- and nanomaterial catalysts.
- II. SEM and TEM as characterization tools for nanomaterials.
- III. Top-down and bottom-up technique for nanomaterials synthesis.

3. Discuss only one of the following statements: (5 Marks)

- I. The advantages and limitations of photocatalysis for hydrogen generation via water-splitting.
- II. Mechanism of hydrogen evolution in different electrolyte solution.

4. Put (✓) or (X) for the following sentences, and correct the wrong answer: (10 Marks)

- I. Buckyball are concrete nanoparticles with compressive strength of 20 nm.
- II. Aluminum at the nanoscale is highly combustible
- III. Quantum confinement causes the energy gap of semiconductor is proportional to the inverse of the size.
- IV. Self-assembly is a top-down manufacturing technique.
- V. Self-assembling molecules adopt an organized structure which is thermodynamically more stable.
- VI. Nanomaterials are used in the light emitted electro-luminescence devices.



Botany and Microbiology Department
For Students of the Ph. D. level



{50Marks}

Physiological Plant Ecology (B716)

Time: 2 hours

Second Semester 2023/2024

Answer on the following questions:

I-Give an account on the plant survival of drought and salinity habitats.

II-Write on TWO only of the followings:

a-Phytoshere as a apart of ecosystem.

b-Hydrostable and hydrolable plant types.

c-Bioclimate and phytosphere.

III-Write briefly on the functional types of water balance indifferent plant life forms.

IV- Under stress, plant possess through a sequence of characteristic phases.

Discuss this word?

GOOD LUCK

Prof. K.A. Farghali

5. Choose the correct answer for the following: (14 Marks)

- a) How many oxygen atoms lined up in a row would fit in a one nanometer space?
1) None. 2) one. 3) seven. 4) seventy.
- b) Which of the following is an example of top-down approach for nanomaterials synthesis?
1) Gas-Phase agglomeration. 2) Molecular self-assembly.
3) mechanical grinding. 4) optical beam epitaxy.
- c) Which of the following is an example of bottom-up approach for nanomaterials synthesis?
1) Etching. 2) Dip pen nanolithography.
3) Lithography. 4) Erosion.
- d) The properties like melting point, solubility, color, ...etc, changes on varying...
1) Size. 2) surface properties.
3) composition. 4) none of the mentioned
- e) The properties like dispersibility and conductivity changes on varying
1) Size. 2) Surface properties.
3) Composition. 4) None of the mentioned
- f) What is the general name for the class of structures made of rolled up carbon lattices?
1) Nanorods. 2) Nanotubes. 3) Nanosheets. 3) Fullerenes.
- g) What is the measurement tool needed to measure the length of DNA?
1) Ruler. 2) Electron Microscope. 3) Optical microscope.

With my best wishes

Prof. Sahar Abdel-latif and Dr. Haitham El-Bery

Assiut University

Faculty of Science

Chemistry Department



Date: 27/06/ 2024

Time: 3 hours

Marks: 50

**Selected topics in Inorganic Chemistry (C-725)
For Science Postgraduate Ph.D students**

Answer the following questions: (50 Marks)

1. Define only three of the following terms (6 Marks)

Nanotechnology; optical biosensors; quantum dots, MOFs

2. Differentiate between only two of the following (15 Marks)

- I. Nanosensors and Biosensors.
- II. SEM and TEM as characterization tools for nanomaterials.
- III. Top-down and bottom-up technique for nanomaterials synthesis.

3. Discuss only one of the following statements: (5 Marks)

- I. The Mechanisms of photoluminescence in MOFs
- II. Advantages of MOFs-based fluorescence sensors

4. Put (✓) or (X) for the following sentences, and correct the wrong answer: (10 Marks)

- I. Buckyball are concrete nanoparticles with compressive strength of 20 nm.
- II. Aluminum at the nanoscale is highly combustible
- III. Quantum confinement causes the energy gap of semiconductor is proportional to the inverse of the size.
- IV. Self-assembly is a top-down manufacturing technique.
- V. Self-assembling molecules adopt an organized structure which is thermodynamically more stable.
- VI. Nanomaterials are used in the light emitted electro-luminescence devices.

