



DENTAL PSL 211
SECOND TERM
[1428- 1429]
[2007- 2008]



MARKING AND EVALUATION

FIRST TERM:

QUIZEZ 2	5 marks (2 x 2.5)
1 ST CAT	10 marks
2 nd CAT (Mid-year)	15 marks
PRACTICAL EXAM	5 marks

SUB-TOTAL===== 35 MARKS

SECOND TERM:

QUIZEZ 2	5 marks (2 x 2.5)
3 rd CAT	15 marks
PRACTICAL EXAM	5 marks

SUB-TOTAL===== 25 MARKS

**FINAL EXAMINATION (end of year) ----- 40
marks**

TOTAL MARKS ===== 100

LECTURE SCHEDULE

After an introduction by the Chairman of Department and the Course Organizer the following lecture courses will be presented:

<u>Term II</u>	<u>No. of lectures</u>
1. Renal and acid-base physiology	9
2. Endocrinology	9
3. Gastrointestinal physiology	7
4. Central Nervous System and the Special Senses	12
12. Special senses	4

PRACTICAL SCHEDULE

<u>Term II</u>	
4. Renal physiology	1 class
5. Endocrinology	1 classes
6. Central Nervous System and the Special Senses	2 class

TUTORIAL SCHEDULE

During this time, students will discuss topics taught in the lectures, apply this knowledge to problems particularly relevant to students of Dentistry.

<u>RECOMMENDED TEXTBOOK</u>	<u>REFERENCE BOOKS</u>
✓ Human Physiology and Mechanism of Disease By: Guyton and Hall	✓ Textbook of Medical Physiology By: Guyton ✓ Review of Medical Physiology By: William F. Ganong

ADVICE TO STUDENTS

This booklet contains the programmes for the academic year 1428-1429 providing information regarding the lectures, practical sessions and tutorials. It also gives the timetable of various assessments including regular quizzes, continuous assessments and final examinations, all of which contribute to your grade at the end of the year.

You are strongly advised to:-

- 1- Attend your lectures, practicals and tutorials. They are there for your benefit. Do not skip any of the quizzes. They are designed to check whether you are coping adequately with the course or are having difficulties with particular topics and are lagging behind. Their marks also have a wightage in your final grade. It will be much easier to pass if you compile your marks during the continuous assessments and quizez rather than to try to score very highly in the examinations.
- 2- Make sure, as soon as possible, after a lecture or practical, that you have understood the objectives of that session. If you can do this on the same day as the lecture or practical so much the better.
- 3- Actively participate in the practicals whenever possible. Most students find that they can understand the topic more easily if they are the subjects for the experiments in the laboratory. Please read the practical notes before coming to the laboratory (sometimes it is possible to read about a topic before attending a lecture. This is highly recommended, as it will help you understand the topic better.
- 4- Be careful not to depend SOLELY on handouts. If you have the time to write a few notes of your own, as well as read the recommended textbook, you will find the topics easier to understand. If you are having any difficulties, ask a member of staff for help. Do not be shy! All the teaching staff are approachable and will be happy to help you and answer your questions.

TERM 1

LECTURE TIME TABLE

INTRODUCTION:

WEEK 1

CELL MEMBRANE AND BODY FLUIDS

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
26-08-1428 08-09-2007	Sat	2-4 pm	<u>Extra Lecture.</u> 1	<u>Extra Lecture.</u> Intoduction to Physiology	
28.08.1428 10.09.2007	Mon	8-9 am	2	Cell membrane, Structure and Functions.	9-10
29.08.1428 11.09.2007	Tue	8-10 am	3-4	Body fluid composition and Transport across the cell membrane	34-44

