
	TANTA UNIVERSITY FACULTY OF PHARMACY			
	DEPARTMENT OF PHARMACOGNOSY			
FINAL EXAMINATION FOR FIRST YEAR STUDENT				
	COURSE TITLE:	Pharmacognosy		COURSE CODE: 2135
DATE:	26/05/2016	TERM: SECOND	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

Dear First year students

- 1- You provided with an exam consists of 11 pages.
- 2- Please carefully read each question's heading and put your answers at the corresponding **Tables**, otherwise it will be neglected.
- 3- The exam is divided into two parts
Part I , Seed and Fruit, 75 point, including questions I, II and III.
PART II, Subterranean organs and Unorganized drugs, 75 point, including questions 1 and 2.
- 4- The oral exam will be after the written exam directly.

GOOD LUCK

Question I:

37.5 point, at 20 minutes

The following 15 sentences describe five medicinal plants, plant (A) is a spicy seed, plant (B) is a cured fruit, plant (C) is a Shizocarpial type fruit, plant (D) is a narcotic fruited drug and plant (E) is a Solanaceae fruit. Identify these plants, record 3 sentences number and one figure's letter (F- O) describing each plant at Table I.

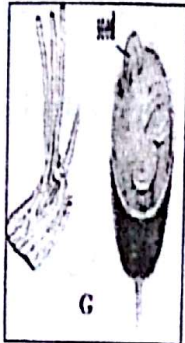
- 1- Used as flavoring agent and perfuming.
- 2- Has an arillode out growth.
- 3- Hair- like secreting cells of the endocarp.
- 4- It has a moderately thick lignified sclerenchymatus hypodermal endocarp.
- 5- It has no reticulate parenchyma.
- 6- The seed contains starchy perisperm.
- 7- It has a berry type capsule.
- 8- It has pears type capsule, with a persistent sessile radiating stegma.
- 9- It harvested nearly ripe capsule of family *Papaveraceae*.
- 10- The drug is used in treatment of leucoderma.
- 11- Externally it is used as counter irritant and stimulant.
- 12- Sublimation of the powdered drug produced colorless crystals of myristicin.
- 13- A drug contains morphine, papaverine and codeine active constituents.
- 14- It reacts with solid pellets of KOH, giving no red color.
- 15- The unripe fruit contains a specific type of an active constituent, which converted into vanillin by hydrolysis.

Table I

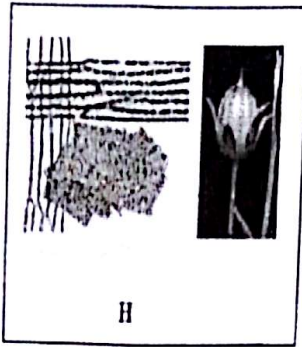
Item	Name of plant (1.5 point each)	Sentence number (1.5 point each)			Figure's litter (1.5 point each)
A					
B					
C					
D					
E					



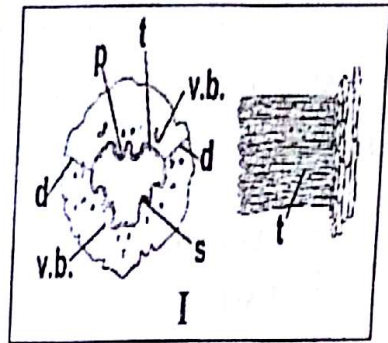
F



G



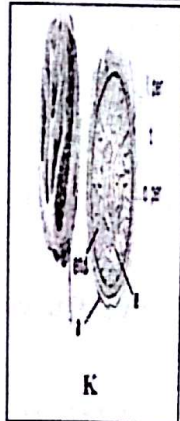
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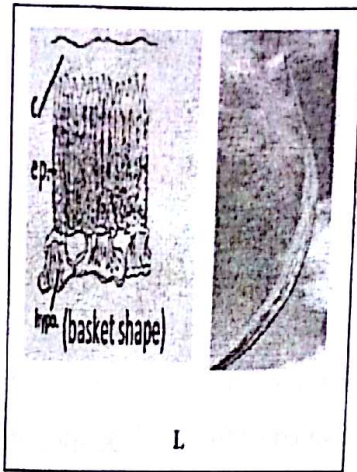
I