Faculty of Science Botany and Microbiology Dept.		كلية العلوم قسم النبات والميكروبيولوجي
Bioremediation (B731) Time: 3 hours Marks:50 marks		2023/2024 Level: For Ph. D. students

First question: - Write briefly on the following:- (30 marks).

- 1- Factor affecting on biochemical oxygen demand.
- 2- Pollutions and problems caused by algae.
- 3- The toxic effect of heavy metals (only three).
- 4- Bioremediation of heavy metals by algae.
- 5- Waste water treatments.

Second question:- write the definition of the following:- (20 marks).

- 1- Pollution of water.
- 2- BOD, COB and DO.
- 3- Eutrophication.
- 4- Blooms.

Good luck

Dr Eman Aldaby

Assiut University, Faculty of Science

Zoology Dept.

Post graduate program, PhD

Time allowed: 3hr



final exam, 27-06-2024

2nd semester, 2023- 2024

adv. Signal transduction (z704)

50 marks

Answer the following questions and illustrate your answer with drawings whenever possible (50 marks, 10 marks each)

- 1- Mention in details the types of receptors according to location and mode of signaling.
- 2- Write briefly on the signaling pathway of JAK-STAT and Ras proteins.
- 3- Discuss the molecular structure of nuclear receptors.
- 4- Write on Tumor Suppressor Genes and mention their functions.
- 5- Write on Second Messengers and their types.

End of questions

21) *Boophilus* spp. is:

- a) One host tick
- b) Two host ticks
- c) Three host tick
- d) Free living tick

22-Otorrhea and ulceration of auditory canal of cats caused by:

- a) *Knemidocoptes gallinae*
- b) *Rhipicephallus sanguinus*
- c) *Otodectes cynotis*
- d) *Sarcoptes scabiei*

23- The skin Dermatitis from hard ticks is mainly due to:

- a) The components of Hard tick saliva
- b) Mouth parts remain in the wound
- c) Both a & b
- d) Migration of the tick in skin

24-The vector responsible for transmission of *Babesia* and *Theileria* to animals and human is:

- a) Hard ticks of family Ixodida
- b) *Sarcoptes scabiei*
- c) Soft ticks of family Argasidae
- d) *Psoroptis cuniculi*

25) Laboratory diagnosis of scabies is best done by:

- a) Fecal examination
- b) Serology
- c) Blood examination
- d) Skin scraping

2-True or false: (one mark for each, total 10 marks)

- 26- Mites have exposed and armed hypostome ()
- 27- Finding one mite of *Demodex follicularum* in skin scrubbing confirming demodocosis in animals. ()
- 28-Ticks can feed on cellular debris ()
- 29- Soft tick larva has festoons in the posterior margin ()
- 30- Ticks can produce neurotoxins which can lead to paralysis of the host. ()
- 31- Mouth parts of mites can be anchored in the host dermis ()
- 32- The hard ticks are microscopic ()
- 33-Ticks and mites have zoonotic importance (can be transmitted from animals to human) ()
- 34- *Psoroptes* spp. causing Scab disease in sheep. ()
- 35-*Sarcoptes scabiei* is considered one of the burrowing mites ()

9- How can the hard tick transmit *Babesia Spp.* to their host?

- a) Mechanically by its proboscis.
- b) By trans ovarian transmission
- c) Mechanically by its legs and bristles
- d) It doesn't transmit *Babesia*

10- What is the disease caused by *Knemidocoptes gallinae*?

- a) Depluming itch
- b) Scabies
- c) Gastroenteritis
- d) Scaly leg disease

11- How long can the *Argas persicus* adult female live without blood meal?

- a) Up to 3 weeks
- b) Up to one year
- c) Up to 10 months
- d) Up to 4 years

12- The female of hard tick is different from male in:

- a) Scutum is smaller
- b) Smaller in size
- c) It has 3 pairs of legs
- d) Leathery abdomen

13- *Psoroptes cuniculi* is a mite affecting rabbits causing:

- a) Scaly leg disease
- b) Scab.
- c) Leg and foot mange
- d) Ear canker

14- What is the habitat of *Sarcoptes scabiei*?

