TANTA UNIVERSITY
FACULTY OF PHARMACY
DEPARTMENT OF PHARMACOGNOSY

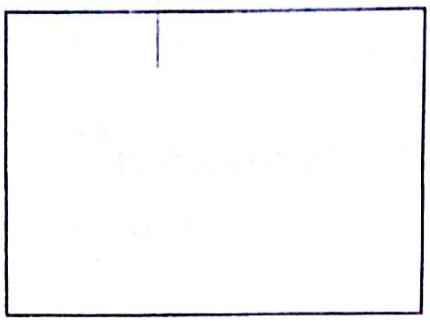
FINALEXAM FOR CLINICAL STUDENTS

COURSE TITLE:	Phytochemistry-1		COURSE CODE:3055
DATE: 13-6-2017	TERM: SECOND	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: TWO HOURS

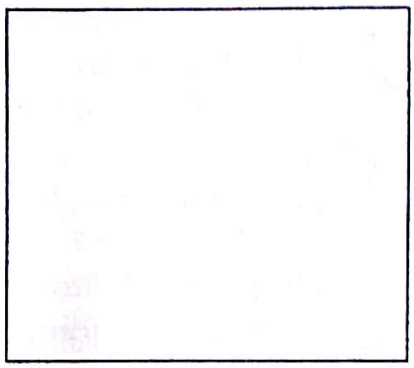
Part (1): Tannins, bitter principles, resins and resin combinations : 10 points, 24 min

A-Draw the chemical structure of the following natural products: 3.75 points

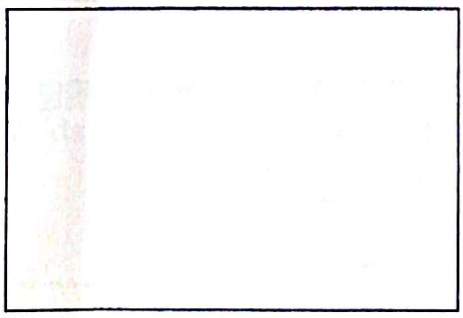
1a-Xanthotoxin



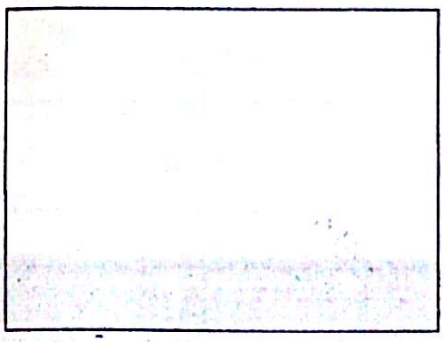
2a-Khellin



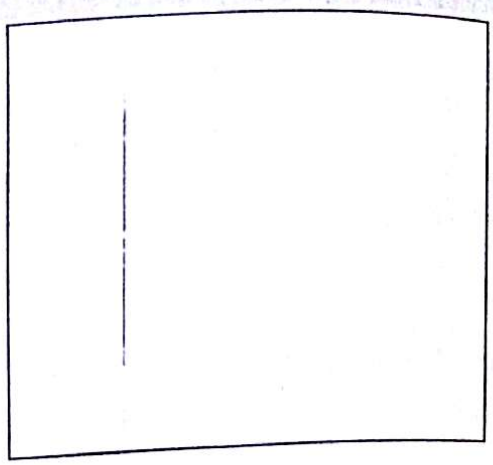
3a-Epicatechin



4a-Ferulic acid

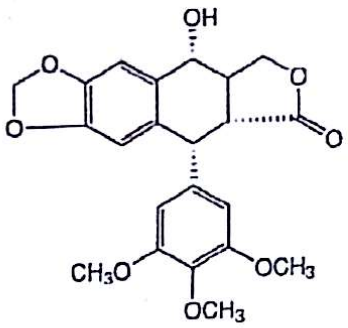


5a-Hexahydroxydiphenic acid

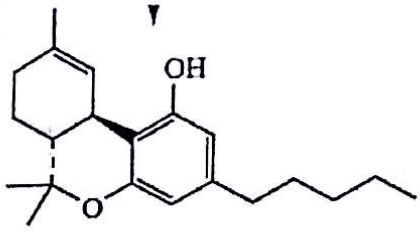


B- Identify the name of the following natural products. Include the answers in Table (1).

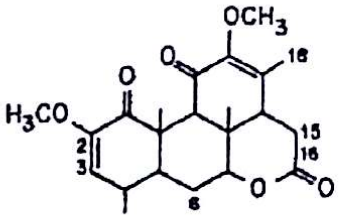
1.25 points



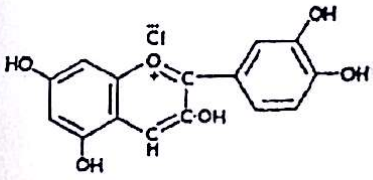
(1b)



(2b)



(3b)



(4b)

(5b)

Table (1)

No	Answer
1b	
2b	
3b	
4b	
5b	

C-Identify the answers of the following listing the answers in Table 2: **5 points**