WEEK 2

BLOOD PHYSIOLOGY

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
03-09-1428 15-09-2007	Sat	2-4 pm	<u>Extra Lecture</u> 5	<u>Extra Lecture</u> Composition & Functions of Blood. Functions of Plasma Proteins.	203 568
05-09-1428 17-09-2007	Mon	8-9 am	6	RBCs: Erythropoiesis: Site, Regulation & Factors Affecting.	275-278
06.09.1428 18.09.2007	Tue	8-10 am	7-8	WBCs: Types and functions of WBCs. Phagocytosis. Monocyte-Macrophage System. Immunity in brief.	281-287 288-291, 293

WEEK 3

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
10-09-1428 22-09-2007	Sat	2-4 pm	<u>Practical</u>	<u>1st Practical on Blood</u> TLC, DLC	
12.09.1428 24.09.2007	Mon	8-9 am	9	Blood groups § ABO System § Rh System Complications of Blood Transfusion	295 - 298
13.09.1428 25.09.2007	Tue	8-10 am	10-11	Haemostasis and blood coagulation. 1. Events of hemostasis Initiation of coagulation. § The Extrinsic pathway. § The Intrinsic pathway. § Interaction between both the pathways. 2. Mechanism of Coagulation. Conversion of prothrombin to thrombin. § Conversion of fibrinogen to fibrin § Formation of a clot. 3. Bleeding Disorders & Anti- Coagulants.	299-306

WEEK 4

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
17-09-1428 29-09-2007	Sat	2-4 pm	<u>Tutorial</u>	<u>Tutorial.</u> Anemias § Types and classification. § Clinical importance § Physiological basis of treatment. Jaundice.	

NERVE AND MUSCLE

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
19.09.1428 01.10.2007	Mon	8-9 am	12	Basic Physics of Membrane Potentials and resting membrane potential.	47-50
20.09.1428 02.10.2007	Tue	8-10 am	13-14	§ The Nerve Action Potential. § Plateau in some Action Potentials. § Physiological Anatomy of Skeletal Muscle.	51-60

EID-UL-FITR VACATION

WEEK 5

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
08-10-1428 20-10-2007	Sat	2-4 pm	<u>Practical</u>	<u>2nd Practical on Blood</u> Blood Group, BT, CT	
10.10.1428 22.10.2007	Mon	8 – 9 am	15	§ Molecular Mechanism of Muscle Contraction. § Molecular Characteristics of the Contractile Filaments. § Initiation of Muscle Contraction.	60 - 64
11.10.1428 23.10.2007	Tue	8-10 am	16-17	Excitation-Contraction Coupling. Mechanics of Skeletal Muscle Contraction. § The Motor Unit § Summation of Muscle Contraction Muscle Fatigue.	65-69

WEEK 6**AUTONOMIC NERVOUS SYSTEM**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
15-10-1428 27-10-2007	Sat	2-4 pm	<u>CD Session</u>	Quiz 1 will precede this CD session. <u>Nerve and Muscle</u>	
17.10.1428 29.10.2007	Mon	8-9 am	18	Autonomic Nervous System.	495-502
18.10.1428 30.10.2007	Tue	8-10 am	19-20	Autonomic Nervous System.	

WEEK 7

CARDIOVASCULAR PHYSIOLOGY

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
22-10-1428 03-11-2007	Sat	2-4 pm	<u>Extra Lecture</u> 21	<u>Extra Lecture</u> Heart Muscle: Heart as a pump. § Physiology of the cardiac muscle. § Properties of the cardiac muscle. § Cardiac excitation- contraction coupling.	85-87
24.10.1428 05.11.2007	Mon	8-9 am	22	Cardiac cycle: § Systole and Diastole. § Function of the Atria as a “Primer” pump. § Function of the Ventricles as a pump. § Function of the valves.	87-93
25.11.1428 06.11.2007	Tue	8-10 am	23-24	Cardiac cycle: § Aortic pressure curves. § Relationship of heart sounds. § Regulation of the heart pump. § Effects of K ⁺ and Ca ⁺⁺ .	