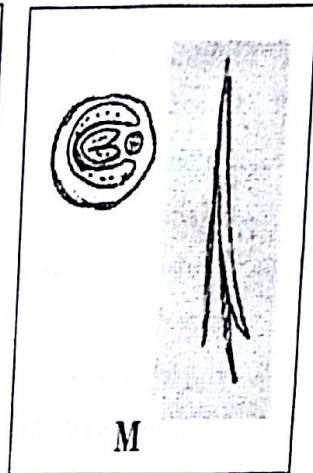
J



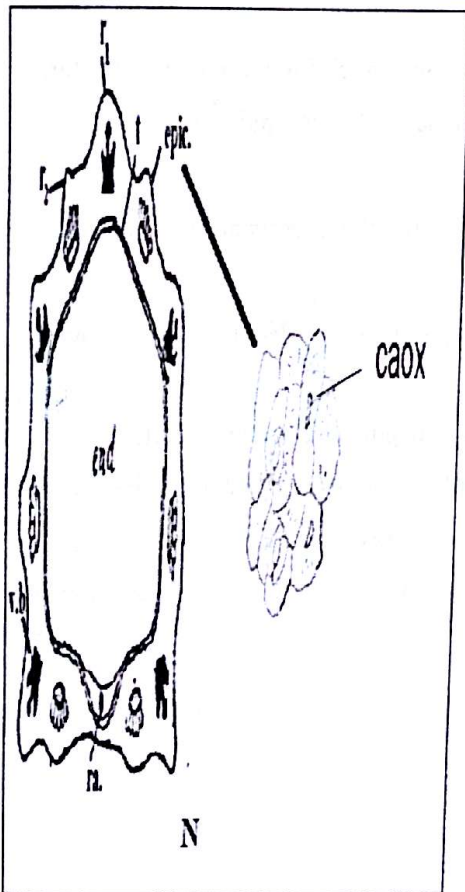
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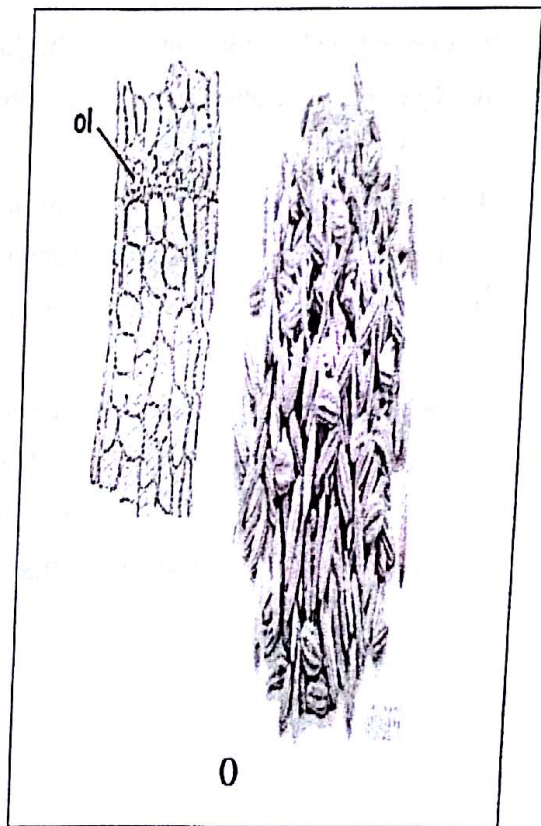
L



M



N



O

Question II:

22.5 point, at 20 minutes

You are provided with 15 statements, correct the underline word in each of it at Table II.