1-The name and active constituents of a balsam.
2-One use and a chemical test of compound 5b.
3-Chemical and biosynthetic of compound 2a.
4-A chemical test and one therapeutic use of compound 3b.
5-Occurrence and biosynthesis of compound 5a.
6-Type of tannin from which compound 4b is formed.
7-Source and a therapeutic use of compound rotenone.
8-Natural occurrence and one use of compound 1b.
9-Source and therapeutic use of compound 2b.
10-occurrence of compound 4a.
11-A chemical test and biosynthetic class of picrotoxin.
12-A chemical reaction, positive with flavan-3-ols.
13-A chemical test and one method for quantitative assay of true tannins
14-A solvent used in extraction of bitter principles of *Ammi visnaga* fruits
15-Nature of hydrolysable tannins from *Hammamilis*
16-Name and active constituents of gum resin.
17-An example of prepared oleo resin
18-A chemical test and products of decomposition of rotenone by air and light.
19-The reason for the bad odour of asafetida.
20-Two commercial sources of tannins.

Table (2):

No.	Answer
1	
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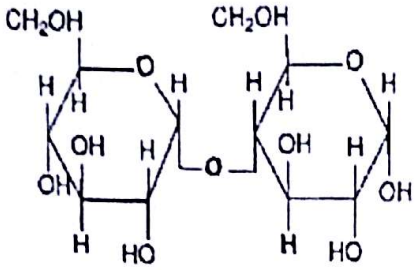
Part II (Carbohydrates, 10 marks at 24 minutes)

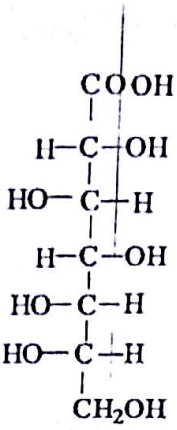
You are provided with fifteen sentences, match each sentence with a suitable structure titled from (A-P). Please put your answers in the underline Table and complete it.

1-An epimer of D- glucose.
2- It`s a sugar alcohol derivative used for treatment of angina.
3-A product of HCN reaction with D- glucose.
4-A dimmer which is produced by the enzymatic hydrolysis of amylose.
5-A product of xylan polymer hydrolysis, which is used to measure the intestinal absorbtion.
6-A sucrose hydrogen sulfate aluminium complex derivative.
7-A suger alcohol which is used to measure GFR.
8-A glycouronan obtained mainly from brown algea(Phaeophycea) and incorporated into antacid preparations.
9-A disaccharides obtained by alkaline epimerization of lactose which used to decreases the symptoms of encephalopathy.
10- Linear sulfated polysaccharides that are extracted from red seaweeds.
11- A monosaccharide which is specific to cardiac glycosides.
12- An oligosaccharide usually occurs in the seed of family *Leguminosae*.
13- A high moleculer weight liner glucan of β-1, 4 linkeges, which occurs in plant cell wall, bacteria and some lower animals.
14- A dimmer crystallized from whey during the manufacture of cheese.
15-A homopolysaccharides used for preparation of liquid glucose and dextrose

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Name of the described structure
A																
B																
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
P																



(A)



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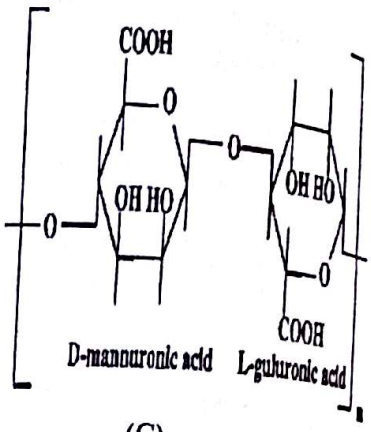
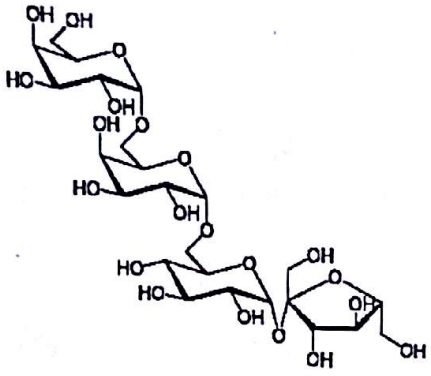
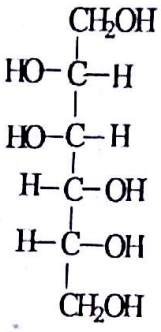


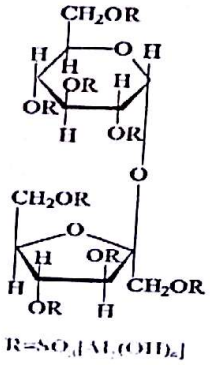
(C)



(D)



(E)



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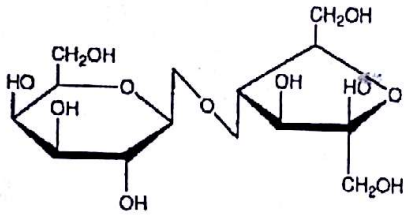

