


تبار حيويا

 1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	2 nd year Chemistry/Zoology (credit hours)			
	COURSE TITLE	Systematic and Phylogeny (الإمتحان في ثلاث ورقات)		COURSE CODE: ZO2123
DATE:	January 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

First Group (50 MARKS)

- Answer The following questions:

- 1- Discuss the basis and evidences of incorporation of flagellates and sarcodinians in phylum Sarcomastigophora ? (6 marks)
- 2- Mention the phylogeny of phylum apicomplexa? (6 marks)
- 3- Identify the amoebic-flagellate form transformation in *Naegleria* and factors affecting cysts formation? (10 marks)
- 4-Describe the phenomena of life cycle polymorphism in order Kinetoplastida and give an example of each stage? (10 marks)
- 5-Complete: (10 marks)
 - 5-a-Infection by *Trichomonas vaginalis* is common in the system of human and occurs through , and
 - 5-b- Types of pseudopodia in sarcodins are , ,
 - 5-c- The shells of foramineferan is made up of , ,

6- Chose the best correct answer and rewrite it in your answer sheet:

..... (8 marks)

6-1- Alternation of generation of *Elphidium (Polystomella)* can be represented by:

- | | |
|--|----------------------------------|
| a- Microspheric and macrospheric forms | b- Amastigote and promastigote |
| c- Epimastigote and trypomastigote | c- Macrospheric and promastigote |

6-2- The reserved food of class *Zoomastigophora* is mainly represented by:

- | | |
|--|-----------------|
| a- Starch or other amyloidal substances. | b- Oil droplets |
| c- Glycogen | c- Glucose |

6-3-The locomotion of *Euglena* is carried out by:

- | | |
|---------------------------|------------------------------|
| a- Pseudopodial movment | b- Flagellar or/and pellicle |
| c- Flagellar movment only | c- Cilliary movment |

6-4-Leishmanial stage of *Leishmania tropicana* inhabits:

- | | |
|-----------------------------------|------------------------------------|
| a- Gut of sand fly | b- Gut of phlebotomus |
| c- Erythrocytes (Red blood cells) | c- Macrophages (white blood cells) |

6-5- Asexual reproduction in *Paramecium* is carried out by:

- | | |
|--|--------------------------------|
| a- Transverse binary fissionand Multiple fission | b- Longitudinal binary fission |
| c- Autogamy | c- Syngamy |

6-6- Intestinal development of *Toxoplasma* in the final host (cat) come after ingestion of:

- a- Mature oocyst (2-3 days) contains two sporocysts each with four sporozoites or brains of mice contain cysts,
- b- Shizogony
- c- Immature oocyst (1 day)
- c- Gametogony

6-7- *Plasmodium falciparum* causes:

- a- Benign tertian malaria
- b- Fatal malignant tertian malaria
- c- Fatal quatrain malaria

6-8- Subclass *Coccidia* inhabit:

- a- Extracellular, gut and body cavity
- b- Erythrocytes and fixed cells
- c- Intracellular

Second Group (50 MARKS)

Answer the following:- (15 degrees)

1-How does Porifera fit in ?

2-Explain the type of eyes in cubozoans ?

B- Fill in the spaces: (23 degrees)

1- secrete the mineralized *spicules* (little spines) which forms the of many sponges and provide defense against predators.

2- Corals contain algae called zooxanthellae. The photosynthesize and provide food for the coral while the coral provides a Home.

3-. Global warming leads to

4-Both poriferans and cnidarians haveand

5-The phylum cnidaria classified intoclasss according to

6- The main difference between polyp and medusa is.....

7- Taxonomy is branch of biology thatand groups organism according to their characteristic andhistory.

C-Choose the most correct answer: (12 degrees)

1-The Unique character of sponges is :-

- a. Adult sponges are sessile (they are attached to a surface)
- b. There are over 5000 species of sponges.
- c. Most are marine but some are found in fresh water.
- d .They are the simplest animal to have cells specialized to do tasks but they do not form true tissues.

2- Which of the following is not a function of cnidarians polyp ?

- a. protect against adverse environments.
- b. sites for nuclear reorganization and cell division.
- c. reproductions.
- d. feeding

3-How do some sponges play an important role in the primary productivity of coral reefs?

- a. they provide food for sponge-eating sea stars.
- b. they attract light with their antennae.
- c. they are harvested for sale as bath sponges.
- d. they have symbiotic relationships with photosynthetic organisms.