1. The dried caryopsis fruit of Wheat grain contains a parquetry endocarpal layer.
2. Black pepper reacts with conc. KOH giving a red color.
3. Bitter almond is used as a nutritive drug.
4. Cocoa seeds contain caffine, which used as diuretic.
5. Colchicum seeds react with 80% H₂SO₄, giving a yellow color due to colchicines.
6. Transverse section of Capsicum seed showed a hypodermal thin walled gaint cells.
7. Cardamom is a seeded drug characterized by a septicidal type capsule.
8. Hydrolysis of the active constituent of Stramonium seed produces benzaldehyde odour.
9. Concentrated Niteric acid react with glucovanillin, giving an orange red color.
10. Cumin is a member of family Umbellifereae, with a campylospermous type seed.
11. Caraway is a member of family *Roteaceae*, which contains hisperidin and used as bitter tonic and flavoring agent.
12. The dried cured, full grown but unripe pod type fruit of Vanilla is a member of family Orchidaceae.
13. Strophanthus fruit contains khellin and visnagine active constituents.
14. Sweet Almond seed is a member of family *Curucifera*, which may be emetic in large dose inspit of its condiment and spice use.
15. Microscopical examination of Coriander powdered drug showed fragments of shagy hair.

Table II

Statement No.	Correction (1.5 point each)	Statement No.	Correction (1.5 point each)
1		6	
2		7	
3		8	
4		9	
5		10	

Question III:

15 point, 1.5 point each, at 20 minutes

Glycosides are a group of natural products classified according to the chemical nature of their aglycone into several types. Complete Table III by completely different unrepeated answers.

	Type 1	Type 2	Type 3
Glycosidal drug	.....	.....	.....
Present in	..... Seed	..... Seed	..... Fruit
Chemical test	.....	.....
Used as	.....	.....

Part II Subterranean & unorganized drugs

(60 points, 50 minutes)

Question 1: Select only one answer from the following and mark all the answers in the answer sheet.

- 1- This plant contains anthraquinone derivatives:
 - a- *Rheum palamatum*
 - b- *Aloe barbadensis*
 - c- *Jateorhiza palmata*
 - d- Both a & b
- 2- Aconite roots are used externally due to:
 - a- The leaves blades are poisonous when used internally
 - b- The drug causes bradycardia in small dose & cardiac arrest in higher dose when used internally
 - c- Podophyllotoxin which has cytotoxic effect
 - d- None of the above
- 3- Jalap & Orizaba jalap are species of:
 - a- Genus *Ipomoea* family Convolvulaceae
 - b- Genus *Jateorhiza* family Menispermaceae
 - c- Genus *Aconitum* family Ranunculaceae
 - d- None of the above
- 4- Scammony resin consists of:
 - a- Convolvulin & jalapic acid
 - b- α -guiaconic acid
 - c- Abietic acid
 - d- Only ether soluble portion
- 5- The following plant contains bitter principles which is used as a bitter stomachic:
 - a- Gentian roots & rhizomes
 - b- Ipecacuanha roots
 - c- Both a & b
 - d- Quinine
- 6- The following drug is used as purgative:
 - a- Jalap resin
 - b- (a, c and d)
 - c- Rhubarb rhizomes
 - d- Aloe dried juice
- 7- Triterpene saponins are the major constituents in:
 - a- Liquorice rhizomes & roots
 - b- Senega roots
 - c- Calumba roots
 - d- Both a and b

- 8- Which of the following is used as expectorant:
- a- *Gentiana lutea*
 - b- *Glycyrrhiza glabra*
 - c- Both b & d
 - d- *Polygala senega*
- 9- Which of the following is a triterpene saponin glycoside:
- a- Senegin & polygalic acid
 - b- Senegenin
 - c- Columbamine
 - d- Both a & b
- 10- All of the following is true except:
- a- Methyl salicylate odor is characteristic for senega roots powder
 - b- Leaves blades of rhubarb is toxic due to methyl salicylate content
 - c- Spanish liquorice powder is sweet without any bitterness
 - d- Lady fern is a substitute for filix mas rhizomes
- 11- Substitute fibers and trachiedal vessels are present in the powder of:
- a- *Aconitum napellus*
 - b- *Panax ginseng*
 - c- *Podophyllum hexandrum*
 - d- *Cephaelis ipecacuanha*
- 12- The percentage of rhizomes in roots powder of *Cephaelis acuminata* could be known from:
- a- The number of starch granules present in the powder
 - b- The size of starch granules present in the powder
 - c- The number of sclereid cells present in the powder
 - d- The number of fibers present in the powder
- 13- To distinguish between Rio and Cartagena type of ipecacuanha roots:
- a- The Rio bark may separate leaving the inside xylem
 - b- The rounded ridges are partially encircle the roots in Rio type
 - c- Rio ipecacuanha has bigger starch granules
 - d- Both a & c
- 14- Resinotannols are found in all of the following except:
- a- Galbanum
 - b- Podophyllum
 - c- Balsam Tolu
 - d- Balsam Peru
- 15- All of the following is true except:
- a- Vanillin is present in benzoin which causes the agreeable odor.
 - b- Gambogic acid is present in the oleo-gum-resin of gamboge
 - c- Dry heating of balsam Sumatra gives white irritant fumes
 - d- Catechu extract is used as astringent & in dyeing

