
	TANTA UNIVERSITY FACULTY OF PHARMACY DEPARTMENT OF PHARMACOGNOSY				
	FINAL EXAM FOR FIRST YEAR STUDENTS (PHARM D)				
COURSE TITLE:	MEDICINAL PLANTS		COURSE CODE: PG 101		
DATE:	29/12/2019	TERM: FIRST	TOTAL ASSES- MENT MARKS: 50	TIME ALLOWED: 2 HOURS	

The exam consists of **THREE** Questions in **11** pages.

- **Question I** is composed of 70 MCQs ($0.5 \times 70 = 35$ marks) Select only one answer in the specified **ANSWER SHEET** in page 1 using blue pen. Answers using pencils will not be accepted.
- **Question II** is various to fill missed spaces (7 marks) either by words or drawings. Answers should be written in **Table 1**.
- **Question III** is composed of 16 sentences in a tabular form ($0.5 \times 16 = 8$ marks) to give an appropriate word describing each one. The answers will be in the same table.

Answer Sheet

No.	a	b	c	d	e	No.	a	b	c	d	e	No.	a	b	c	d	e
1						25						49					
2						26						50					
3						27						51					
4						28						52					
5						29						53					
6						30						54					
7						31						55					
8						32						56					
9						33						57					
10						34						58					
11						35						59					
12						36						60					
13						37						61					
14						38						62					
15						39						63					
16						40						64					
17						41						65					
18						42						66					
19						43						67					
20						44						68					
21						45						69					
22						46						70					
23						47											
24						48											

Question I(35 marks, 80 min.)

Choose only one correct answer and record your choice in the corresponding place in the answer sheet provided in page 1

1- Regarding to diosphenol:

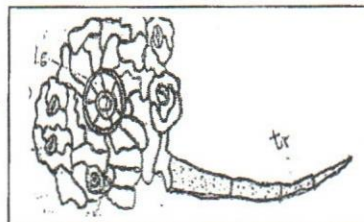
- a- Is vol. oil present in peppermint leaves
- b- Is used in treatment of varicose veins
- c- Has diuretic and antiseptic effect
- d- Is present as sphaerocrystal in epidermal layer of buchu
- e- Is used as antispasmodic

2- Partial hydrolysis of lanatoside B gives:

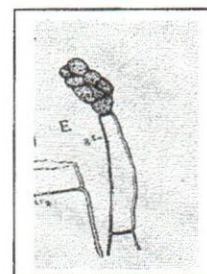
- a- Digitoxin
- b- Gitoxin
- c- Acetyl secondary glycoside
- d- Aglycon
- e- Both (b) and (c)

3- Regarding to this picture, select the false statement:

- a- Is the key element of mentha
- b- Contains diacytic stomata
- c- The covering hair may be present in stramonium leaf
- d- Its constituent gives with vanillin sulphuric acid reagent → red
- e- Is present in leaf used as antispasmodic

**4- Residue of drug + conc. HNO₃ and evaporate then add alc. KOH this test is**

- a- Kedde's test
- b- Vitali's test
- c- Specific for cardiac glycosides
- d- General test for alkaloids
- e- Specific for arbutin

**5- This is the key element of:**

- a- Digitalis
- b- *Hyoscyamus muticus*
- c- Leaf has smooth muscle relaxant effect
- d- Stramonium
- e- Belladonna

6- Mucilage is the main constituent of:

- a- Althea
- b- Buchu
- c- Senna
- d- Uva ursi
- e- Henna

7- Regarding to Diosmin, select the false statement:

- a- Gives red color with NH₄OH
- b- Used in treatment of varicose veins
- c- Present in the epidermis of buchu
- d- Present in leaf used as hepatoprotective
- e- Present with luteolin in certain leaf

8- Leaf used as whitening agent:

- a- Mentha
- b- Buchu
- c- Rosemary
- d- Althea
- e- Uva ursi

9- Leaf contains tannin as the main constituent:

- a- Rosemary
- b- Eucalyptus
- c- Hammamlis
- d- Black tea
- e- Hyoscymus

10- The best laxative used in children ages 3-15 years is:

- a- Small dose of senna
- b- Mineral oil with lactulose
- c- Lactulose
- d- Senna with psyllium
- e- Mentha

11- Leaf causes severe liver problems to children:

- a- Uva ursi b- Buchu c- Rosemary d- Boldo e- Digitalis

12- Leaf used as diaphoretic:

- a- Stramonium b- Jaborandi c- Boldo d- Rosemary e- Eucalyptus

13- Overdose of tropane alkaloids leads to:

- a- Yellow vision
 b- Increase in the heart rate and cause hallucination
 c- Abdominal pain d-Increase the secretion of mucosal membrane
 e- Greenish-brown discoloration of the urine.