WEEK 8

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
29.10.1428 10.11.2007	Sat	2-4 pm	<u>Practical.</u>	<u>Practical.</u> <u>1st Practical on CVS</u> <u>(Heart Sounds)</u>	
02.11.1428 12.11.2007	Mon	8-9 am	25	Rythmical excitaion of the heart. § Specialized excitatory and conductive system of the heart. § Control of excitation and conduction in the heart. § S.A. node as a pacemaker. § Control by the cardiac nerves.	94-99
03.11.1428 13.11.2007	Tue	8-10 am	26-27	The Electrocardiogram	100-112

WEEK 9

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
07.11.1428 17.11.2007	Sat	2-4 pm	CD Session	Cardiac Action Potential Cardiac Cycle	
09.11.1428 19.11.2007	Mon	8-9 am	28	Circulation. § Overview of the circulation. § Pressure difference throughout the circulatory system. § Systemic and pulmonary circulation.	115-120
10.11.1428 20.11.2007	Tue	8-10 am	29-30	Cardiac output and Venous Return. § Factors affecting cardiac output and venous return. Blood pressure(B.P) § Defination. Factors affecting B.P	169-173 118-120

WEEK 10

FIRST CONTINUOUS ASSESSMENT EXAMINATION WEEK

WEEK 11

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
21.11.1428 01.12.2007	Sat	2-4	Practical	<u>2nd Practical on CVS</u> (E.C.G.)	
23.11.1428 03.12.2007	Mon	8-9 pm	31	Regulation of blood pressure. § Nervous regulation (Short term regulation) § Role of Baro-receptors and Chemoreceptors § The central nervous system's Ischemic response.	152-156
24.11.1428 04.12.2007	Tue	8-10 pm	32-33	Role of the Kidney in long term regulation of blood pressure. § The Renin-Angiotensin -Aldosterone System.	157-164

WEEK 12

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
28.11.1428 08.12.2007	Sat	2-4 pm	<u>Practical</u>	<u>3rd Practical on CVS</u> (B.P)	
RESPIRATORY PHYSIOLOGY					
30.11.1428 10.12.2007	Mon	8-9 am	34	Pulmonary ventilation. § Mechanics of pulmonary ventilation. § Respiratory muscles. § Movement of air in and out of the lungs. § Various pressure in the lungs. § Surfactant and surface tension	311-313
01.12.1428 11.12.2007	Tue	8-10 am	35-36	Pulmonary volumes & capacities, § Pulmonary volumes. § Pulmonary capacities. § Alveolar Ventilation. § Dead Spaces. § Functions of Respiratory passages.	314-318

EID-AL-ADHA AND HAJJ HOLIDAYS

From: Tuesday 05-12-1428 (15-12-2007)
To: Friday 18-12-1428 (28-12-2007)

WEEK 13

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
19.12.1428 29.12.2007	Sat	2-4 pm	<u>Extra Leture</u> 37	<p>QUIZ 2 will precede this lecture.</p> <p style="text-align: center;"><u>Extra Leture</u></p> <p>Pulmonary circulation.</p> <ul style="list-style-type: none"> § Physio-anatomy of Pulmonary Circulation. § Pressures in the pulmonary system. § Pulmonary capillary dynamics. § Pulmonary edema 	318-322
21.12.1428 31.12.2007	Mon	8-9 am	38	<p>Transport of gasses between heart and the lungs.</p> <ul style="list-style-type: none"> § Diffusion of O₂ and CO₂. § Partial pressure of individual gasses. § Diffusion of gasses through the respiratory membrane. 	324-332

22.12.1428 01.01.2008	Tue	8-10 am	39-40	<p>Loading and deloading of gasses at alveolar and tissue levels.</p> <ul style="list-style-type: none"> § Loading of O₂ at alveolar level. § Deloading of O₂ at tissue level. § Loading of CO₂ at tissue level. § Deloading of CO₂ at alveolar level 	324-332
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WEEK 14

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
26.12.1428 05.01.2008	Sat	2-4	Practical.	<u>1st Practical on Respiration.</u> <u>Simple Spirometry</u>	
28.12.1428 07.01.2008	Mon	8-9	41	<p>Oxy-Hemoglobin dissociation curve.</p> <ul style="list-style-type: none"> § Factors affecting it. § Transport of O₂. § Transport of CO₂. § Transport of CO 	332-335