- 16- Pinene is found in the volatile oil of:
- a- Myrrh oleo-gum-resin
 - b- Asafoetida oleo-gum-resin
 - c- Canada balsam
 - d- Both b & c
- 17- All of the following is true except:
- a- Senegin II is hydrolyzed with acid to give fucose, rhamnose & other substances
 - b- Ipecacuanhic acid is an acid saponin
 - c- Liquiritin is isolated from rhubarb and is used to treat chloasma
 - d- Ginseng reduces risk of some types of cancers
- 18- Ramenta could be used to distinguish between:
- a- Filix mas and Lady fern
 - b- Male Fern and Shield fern
 - c- American & Indian podophyllum
 - d- Rio & Cartagena ipecacuanha
- 19- Sarsaparilla roots:
- a- Shows secondary thickening by formation of cork & phelloderm
 - b- It has pith with thick & lignified walls.
 - c- Smilax as well as sarsaparilla roots have normal parenchymatous pith
 - d- Both b & c
- 20- Gentian & Calumba roots:
- a- Contain triterpene saponins so they are used as bitter stomachic
 - b- Contain bitter principles so they are used as emetic drugs
 - c- Contain gentiopicrin and columbin which exert bitter stomachic & tonic effects
 - d- Contain bitter principles so they have sweet taste
- 21- *Rheum rhaponticum* rhizome:
- a- Is a substitute for *Rheum officinale*
 - b- Is an adulterant for *Rheum officinale*
 - c- Contains alkaloid which is called rhaponticin
 - d- Contains emodin & aloe emodin
- 22- All of the following is true except:
- a- *Rumex alpinus* is used as a substitute for rhubarb
 - b- *Rheum palmatum* is used as purgative
 - c- Star spots are amphivasal vascular bundles with xylem in the center
 - d- Anthraquinones and gallic acid are found in *Rheum officinale*
- 23- Which of the following is used as urinary antiseptic:
- a- Myrrh
 - b- Copaiba balsam
 - c- Couch grass
 - d- Turmeric

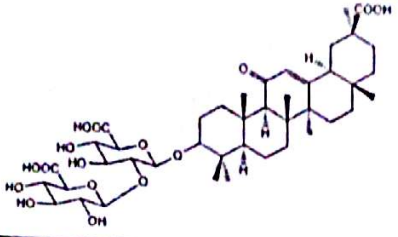
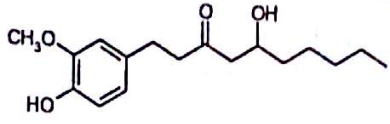
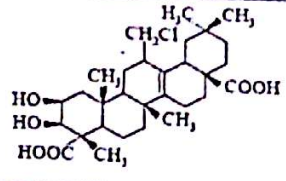
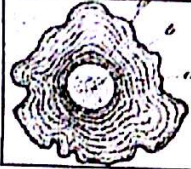