14- Regarding to tea; select the false statement:

- a- Green tea contain more catechins than black tea
 b- Cured green tea contain more theaflavin
 c- Theaflavins are responsible for the colour and the taste of black tea.
 d- Contain theophylline which is diuretic
 e- Green tea is used to decrease the body weight

15- Regarding to Catharanthus leaves; select the false statement:

- a- Is related to family Apocyanaceae b- Used as antioxidant
 c- Contain indole alkaloids d-Treat lymphatic carcinoma
 e- Treat acute leukemia in children

16- Ruthenium red gives +ve result with senna.

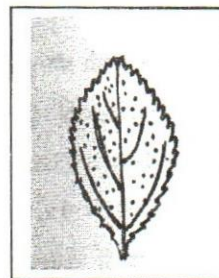
- a- True b- False

17- Schizolysigenous glands are the key element of

- a- Senna b- Digitalis c- Buchu d- Uva ursi e- Boldo

18- Regarding to this picture, select the false statement;

- a- Contain more vol. oil
 b- Rigid and brittle when dry and cartilaginous when moist
 c- Contain luteolin and diosmin in the epidermal layer
 d- Used in the treatment of the peripheral vascular disorder
 e- With KOH → red color

**19-Leaf used as antiulcerogenic**

- a- Stramonium b- Jaborandy
 c- Boldo d- Rosemary e- Eucalyptus

20-Regarding to boldo leaf; select the false statement:

- a- Contains Glycoside b- Contains alkaloids
 c- Related to F. Rutaceae d- Increases bile secretion
 e- Contain vol. oil

21- Digitalis lanata is more effective than Digitalis purpurea;

- a- True b- False

22- Regarding to Liebermann's test; select the false statement:

- a- Gives +ve result with squill b- Is specific for steroidal structure
 c- Gives pink color d- Its reagent is H₂SO₄ + conc. glacial acetic acid
 e- Gives +ve result with glycoside and the aglycone

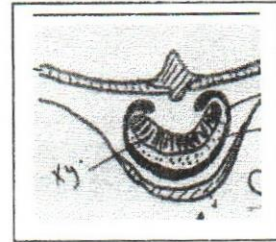
23- Digitalis is contraindicated with activated charcoal as it increases cardiac rhythm abnormalities

a- True

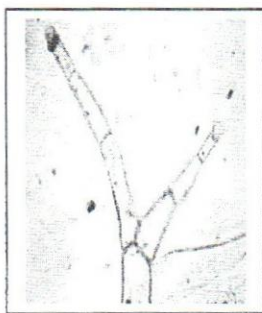
b- False

24- Regarding to this picture, select the false statement:

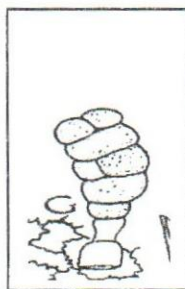
- a- The T.S. of coca leaf
- b- For leaf related F. Rutaceae
- c- Its leaf is used as stimulant and tonic
- d- Gives positive result with Mayer's reagent
- e- It contains pericyclic fibers



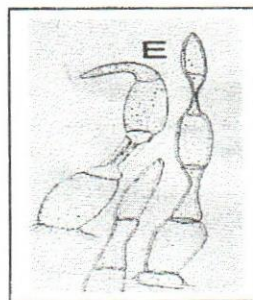
25- Regarding to these pictures:



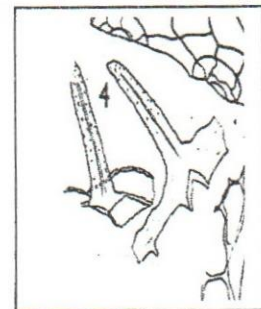
1



2



3



4

- a- Picture 1 and 2 are present in all family solanaceae
- b- Picture 4 is present in leaf has isobilateral palisade
- c- Plant has the hair No. 3 contain anisocytic stomata
- d- Picture 1 has the lowest amount of alkaloids
- e- Picture 4 in leaf contains anomocytic stomata