4-Cnidocytes help a cnidarian survive by:

- a. storing food.
- b. forming colonies.
- c. paralyzing prey
- d. providing movement

Third Group (50 MARKS)

- Answer the following questions:

A- Complete: (16 marks)

- 1) Nematodes use their as a hydrostatic skeleton.
- 2) Class Trematoda classified into two subclasses.....
- 3) Intermediate host of *Taenia solium* is.....
- 4) is the mode of infection of *Heterophyes heterophyes*
- 5) represent the excretory system of Platyhelminthes.
- 6) is the larva of Aspidogastrea.
- 7) Phasmids mean.....
- 8) Strobilation means.....

B- Give a short account on the followings:- (24 marks)

- 1) Holdfast organs of Cestodes.
- 2) Comparison between *Ancylostoma duodenale* and *Ascaris lumbricoides* in the mode of infection, infective stage and external morphology.
- 3) Taxonomy of class Monogenea is considered controversial.

C- Give the reasons for each of the followings:- (10 marks)

- 1) *Ancylostoma duodenale* named Hookworm.
- 2) Evolutionarily Monogenea appears to be more closely related to cestodes than trematodes.

Best wishes

Examiners: Prpf. Dr. Mostafa H. ElMehlawy
Dr. Hewida Abo Shafey

Prof. Dr. Naglaa Geasa

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January 2014
Time allowed: 2 hrs.
Course No. : CH 2111

Answer The Following Questions : (100 Marks)

i- KCN . ii- Dil. NaOH . iii- NH₃ .
iv- Sodium ethoxide . v- Alcoholic KOH .

b- - Describe the effect of the following: (6 Marks)

- i- NaOH on α - , β - and γ - chlorobutyric acids .
- ii- Heat on α - , β - and γ - hydroxybutyric acids .
- iii- NaOH on an oil (saponification process) .

2) An organic compound **A** discharge the colour of bromine, and on ozonolysis gave compound **B** ($\text{C}_3\text{H}_6\text{O}$) and compound **D** ($\text{C}_4\text{H}_8\text{O}$). Compound **B** react with 2,4- DNP and reduce Fehling solutions but give no iodoform test; while compound **D** react with 2,4- DNP and can not reduce Fehling solutions but give iodoform test. What are **A**, **B** & **D**? Illustrate your answer by equations. (12 Marks)

3) Carry out the following conversions: (18 Marks)

i- Methyl iodide	→	ethylacetate .
ii- Carbon grafite	→	acetaldehyde .
iii- Ethanol	→	2- butanone .
iv- n- Butyl alcohol	→	sec- butyl alcohol .

4) a- Write all possible isomers of an organic compound with M.F. C_5H_{10} .
b- Describe by equations the reactions of ethyl alcohol with each of the following reagents : (10 Marks)

i- PCl_3 . ii- Sodium metal. iii- H_2O_2 .
iv- Acetic acid (conc. H_2SO_4). v- conc. H_2SO_4 (170°C).

5) Write the mechanism of the following reactions : (18 Marks)

a- Acetaldehyde + NaOH (dil.) \rightarrow ---- $\xrightarrow{\text{heat}}$ -----.

b- Acetophenone + HCN $\xrightarrow{\text{catalyst}}$ 

c- 2- Butanol + conc. H_2SO_4 (170°C) \rightarrow ----- .

$$\text{d-1-Butene} + \text{HBr (H}_2\text{O}_2) \rightarrow$$

Final Examination for the 2nd year students
For chemistry /Geology , Zeology & Bio sections
Organic 1

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Answer the following Questions :

Total Assessment Marks:100

1-) A- Choose the correct Answer : (In Chemical equations) .

- 1) benzene react with n-propyl chloride in the presence of anhydrous aluminium chloride to give .
a-) iso propyl amine . b-) n- propyl benzene c-) iso propyl benzene d-) all Choice wrong
- 2) Oxidation of tert-butylbenzene with acidic KMnO_4 yield
a-) Toluene b-) benzoic acid c-) benzaldehyde d-) All choice wrong
- 3) phenyl magnesium bromide react with formaldehyde in presence of $\text{H}_2\text{O}/\text{H}^+$ yield
a-) benzoic acid b-) ethyl benzene c-) cumene d-) benzylalcohol .
- 4) tertiary aromatic amine react with nitrous acid to give
a-) Aniline hydrochloride b-) N-nitroso amine c-) P-nitrosoamine d-) Acetanilide
- 5) Acetophenone react with ammonia followed by reduction by using H_2/Ni yield
a-) benzylamine b-) p-nitroaniline c-) phenylethylamine d-) diphenylamine .
- 6) Phenols react with methyl iodide in presence of NaOH yield
a-) Anisole b-) Benzoic acid c-) toluene d-) catechol