29.12.1428 08.01.2008	Tue	8-10	42-43	Regulation of respiration § Respiratory centers. § DRG. § Pneumotaxic center. § VRG. § Hering-Breuer reflex. § Chemical control of respiration. § Peripheral chemoreceptors and the role of O ₂ .	337-340
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WEEK 15

GASTRO-INTESTINAL PHYSIOLOGY

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
03.01.1429 12.01.2008	Sat	2-4 pm	<u>Extra Lecture</u>	<u>Extra Lecture</u>	
05.01.1429 14.01.2008	Mon	8-9	44	Gastro-Intestinal tract. § Parts of the oral cavity. § Salivary glands. § Secretion of saliva. § Contents of saliva. § Functions of saliva. Control of salivary secretion. § Digestion of CHO in the mouth.	514 & 524 - 26

06.01.1429 15.01.2008	Tue	8-10	45-46	<p>Stomach and its functions. <u>Pages.</u> 515 - 18 &</p> <p>§ Gastric glands. 527 - 531</p> <p>§ Gastric secretion and digestion.</p> <p>§ Regulation of gastric secretion.</p> <p>Deglutination and vomiting</p> <p>Pancreatic secretions.</p> <p>§ Physio-anatomy of the Pancreas.</p> <p>§ Enzymes of the pancreas and the intestinal brush border.</p> <p>Regulation of the pancreatic secretion.</p>
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WEEK 16

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
10.01.1429 19.01.2008	Sat	2-4 pm	<u>Tutorial</u>	<p><u>Tutorial:</u> Gastric Secretion.</p> <p>§ Contents and functions of gastric juice.</p> <p>§ Peptic ulcers.</p>	
12.01.1429 21.01.2008	Mon	8-9 am	47	<p>Liver, bile and the biliary tree.</p> <p>§ Physio-anatomy.</p> <p>§ Bile and its secretion.</p> <p>§ Constituents of bile.</p> <p>Gall bladder and its functions.</p> <p>Emptying of the gall bladder.</p>	531 - 534

13.01.1429 22.01.2008	Tue	8-10 am	48-49	Process of digestion and absorption. § Digestion and absorption of CHO. § Digestion and absorption of Proteins. § Digestion and absorption of Fats. § Role of bile salts in fat absorption.	537 - 541
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WEEK 17

MID-YEAR PRACTICAL EXAMINATION

Tuesday

20-01-1429 (29-01-2008)

WEEK 18

MID-YEAR THEORY EXAMINATION

Tuesday

27.01.1429 (05.01.2008)

WEEK 19

MID-YEAR BREAK

From: Thursday 29.01.1429 (07.02.2008)

To: Friday 08.02.1429 (15.02.2008)

TERM 2

LECTURE TIME TABLE – FEMALE SECTION

WEEK 1

RENAL PHYSIOLOGY

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
11.02.1429 18.02.2008	Mon	8-9 am	1	Functional Anatomy of the Kidneys. Renal Circulation.	
12.02.1429 19.02.2008	Tue	8-10 am	2&3	Glomerular Filtration. G.F.R.	212-222
		10-12	1	Extra lecture	

WEEK 2

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
18.02.1429 25.02.2008	Mon	8-9 am	4	Concept of Clearance	223-235

19.02.1429 26.02.2008	Tue	8-10 am	5&6	§ Tubular Transport. § Reabsorption § Secretion.	223-235
		10-12	Practical	<u>1st Practical on Kidney</u> <u>Diuresis</u> § Normal control subject § Subject given Saline § Subject given water § Subject given Lassix § Modes of action of all tests.	