26- Regarding to the above pictures:

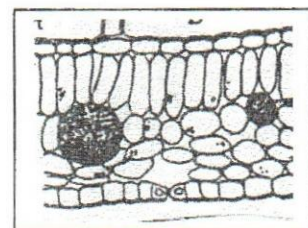
- a- Picture 3 is called digitalis hair
- b- Picture 4 is senna hair
- c- The dose of the leaf which has the hair No. 3 is 1 mg/day
- d- Picture 2 is for leaf contains crystal layer
- e- Picture 2 has the highest amount of alkaloids

27- Keller's test gives positive results with, select the false statement:

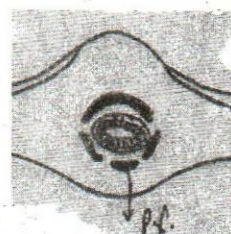
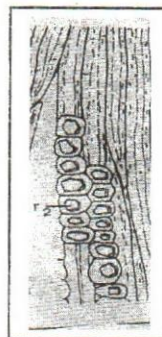
- a- Purpurea glycoside A
- b- Purpurea aglycone
- c- Digitoxin
- d- Lanatoside A
- e- All secondary glycosides in digitalis

28- Regarding to this picture, select the false statement:

- a- Is the key element of plant called deadly night shade
- b- Used in treatment of Parkinsonism
- c- Gives with Vitali's test red color
- d- Its toxicity is treated by jaborandi leaves
- e- Gives positive result with p-dimethylaminobenzaldehyde



- 29- Leaves have oxytocic effect:**
 a- Uva ursi b- Buchu c- Rosemary d- Althea e- Mentha
- 30- These leaves are used as diuretics, select the false statement:**
 a- Tea due to the presence of theobromine b- Boldo c- Uva ursi
 d- Buchu due to diosmin e- Squill as secondary effect
- 31- Powder of + H₂O, warm in W.B. → HCN + Guignard's paper → brick red color**
 a- Digitalis b- Buchu c- Hammamlis d- Cherry laurel e- Hyoscymus
- 32- This is the key elements of; select the false statement:**
 a- Leaf contraindicated with cardiac glycosides
 b- Its prolonged use cause dependence
 c- Its duration not exceed 8 – 10 days
 d- Is taken as aglycones which the active form
 e- Its glycoside not absorbed in the small intestine
- 33- Wintergreen leaf is used as counter irritant.**
 a- True b- False
- 34- Powder + alc. KOH, acidify with HCl, then add ether, and shake gives rose red color in aq. layer, this test is:**
 a- Modified Borntrager's test b- Liebermann's test
 c- Kedde's test d- Arbutin test e- Vitali- Morin test
- 35- Leaf used as liver stimulant;**
 a- Rosemary b- Boldo c- Squill d- Uva ursi e- Coca
- 36- This is the transverse section of leaf;**
 a- Related to family Myrtaceae
 b- Has anticholinergic effect
 c- Has smooth muscle relaxant effect
 d- Has diaphoretic effect
 e- Contains mainly vol. oil
- 37- Which of the following leaves is used as antiseptic in certain skin diseases and antidandruff?**
 a- Rosemary b- Henna c- Squill d- Uva ursi e- Guava
- 38- Drug used to decrease gastric and pancreatic secretion:**
 a- Mentha b- Jaborandi c- Rosemary d- Coca e- Belladonna
- 39- Leaf is used as hypoglycemic:**
 a- Mentha b- Guava c- Boldo d- Rosemary e- Eucalyptus
- 40- Overdose of digitalis leads to; select the false statement**
 a- Yellow vision b- Increase in the heart rate
 c- Abdominal pain and Diarrhea d- Vomiting,
 e- Shortness of breath
- 41- We use sedative, and pilocarpine to treat the toxicity of:**
 a- Digitals b- Stramonium c- Uve ursi d- Senna e- Buchu



42- Constituents of...+ Gl. acetic acid + dil. HNO₃ → blue →golden yellow.