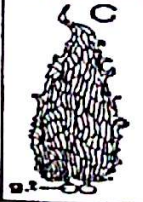
- 24- Which of the following is obtained pathologically:
- Canada balsam
 - Guaiacum resin
 - Colophony resin
 - Podophyllum resin
- 25- Modified Borntrager's test is used to identify:
- Anthraquinones glycosides in rhubarb rhizomes
 - Free anthraquinones in aloe dried juice
 - Anthraquinones glycosides in podophyllum rhizomes
 - None of the above
- 26- Opium latex:
- Composed of alkaloids as morphine and aconitine
 - Is found in resin cells in *Papaver somniferum*
 - Is obtained from the fully grown unripe legumes
 - Has strong narcotic odor
- 27- Which of the following is found normally in secretory structures:
- Sumatra balsamic resin
 - Colophony resin
 - Balsam tolu
 - Asafoetida oleo-gum-resin
- 28- Which of the following is false:
- Galangal, ginger & turmeric belong to family Zingiberaceae
 - The pungency of gingerol is destroyed by solution of KOH
 - Galangal contains curcumin which is a coloring agent
 - Ginger contains oleo-resin cells
- 29- Which is false about liquorice rhizomes & roots:
- Could be distinguished by the presence of pith in the rhizomes
 - Contains jatrorrhizine which is responsible for the sweet taste
 - Are used to mask the nauseating taste of certain drugs
 - They have very narrow cortex and lignified fibers
- 30- All the following is false except:
- Combined umbelliferone is found in galbanum oleo-gum-resin
 - Asaresinol ferulate is turned red then brown upon exposure to air
 - balsam Siam produces benzaldehyde odor by $KMnO_4$
 - Agar is used as condiment
- 31- The septate fibers & oleo-resin cells are present in the powder of:
- Podophyllum rhizomes
 - Zingiber officinale* rhizomes
 - Calumba roots
 - Jalap roots

- 32- Isoliquirtic acid is found in Liquorice, which is:
- The C-20 epimer of glycyrrhetic acid
 - The C-18 epimer of glycyrrhetic acid
 - The C-20 epimer of glycyrrhizic acid
 - The C-18 epimer of glycyrrhizin
- 33- Adding oxidase enzyme to an alcoholic extract of guaiacum resin:
- A blue color will be produced due to oxidation of gambogic acid
 - A violet color will be produced due to oxidation of guiaretic acid
 - A blue color will appear due to oxidation of α -guaiaconic acid
 - None of the above
- 34- Chewing powder of rhubarb causes:
- Gritty sensation due to presence of large clusters of CaOx
 - Numbness or loss of sensation & motor activity due to star spots
 - Gritty sensation due to presence of gallic acid
 - All of the above
- 35- All of the following is true except:
- Oleo-resin is found in glandular trichomes in filix mas
 - Resin is found in guaiacum wood in all cells
 - Gamboge gum-resin contains oxidase enzyme
 - None of the above
- 36- Fermentation of gentian roots leads to:
- Increased bitterness
 - Gentiopicrin hydrolysis to gentiogenin & fucose
 - Both a & b
 - Gentianose hydrolysis into glucose & fructose
- 37- Abietic acid is the main constituent in :
- Jalap
 - Couch grass
 - Galbanum
 - Colophony
- 38- Which of the following is used as permanent mountant:
- Asafoetida
 - Copaiba balsam
 - Canada balsam
 - Aloe
- 39- Which of the following is used to treat chloasma
- Gingerol
 - Canadinolic acids
 - Liquiritin
 - Filmarone
- 40- Morphine is found in:
- Opium latex and is used as vermifuge
 - Papaver somniferum* latex and is used as a strong analgesic
 - Papaver capsule with emetine & codeine as major active constituents
 - Turkish Opium and is used as a suspending agent

Question 2

(15 points, 10 minutes)

Complete the following table:

Plant item	Plant name	Biological effects or uses of the plant
	1-	
	2-	
	3-	
	4-	
	5-	
	6-	
	7-	

The Answer sheet

NO.	a	b	c	d	NO.	a	b	c	d
1					21				
2					22				
3					23				
4					24				
5					25				
6					26				
7					27				
8					28				
9					29				
10					30				
11					31				
12					32				
13					33				
14					34				
15					35				
16					36				
17					37				
18					38				
19					39				
20					40				

Good Luck