- a) Kidney
- b) Superficial layer of skin
- c) Tunnels under skin
- d) Hair follicles

15- (Pinna pedal reflex) is used for rapid diagnosis of:

- a) *Knemidocoptes pilae*
- b) *Otodectes cynotis*
- c) *Sarcoptes scabiei*
- d) Hard tick infestation

16- The (Capitulum) in Acarines represent:

- a) The mouth parts (Pseudo head)
- b) The genital organs
- c) The circulatory system
- d) The jointed legs

17- The most effective treatment of Ticks and mites is:

- a) Albendazole
- b) Penicillin
- c) Praziquantel
- d) Ivermectin

18- Scales, crust formation and hyperkeratosis are characteristic signs in infection with:

- a) Hard tick infestation
- b) Soft tick infestation.
- c) Burrowing mite infestation
- d) Non-burrowing mite infestation

19- What are the clinical signs appear in human and animals infected with *Demodex follicularum*?

- a) Gastroenteritis
- b) Paralysis
- c) Hyper keratosis
- d) Pea size nodules and acne

20- What is the habitat of *Demodex follicularum*?

- a) Small intestine
- b) Superficial layer of skin
- c) Tunnels under skin
- d) Hair follicles

3- Write your diagnosis in the following cases: (3 mark for each, total 15 marks)

36- A dog suffering from heavy infestation of large brown ticks found on the ear pinna and in the interdigits making severe dermatosis and irritation.

- a) What is the suspected tick genus?
- b) What are the protozoa transmitted by this vector?

37- A horse has severe itching, edema and thick crust formation at the distal part of the limbs which resulted in lameness (altered walk).

- a) What is your diagnosis?
- b) What is the type of this mite (Burrowing-Non-burrowing)?

38- A cat suffering from intense irritation, pruritus, scratching of ear & head shaking, also there is black and reddish-black exudate in ear canal, by otoscopy there was clusters of tiny moving arachnid.

- a) What is your diagnosis?
- b) Mention another arachnid could affect cat face and ears?

39- A male patient suffering from great irritation in his hands and arms, scratching led to edema, hyperemia and alopecia followed by crust formation and hyperkeratosis.

- a) What is your diagnosis?
- b) What is the best clinical test used for diagnosis?

40- An owner of small parrot complains from loss of feathers in the face of his parrot with itching, crust formation and scaling around the beak, examination of the legs reveal severe scales.

- a) What is your diagnosis?
- b) Mention the other species from the same genus and name of the disease?

With my best wishes

Dr./Sara Abd El-aal Mohammed

21) *Boophilus* spp. is:

- a) One host tick
- b) Two host ticks
- c) Three host tick
- d) Free living tick

22- Otorrhea and ulceration of auditory canal of cats caused by:

- a) *Knemidocoptes gallinae*
- b) *Rhipicephallus sanguinus*
- c) *Otodectes cynotis*
- d) *Sarcoptes scabiei*

23- The skin Dermatitis from hard ticks is mainly due to:

- a) The components of Hard tick saliva
- b) Mouth parts remain in the wound
- c) Both a & b
- d) Migration of the tick in skin

24- The vector responsible for transmission of *Babesia* and *Theileria* to animals and human is:

- a) Hard ticks of family Ixodida
- b) *Sarcoptes scabiei*
- c) Soft ticks of family Argasidae
- d) *Psoroptis cuniculi*

25) Laboratory diagnosis of scabies is best done by:

- a) Fecal examination
- b) Serology
- c) Blood examination
- d) Skin scraping

2- True or false: (one mark for each, total 10 marks)

- 26- Mites have exposed and armed hypostome ()
- 27- Finding one mite of *Demodex follicularum* in skin scrubbing confirming demodectosis in animals. ()
- 28- Ticks can feed on cellular debris ()
- 29- Soft tick larva has festoons in the posterior margin ()
- 30- Ticks can produce neurotoxins which can lead to paralysis of the host. ()
- 31- Mouth parts of mites can be anchored in the host dermis ()
- 32- The hard ticks are microscopic ()
- 33- Ticks and mites have zoonotic importance (can be transmitted from animals to human) ()
- 34- *Psoroptes* spp. causing Scab disease in sheep. ()
- 35- *Sarcoptes scabiei* is considered one of the burrowing mites ()

9- How can the hard tick transmit *Babesia Spp.* to their host?