WEEK 3

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
25.02.1429 03.03.2008	Mon	8-9 am	7	Urine Concentration and Countercurrent Mechanism.	236-252

ACID-BASE BALANCE

26.02.1429 04.03.2008	Tue	8-10 am	8&9	Buffer Systems. Role of the Respiratory and Renal Systems.	254-266
		10-12	Tutorial	<u>CD Session:</u>	

WEEK 4

ENDOCRINOLOGY.

Date	Day	Time	Lecture No./ Practical	topic	Referance Pages
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02.03.1429 10.03.2008	Mon	8-9 am	10	<p align="center">Quiz 1 (II term)</p> <p>Introduction to Endocrinology.</p> <p>§ Nature of hormones. Mechanisms of hormone action.</p> <p>§ Receptors.</p> <p>§ Second messenger systems. (basic concepts)</p>	595 - 98
03.03.1429 11.03.2008	Tue	8-10 am	11&12	<p>The Pituitary gland, its functions and relation to the Hypothalamus.</p> <p>§ Hypothalamic control of the ant. Pituitary.</p> <p>§ Hormones of the ant. Pituitary.</p> <p>§ Hormones of the post. Pituitary.</p> <p>Human Growth Hormone. (hGH)</p> <p>§ Functions of the hGH.</p> <p>§ Metabolioc effects of hGH.</p> <p>§ Regulation of hGH.</p> <p>Abnormalities of Hypo-Hypersecretion.</p>	599 - 603
		10-12		<u>Extra Lecture.</u>	

WEEK 5

Date	Day	Time	Lecture No./ Practical	topic	Reference Pages
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09.03.1429 17.03.2008	Mon	8-9 am	13	Thyroid Hormone § Steps in the synthesis of thyroid hormones. § Functions of thyroid hormones. § Regulation of thyroid hormones. § Diseases of the thyroid hormones.	607 - 615
10.03.1429 18.03.2008	Tue	8-10 am	14&15	Insulin Secretion. § Physio-anatomy of the pancreas. § Functions of Insulin. § Effects of Insulin on CHO metabolism. § Effects of Insulin on fat metabolism. § Effects of Insulin on Protein metabolism. § Control of Insulin secretion. § Blood glucose regulation. § Diabetes Mellitus.	625 - 633
		10-12	Tutorial	Tutorial: § Hormones of the Pituitary. § Hypothalamic and Pituitary connections. § Growth Hormone	599 - 603

WEEK 6

Date	Day	Time	Lecture No./ Practical	topic	Reference Pages
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16.03.1429 24.03.2008	Mon	8-9 am	16	Parathyroid Gland. (Parathormone)	634 - 646
17.03.1429 25.03.2008	Tue	8-10 am	17&18	Calcium Homeostasis.	634 - 646
		10-12		<u>Extra Lecture:</u> Adrenal Gland Anatomy Corticosteroids Mineralocorticoids <u>Aldosterone</u> § Effects and mechanism of action Regulation of aldosterone.	616-618

WEEK 7

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
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23.03.1429 31.03.2008	Mon	8-9 am	19	Glucocorticoids Cortisol Functions and affects § Effectson CHO Meta. § Effects on protein Met. § Fat meta. § Functions in stress § Regulation of Cortisol	618-621
24.03.1429 01.04.2008	Tue	8-10 am	20&21	Abnormalities § Hypo-adrenalism (Addison's disease) § Hyper-adrenalism (Cushing's disease) § Primary Aldosteronism Adrenal Androgens	622-624
		10-12	Practical.	<u>1st Practical on Endocrines.</u> (OGTT) Interpretation of all four graphs	

WEEK 8

GASTRO-INTESTINAL PHYSIOLOGY

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages
01.04.1429 07.04.2008	Mon	8-9	44	Gastro-Intestinal tract. § Parts of the oral cavity. § Salivary glands. § Secretion of saliva. § Contents of saliva. § Functions of saliva. Control of salivary secretion. § Digestion of CHO in the mouth.	514 & 524 - 26
02.04.1429 08.04.2008	Tue	8-10	45-46	Stomach and its functions. <u>Pages.</u> 515 - 18 & § Gastric glands. 527 - 531 § Gastric secretion and digestion. § Regulation of gastric secretion. Deglutation and vomiting Pancreatic secretions. § Physio-anatomy of the Pancreas. § Enzymes of the pancreas and the intestinal brush border. Regulation of the pancreatic secretion.	
		10-12	<u>Extra Lecture</u>	<u>Extra Lecture</u>	