B- Rewrite (✓) or (×) for the following , correcting the wrong one :

- a- 2 mole of aniline react with carbondisulphide in alcoholic medium to give phenylurea ()
- b- Direct acetylation of aniline with acetylchloride give o-acetylaniline ()
- c- Primary aromatic amine react with nitrous acid to give phenol ()

2-) A- Define each term and give an example

- a- Activating group b- Deactivating group c- Benzyne mechanism
- d- Benzylic position e- N-nitroso amine f- Schiff base

B- show how you would synthesize the following aromatic derivatives from benzene

- a- Benzene sulphonamide b- benzyl alcohol c- benzoic acid d- acetonitrile

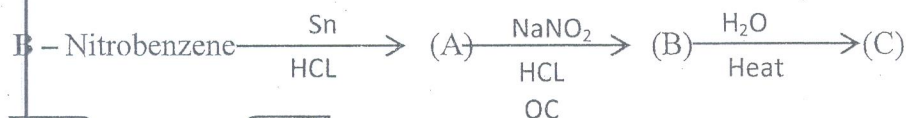
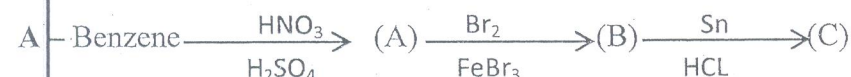
3- A) Draw all the resonance forms of the sigma complex for nitration of toluene at the ortho, meta and para positions point out why the intermediate for meta substitution is less stable than the other two

B) Discuss the mechanism of sulphonation of benzene .

4- A) Explain why the nitro group act as a meta director and deactivating when it is present on a benzene ring undergoing electrophilic substitution

B) What happens when benzamide is treated with bromine in sodium hydroxide solution ?


5- Identify the unknown compounds (A) , (B) , and (C)



Good Luck

Dr. Mohamed Hamed

مطالع بالفيديو بنات ، كيمياء حيوية
المسؤولية جمع الكتب الحرة

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SOPHOMORES (BIOCHEM, CHEM/BOT, CHEM/GEO, CHEM/MICRO)		
	COURSE TITLE:	CHEMICAL THERMODYNAMICS (CH2141)	TIME ALLOWED: 2 HOURS
DATE: DEC 27, 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	

Answer the following questions:

1) Illustrate the first and the second stages of Carnot cycle and calculate the work and the heat absorbed in these two stages only. (10 marks)

2) The dissociation pressure of calcium carbonate is 40 cm of mercury at 300 °C, 56 cm of mercury at 320 °C ($R = 1.99 \text{ Cal K}^{-1} \text{ mol}^{-1}$). Calculate the heat of dissociation of calcium carbonate. (10 marks)

3) Compare between the open, closed and isolated systems (with examples) (10 marks)

4) Prove that the difference between the heat capacity at constant pressure and the heat capacity at constant volume is constant for the expansion of one mole of a gas into a vacuum. (15 marks)

5) Calculate the work done by an ideal gas (volume = 20 L and pressure = 15 atm) that has expanded in two stages: a) when the external pressure was 8 atm b) when the external pressure was 2 atm. (15 marks)

6) Define: (10 marks)
a) Heat of neutralization b) Hess's law of constant heat summation

7) Prove that $(\delta A/\delta T)_V = -S$ (10 marks)

8) Calculate ΔG° for the formation of one mole of ammonia at 35 °C: (20 marks)



	N ₂	H ₂	NH ₃
ΔH (kJ/mol)	0	0	- 46.2
S° (J/mol. K)	191.5	130.5	192.6

Good Luck

Examiners: Prof. Mohamed Hany Shaaban

Dr. Wael A. Amer



TANTA UNIVERSITY
FACULTY OF SCIENC
CHEMISTRY DEPARTMENT

FINAL EXAM FOR 2nd LEVEL STUDENTS (CHEMISTRY-ZOOLOGY, CHEMISTRY-GEOLOGY, GEOLOGY,
BOTANY, ZOOLOGY SECTIONS)

COURSE TITLE	THE CHEMISTRY OF THE MAIN GROUP ELEMENTS	TIME ALLOWED: 2 HOURS
CODE	CH2107	
DATE: DEC 29, 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS
		100

[I]. Give reasons for the following.