- a- Uve ursi b- Buchu c- Mentha d- Squill e- Senna

43- Regarding to squill, select the false statement:

- a- Used as expectorant b- Contains clusters of CaOX
c- Contains Scillaren A d- Used as cardio tonic
e- Related to family Liliaceae

44- Vinblastine is used for the treatment of acute leukemia in children

- a-True b-False

45- Cochineal is considered as:

- a- Animal product b- Entire plant c- Entire animal
d- Mineral e- Plant organ

46- Which of the following classification do pharmacopoeias follow?

- a- Alphabetical b- Chemical c- Morphological
d- Pharmacological e- Taxonomic

47- When stomata are surrounded by cells resembling the other epidermal cells, this type is called...

- a- Anisocytic b- Anomocytic c- Diacytic
d- Gramineous e-Paracytic

48- Which of the following is the conducting element of the phloem?

- a- Companion cell b-Fibre c-Parenchyma
d- Secretory cell e- Sieve tube

49-The epidermis of linseed contains...

- a- Lignin b- Mucilage c-Starch d- Suberin e-Volatile oil

50- When the two guard cells of the stomata are fused with each other and the ostiole becomes surrounded by a single cell, this type can be found in...

- a- Bryophytea b- Graminae c- Pinus
d- Rutaceae e- Solanaceae

51- Which of the following can function in both support and water transport and found in all vascular plants?

- a- Collenchyma b- Fibres c- Sclereides
d- Tracheids e- Xylem vessels

52-.....is formed of solid column of xylem which is surrounded with a band of phloem followed by pericycle.

- a- Atactostele b- Dictyostele c- Eustele d- Protostele e- Siphonostele

53-When phloem and xylem are lying on the same radius enclosing cambium in-between; this type of vascular bundle is termed...

- a- Bicollateral b- Closed collateral c- Open collateral d- Radial e- Concentric

54- Which of the following has simple and polyhedral starch granules?

- a- Ginger b- Maize c- Potato d- Rice e- Wheat

- 55- Under the effect of dry heating, starch produces....
 a- Blue color b- Gel mass c- Dextrin d- Glucose e- Maltose
- 56- Which of the following has aleurone grains containing only globoids?
 a- Castor b- Linseed c- Maize d- Nutmeg e- Sesame
- 57-..... are esters of saturated long chain fatty acids and glycerol.
 a- Dextrins b- Volatile oils c- Fixed oils d- Fats e- Waxes
- 58-..... are calcium oxalate crystals having needle shape and present in bundles.
 a- Clusters b- Crystal layers c- Raphides d- Rosettes e- Styloids
- 59- Sinigrin can be found in....
 a- Clove b- Coriander c- Eucalyptus d- Mentha e- Mustard
- 60- Arbutin produces.....color with FeCl_3
 a- Blue b- Green c- Red d- Yellow e- Violet
- 61- Aspirin is considered as a semisynthetic product of.....
 a- Aloe emodin b- Arbutin c- Salicin d- Linamarin e- Sinalbin
- 62- Hesperidin from citrus fruits produces.....color with KOH
 a- Blue b- Black c- Green d- Red e- Yellow
- 63- Which of the following do haemolyse red blood cells and precipitated by lead acetate?
 a- Flavonoids b- Saponins c- Alkaloids d- Tannins e- Anthocyanins
- 64- Which of the following do produce red color with acids and blue or violet color with alkalis?
 a- Anthocyanins b- Flavonoids c- Carotenes d- Saponins e- Tannins
- 65- An example of bitter principles is
 a- Colophony b- Khellin c- Menthol d- Lycopene e- Quinine
- 66- The genins of cardiac glycosides have a (an)nucleus
 a- Anthraquinone b- Coumarin c- Flavone d- Steroidal e- Triterpene
- 67- Amygdalin is an example ofglycoside
 a- Anthraquinone b- Cardiac c- Cyanogenetic d- Flavonoid e- Saponin

68-The compound of Fig. (1) is a (an) ...