- a) Mechanically by its proboscis.
- b) By trans ovarian transmission
- c) Mechanically by its legs and bristles
- d) It doesn't transmit *Babesia*

10-What is the disease caused by *Knemidocoptes gallinae*?

- a) Depluming itch
- b) Scabies
- c) Gastroenteritis
- d) Scaly leg disease

11-How long can the *Argas persicus* adult female live without blood meal?

- a) Up to 3 weeks
- b) Up to one year
- c) Up to 10 months
- d) Up to 4 years

12- The female of hard tick is different from male in:

- a) Scutum is smaller
- b) Smaller in size
- c) It has 3 pairs of legs
- d) Leathery abdomen

13-*Psoroptes cuniculi* is a mite affecting rabbits causing:

- a) Scaly leg disease
- b) Scab.
- c) Leg and foot mange
- d) Ear canker

14- What is the habitat of *Sarcoptes scabiei*?

- a) Kidney
- b) Superficial layer of skin
- c) Tunnels under skin
- d) Hair follicles

15-(Pinna pedal reflex) is used for rapid diagnosis of:

- a) *Knemidocoptes pilae*
- b) *Otodectes cynotis*
- c) *Sarcoptes scabiei*
- d) Hard tick infestation

16- The (Capitulum) in Acarines represent:

- a) The mouth parts (Pseudo head)
- b) The genital organs
- c) The circulatory system
- d) The jointed legs

17- The most effective treatment of Ticks and mites is:

- a) Albendazole
- b) Penicillin
- c) Praziquantel
- d) Ivermectin

18-Scales, crust formation and hyperkeratosis are characteristic signs in infection with:

- a) Hard tick infestation
- b) Soft tick infestation.
- c) Burrowing mite infestation
- d) Non-burrowing mite infestation

19- What are the clinical signs appear in human and animals infected with *Demodex follicularum*?

- a) Gastroenteritis
- b) Paralysis
- c) Hyper keratosis
- d) Pea size nodules and acne

20- What is the habitat of *Demodex follicularum*?

- a) Small intestine
- b) Superficial layer of skin
- c) Tunnels under skin
- d) Hair follicles



قسم الطفيليات



Assiut University
Department of Parasitology
M.D. Exam
Subject: Acarology
No. of Pages: 4 pages

Faculty of Vet. Medicine
Date :27- -6-2024
Time of Exam: 3 Hours
Code:E731
(50 marks)

1- Choose the correct answer: (one mark for each, total 25 marks)

1- The characters of Acarines include:

- a) Head is well separated from thorax
- b) Head, thorax and abdomen are fused forming sac like body.
- c) Head and thorax fused and separated from abdomen.
- d) They have 2 pairs of wings

2- What is the harmful pathogenesis resulted from hard tick toxins in the host:

- a) Hard tick diarrhea
- b) Hard tick renal failure
- c) Hard tick pneumonia
- d) Hard tick paralysis

3- One of the main differences between hard and soft ticks is:

- a) Abdomen is sclerotized in Soft ticks.
- b) Capitulum visible from above in Soft tick.
- c) Abdomen is sclerotized in Hard ticks.
- d) Leather abdomen in Hard ticks

4- The Pupa stage is absent in:

- a) Holometabolous.
- b) Hemimetabolous.
- c) Direct life cycle.
- d) Indirect life cycle.

5-What is the Scientific name of the (blue bugs):

- a) *Argas persicus*
- b) *Boophilus microplus*
- c) *Rhipicephallus sanguinus*
- d) *Sarcoptes scabiei*

6- Scaly leg disease in Chicken is caused by:

- a) *Knemidocoptes pilae*
- b) *Otodectes cynotis*
- c) *Knemidocoptes mutans*
- d) *Notoedres cati*

7- The mite which interfere with wool industry in sheep especially in winter months:

- a) *Psoroptes ovis*.
- b) *Otodectes cynotis*.
- c) *Knemidocoptes mutans*
- d) *Argas persicus*

8- All of the following are non-burrowing mites except:

- a) *Psoroptes cuniculi*
- b) *Chorioptes bovis*
- c) *Otodectes cynotis*
- d) *Sarcoptes scabiei*