MID-YEAR BREAK

From: Saturday 06.04.1429 (12.04.2008)
To: Wednesday 10.04.1429 (16.04.2008)

WEEK 9

<p><i>From: Sat: 13.04.1429</i> <i>[19.04.2008]</i></p> <p><i>To: Wed: 17.04.1429</i> <i>[23.04.2008]</i></p>	<p>THIRD CONTINUOUS ASSESSMENT WEEK</p> <p><i>(Probable date) Tuesday 16.04.1429</i> <i>[22.04.2008]</i></p>
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WEEK 10

Date	Day	Time	Lecture No./	Topic	Reference
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			Practical		Pages
22.04.1429 28.04.2008	Mon	8-9 am	47	Liver, bile and the biliary tree. § Pysio-anatomy. § Bile and its secretion. § Constituents of bile. Gall bladder and its functions. Emptying of the gall bladder.	531 - 534
23.04.1429 29.04.2008	Tue	8-10 am	48-49	Process of digestion and absorption. § Digestion and absorption of CHO. § Digestion and absorption of Proteins. § Digestion and absorption of Fats. § Role of bile salts in fat absorption.	537 - 541
		10-12	<u>Tutorial</u>	<u>Tutorial:</u> Gastric Secretion. § Contents and functions of gastric juice. § Peptic ulcers.	

WEEK 11

CENTRAL NERVOUS SYSTEM & SPECIAL SENSES.

Date	Day	Time	Lecture No./ Practical	topic	Reference Pages
29.04.1429 05.05.2008	Mon	8-9 am	22	Orientation of the cerebral cortex. § Receptors, afferent pathways and functions.	
01.05.1429 06.05.2008	Tue	8-10 am	23&24	UMN & LMN.	
		10-12		<u>Extra Lecture:</u> § Fuctional Anatomy of the CNS. § Orientation of the cerebral cortex. § Receptors, afferent pathways and functions.	

WEEK 12

Date	Day	Time	Lecture No./ Practical	topic	Referance Pages
07.05.1429 12.05.2008	Mon	8-9 am	25	Cerebellum	
08.05.1429 13.05.2008	Tue	8-10 am	26&27	Basal Ganglion. § Control of movements. § Postural reflexes.	
		10-12		<u>Extra Lecture:</u> Motor system. § Paramyodal and extraparamyodal system.	

WEEK 13

Date	Day	Time	Lecture No./ Practical	topic	Referance Pages
14.05.1429 19.05.2008	Mon	8-9 am	28	Reflex.	
15.05.1429 20.05.2008	Tue	8-10 am	29&30	<u>Quiz 2 (II term)</u> <ul style="list-style-type: none"> □ Memory □ Behaivior □ Hypothalamus 	
		10-12	Practical.	<u>1st Practical on CNS.</u> Examination of motor system	

WEEK 14

Date	Day	Time	Lecture No./ Practical	topic	Referance Pages
21.05.1429 26.05.2008	Mon	8-9	31	Speech.	
22.05.1429 27.05.2008	Tue	8-10	32&33	Hearing Smell and Taste	
		10-12		<u>Extra Lecture:</u> Vision	

WEEK 15

PRACTICAL EXAM WEEK

From: Saturday 26.05.1429 (31.05.2008)
To: Wednesday 30.05.1429 (04.06.2008)

**FINAL PRACTICAL
EXAMINATION**

(Probable date) Tuesday 29.05.1429
(03.06.2008)

Final Examination Weeks

From: Saturday: 03.06.1429
(07.06.2008)

To: Wednesday: 21.06.1429
(25.06.2008)