(25 Marks)

- 1- Water has an abnormally low volatility than the other hydrides of gp VI.
- 2- Beryllium salts are ionic with acidic character when dissolved in water.
- 3- The trisilyamine, $(\text{SiH}_3)_3\text{N}$ has a trigonal planar structure.
- 4- The bond energy in F_2 is abnormally low.
- 5- Despite the existence of PCl_5 , the PH_5 does not exist.

[II]. Rank each of the following series from high to low according to the given criteria and give reasons.

(25 Marks)

- 1- Li^+ , Na^+ , K^+ , Rb^+ , Cs^+ (Conductivity in aqueous solution)
- 2- BF_3 , BCl_3 , BBr_3 (Lewis acid strength)
- 3- NH_3 , PH_3 , AsH_3 (Donor properties and stability)
- 4- HF , HCl , HBr , HI (Acidity strength)
- 5- Diamond, Graphite (Thermal and electrical conductivity)

[III]. Mention the important use and applications of each of the following.

(25 Marks)

- 1- Hydrogen
- 2- Carbon halides
- 3- Phosphates
- 4- Alkali metals

[IV]. Draw the structure only of the following.

(25 Marks)

- 1- Types of Silicates (three types).
- 2- Sulphurous acid, sulphuric acid and peroxosulphuric acid.
- 3- Phosphorous trioxide and phosphorous pentoxide
- 4- Boric acid, Triborate anion, cyclic polyborate anion and Borazine.
- 5- Oxyacides of halogens.

Good Luck

Examiner	Dr. Mohamed Mansour El-bendary
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Q4-A: MCQ**(10 marks)**

1) What provides energy that drives the addition of nucleotides to a growing DNA chain?

- A) The release of a pyrophosphate B) The hydrolysis of ATP
C) The hydrolysis of co-enzymes D) The release of ATP

2) Which of the following is NOT a source of DNA damage?

- A) Oxidation B) De-amination C) Adenylation D) Radiation

3) Sigma factor does which one of the following?

- A) Joins Okazaki fragments to DNA chain B) Methylates DNA
C) Catalyzes DNA replication D) Enhances transcription

4) Which of the following nucleotides define a translational start codon in eucaryotes?

- A) 5'AAG 3' B) 5'AAA 3' C) 5'UAG 3' D) 5'AUG 3'


5) Both polymerases and ligases form phosphodiester bonds, only one difference:

- A) Ligases form bonds by elongation and polymerases by binding two ends.
B) Polymerases form bonds by elongation and Ligases by binding two ends.
C) Ligases join sticky ends and polymerases by binding two ends.
D) Polymerases form bonds by binding sticky ends and Ligases by elongation.

Q4-B: Complete the following:**(15 marks)**

- The nucleosome core particle consists of approximately-----base pairs of DNA wrapped in ----- left-handed superhelical turns.
- The termination area of RNA transcription is rich with -----&----- nucleotides followed by -----or----- bases.
- The RNA polymerase involved during the DNA replication process is called-----
- Self-splicing RNA enzymes are termed-----
- tRNAs usually attach to ribosomal ----- and ----- during protein biosynthesis.

Examiners:**Prof. Ihab M. Tousson****Prof. Elsayed I. Salim***Good luck*

	TANTA UNIVERSITY FACULTY OF SCIENCE ZOOLOGY DEPARTMENT			
	FINAL EXAM FOR MAJORS BIOCHEMISTRY SPECIAL, CHEM/BIOCHEMISTRY			
	LEVEL: (2)	COURSE TITLE: CELL BIOL & GENETICS		COURSE CODE: ZO2101
	TERM: 1 st SEMESTER	DATE OF EXAM: JAN 15, 2015	ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

Answer all the following questions

First Question: Short Notes & Compare (45 marks)

Q1-A: Please give short notes about four only from the following: (20 marks)

- 1) Resolution
- 2) Cell signaling
- 3) Contrast
- 4) Cell injury
- 5) Resolution for human eye, LM, SEM and TEM
- 6) Metarplasia

Q1-B: Compare between two only of the following: (25 marks)

- A) Apoptosis and necrosis
- B) Atrophy and hypertrophy
- C) SEM and TEM

2nd Question: Illustrate the following (-30 marks)

Q2-A: With fully labeled drawings illustrate only two of the following: (30 marks)

- 1) The morphology of apoptosis and necrosis.
- 2) Biochemical and cellular sites of damage in cell injury.
- 3) Cell fractionation to separate the major organelles of the cells.