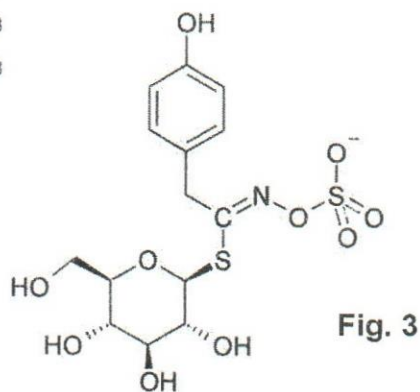
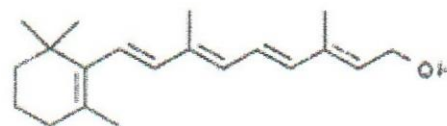
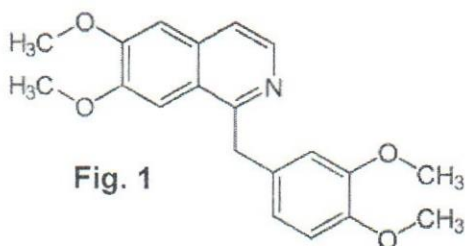
- a-Alkaloid
 b- Cardiac glycoside
 c-Diterpene
 d-Phenol glycoside
 e-Thioglycoside

69- The compound of Fig. (2) is a (an) ...

- a- Alkaloid
 b- Cardiac glycoside
 c- Diterpene
 d-Sesquiterpene
 e- Phenol glycoside

70- The compound of Fig. (3) is a ...

- a- Bitter principle
 b- Flavonoid glycoside
 c- Phenol glycoside
 d- Saponin glycoside
 e- Thioglycoside



Question II: (7 Marks, 20 min.)

Globe artichoke (*Cynara cardunculus* var. *scolymus* L., Asteraceae), Ash (*Fraxinus angustifolia* Vahl, Oleaceae), Azadirachta (*Azadirachta indica* A. Juss, Meliaceae), Mallow (*Malva sylvestris* L., Malvaceae) and Ginkgo (*Ginkgo biloba* L., Ginkgoaceae) are five official leaves described in the British Pharmacopeia 2017 (Volume IV) owing to their valuable pharmacological activities.

Cont., Question II,

Please, complete the numbered spaces ONLY in the following table and write your answers in Table 1

10 x ½ mark + 2 marks for No. 7 and 8 = 7 Marks



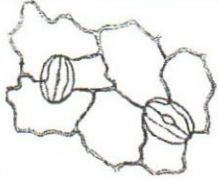
Common name / Item	Artichoke	Ash	Azadirachta	Mallow	Ginkgo
Scientific name				.. (1)..	
Family	..(2)..				
The 1 st scientist who described it		..(3)..			
Geographical origin			..(4)..		
Which sub-division of Phanerogams					..(5)..
Leaf morphology	Lobed pinnatisect with entire margin		Compound imparipinnate, ovate leaflets, serrate margin with acuminate apex	..(6)..	
Drawing of the specified leaf description	..(7)..		..(8)..		
Leaf venation				..(9)..	..(10)..
Stomatal index (%)				 ..(11)..	
Medicinal uses					..(12)..

Table 1

Space no.	Answer
1.	
2.	
3.	
4.	
5.	
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8.	
9.	
10.	
11.	
12.	

Question (III): (16 x ½ = 8 Marks, 20 min.)

Give one word describing the following sentences and write your answers in the same table

Sentence	Answer
1. A much broader term that widely used than plant taxonomy nowadays	
2. A type of leaves that composes the flower parts, like calyx and corolla	
3. Organisms that manufacture their own food from inorganic substances using light as an energy source	
4. An example of hydrocolloids in brown algae or pheophytae	
5. A root-like structure that functions as an anchor for macroalgal thallus	
6. A plant has the male and female cones on the same plant	
7. Valuable sources of antibiotics and commonly used for biotransformation of steroidal hormones	
8. Vascular and seedless photosynthetic organisms showing distinct alternation of generation	
9. A tissue that is present at the center of young stem and root of flowering plants, however it disappears in old dicotyledonous root	
10. Specialized cells having the appearance of gland and function to excrete dilute solutions in aquatic plants	
11. It is the layer lies between phloem and cortical tissues	
12. An example of a taxonomic rank used below the species name	
13. The principal psychoactive agent found in the dried female flowers of <i>Cannabis sativa</i> L.	
14. A disease treated with alkaloids found in corm and seeds of <i>Colchicum autumnale</i> L.	
15. A nitrogenous diterpene molecule used in treatment of ovarian and other cancer types	
16. The fruit type of the Calabar bean (<i>Physostigma venenosum</i> , Fabaceae)	

Good Luck