Third Question: Explain & Define the following (50 marks)

Q3-A: Define the following using illustrated drawings if needed: (10 marks)

- 1) Bioinformatics
- 2) Holoenzyme functions
- 3) 6,4-pyrimidine photoproducts
- 4) One Gene- One Protein, One Gene-One Peptide Chain theory.

Q2-B: Compare between the following using illustrated drawings if needed: (20 marks)

- 1) Classical Genetics and Molecular genetics
- 2) Spliciozomes and Nucleosomes
- 3) Premature and Mature RNA
- 4) Code, Coded and Anticodon.

Q3-C: Explain briefly the following using illustrated drawings if needed: (20 marks)

1. Explain the different three assumptions explained previously for the type of DNA replication.
2. Explain the different properties of DNA polymerases.
3. Explain the differences between the action of DNA polymerase, RNA polymerase and Poly A Polymerase during nucleotide chain's synthesis?
4. Explain the NER mechanisms in eukaryotes.



Handwritten marks: a circled 'C' and Arabic text 'نوع 1' (Type 1).

Exam. for freshmen students of level II (Chemistry/ Biochemistry, Microbiology and Entomology) and biochemistry Sections.

Organic 2
January 2015 Term: First

Total Assessment Marks: 100

Course Code: CH 2111
Time Allowed: 2 Hours

Answer the following questions

Question No. I.

(32 Marks)

- a- An organic compound has a M.F. ($C_5H_{10}O$), it may be either an aldehyde or ketone, write the structure of possible isomers and name them according to the IUPAC names.
- b- Illustrate by equations each of the following:
- i- Reaction of methyl magnesium iodide with carbon dioxide and/or ethyl acetate.
 - ii- Action of NaOH on a mixture of formaldehyde and benzaldehyde.
 - iii- Effect of ozone on 2-methyl-2-butene and/or 2-butyne.

Question No. II.

(36 Marks)

Complete the following equations:

- a- Glycerol + 2HCl \longrightarrow (A) \xrightarrow{HCN} (B) $\xrightarrow{2KCN}$ (C) $\xrightarrow[H^+]{H_2O}$ (D) \xrightarrow{Heat}
- b- Propene $\xrightarrow[600^\circ C]{Cl_2}$ (A) $\xrightarrow{aq. NaOH}$ (B) \xrightarrow{HOCl} (C) $\xrightarrow{aq. NaOH}$ (D)
- c- Calcium carbide $\xrightarrow{H_2O}$ (A) $\xrightarrow[Hg^{+2}, 60^\circ C]{H_2O/H^+}$ (B) \xrightarrow{NaOH} (C) \xrightarrow{Heat} (D)
- d- Propionic acid $\xrightarrow{SOCl_2}$ (A) $\xrightarrow{NH_3}$ (B) $\xrightarrow{HNO_2}$ (C) $\xrightarrow{Na_2CO_3}$ (D)
- e- Acetaldehyde \xrightarrow{HCN} (A) $\xrightarrow[Heat]{H_2O/H^+}$ (B) \xrightarrow{Heat} (C)
- f- Phthalimide \xrightarrow{KOH} (A) $\xrightarrow{CH_3-Br}$ (B) $\xrightarrow{2KOH}$ (C) $\xrightarrow{C_6H_5-SO_2Cl}$ (D)


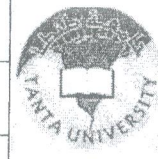
Question No. III:

(32 Marks)

- a- Compound (A), C_3H_9N react with nitrous acid to give compound (B), C_3H_8O .
oxidation of compound (B) gives a compound (C), C_3H_6O which give iodoform test.
Suggest the structure of (A), and outline the sequence of the reactions.
- b- Try the following conversions:
- i- Sodium succinate into formaldehyde.
 - ii- Ethanol into acetone oxime.
 - iii- Acetylene into 2-pentyne.

Good Luck

Mahmoud El-Badawi

	BOTANY DEPARTMENT - TANTA UNIVERSITY - FACULTY OF SCIENCE				
	Examination / Second level /Biochemistry special, Chem.-Botany, Chem.-Biochemistry & Chem.-Microbiology students				
Course Title:	General Genetics		Course Code: BO2105		
11 January 2014	Term: First	Total assessment marks: 150	Time Allowed: 2 hours		

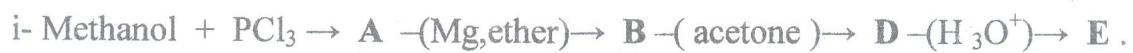
ANSWER THE FOLLOWING QUESTIONS

1. The percentage of cytosine in a double-stranded DNA molecule is 40%. What is the percentage of thymine? Explain. (14 Marks)
2. Complete the following statements (20 Marks)
 - a. Normally, quantitative traits show within a group of individuals.
 - b. In RBCs, synthesis of the surface antigens is controlled by, which designated
 - c. Within natural populations of organisms, most genes exist in
 - d. When a dominant allele of one gene hides the effects of dominant allele of another gene, the phenomenon is called and it is common in inheritance.
 - e. Pigmentation in humans is controlled by at least..... inherited genes.
 - f. The study of genetics has been divided into three areas:, and
3. For each of the terms in the left column, choose the best matching phrase in the right column. (52 Marks)

<ol style="list-style-type: none"> a. Codominance b. Transformation c. Alleles d. Epistasis e. Bacteriophage f. Independent assortment g. Pyrimidine h. Gametes i. Deoxyribose j. Gene k. Hydrogen bonds l. Modifier gene m. Complementary bases n. Segregation o. Origin 	<ol style="list-style-type: none"> 1. the heterozygote resembles neither homozygote. 2. the strand that is synthesized discontinuously during replication. 3. a cross between individuals both heterozygous for two genes. 4. one gene affecting more than one phenotype. 5. the sugar within the nucleotide subunits of DNA. 6. alternate forms of a gene. 7. a nitrogenous base containing a double ring. 8. the cross of an individual of ambiguous genotype with a homozygous recessive individual. 9. noncovalent bonds that hold the two strands of the double helix together. 10. an individual with two different alleles of a gene. 11. Meselson and Stahl experiment. 12. both parental phenotypes are expressed in the F₁ hybrids. 13. Griffith experiment. 14. alleles of one gene separate into gametes randomly with respect to alleles of other genes. 15. relax the tension caused by unwinding the double helix.
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6) Complete the following equations(name the last product) : (20 Marks)



- p. Heterozygote
- q. Okazaki fragments
- r. Purine
- s. F_1
- t. Topoisomerases

u. Incomplete

v. Semiconservative

w. Test cross

x. Lagging strand

y. Dihybrid cross

z. Pleiotropy

- 16. reproductive cells containing only one copy of each gene
- 17. two nitrogenous bases that can pair via hydrogen bonds.
- 18. a nitrogenous base containing a single ring.
- 19. the heritable entity that determines a characteristic.
- 20. a short sequence of bases where unwinding of the double helix for replication begins.
- 21. genes whose alleles alter phenotypes produced by the action of other genes.
- 22. a virus that infects bacteria replication.
- 23. the separation of the two alleles of a gene into different gametes
- 24. short DNA fragments formed by discontinuous replication of one of the strands.
- 25. offspring of the P generation.
- 26. the alleles of one gene mask the effects of alleles of another gene.

4. Compare between the following (24 Marks)

- a. DNA replication in eukaryote and prokaryote.
- b. Epistatic and Non-epistatic gene interaction.

5. Solve the following genetic problems (40 Marks)

- I. Two plants with white flowers, each from true-breeding strains, were crossed. All the F_1 plants had red flowers. When these F_1 plants were intercrossed, they produced an F_2 consisting of 177 plants with red flowers and 142 with white flowers. (a) Propose an explanation for the inheritance of flower color in this plant species. (b) Propose a biochemical pathway for flower pigmentation and indicate which genes control which steps in this pathway.
- II. A cross was made between a plant that has blue flowers and purple seeds to a plant with white flowers and green seeds. The following data were obtained:
 F_1 generation: All offspring have blue flowers with purple seeds.
 F_2 generation: 103 blue flowers, purple seeds. 49 blue flowers, green seeds.
 44 white flowers, purple seeds. 104 white flowers, green seeds.
 Total: 300

Calculate a chi square (χ^2) value and briefly describe the procedure. What does this value mean with regard to your hypothesis? Which aspect of the hypothesis do you think is incorrect?