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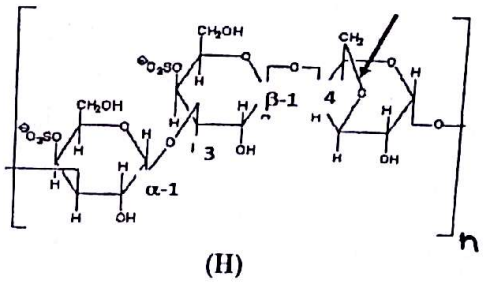
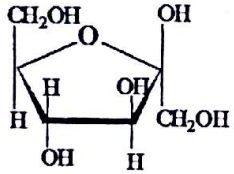
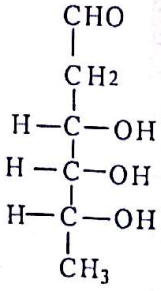


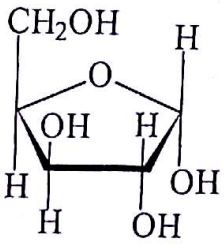
(H)



(I)



(J)



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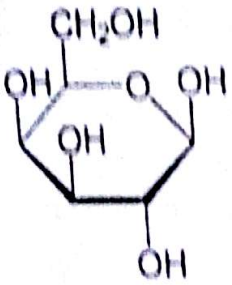
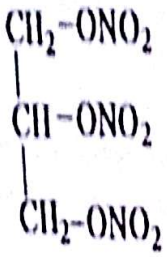
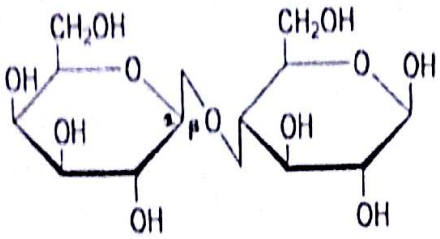


(L)



(M)



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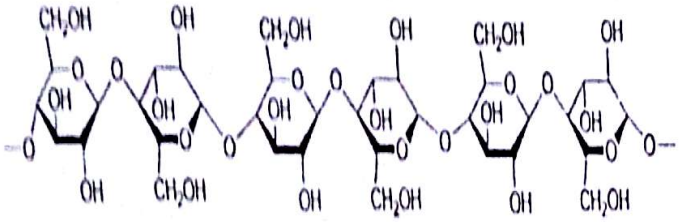

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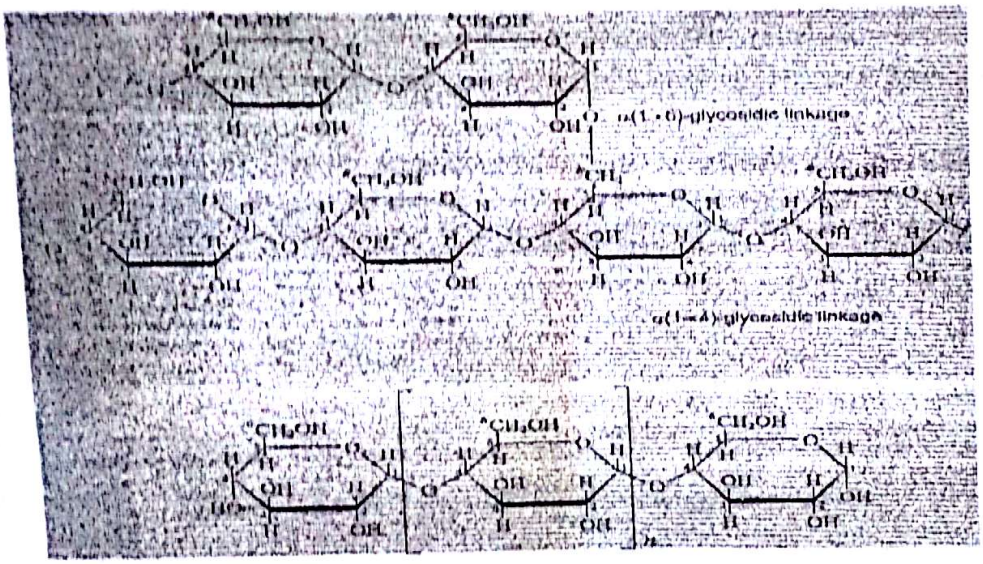

(P)

Part III.....volatile oils (30 marks, 72 min).

Question 1: write on the following..... (2 marks, 12 min)

1- Separation of camphor from borneol

2- Separation of borneol from isoborneol

3- Separation of citral A and citral B mixture

4- - Separation of citronellal and citral

estion 2: Complete the following with the correct answer and record your answer in ble A.....(28 marks, 60 min)

Carvone is formed upon auto-oxidation of .....
Reacting sulfur with .....produces Cadalene.
..... can be isolated as hydrochloride salt.
Pinene can be isolated as ..... derivative
..... is produced by enzymatic hydrolysis of Sinigrin.
A hydrocarbon used in preparation of body care products .....
Benzaldehyde is prepared from .....
Methyl salicylate is prepared from .....
Passing a stream of hot air through the flowers is called.....
10- .....method is soaking the flowers in hot oil.
11- A wooden frame covered by a layer of fat upon which the flowers are pressed is called .....
12- Triglycerides of fatty acids compose .....
13- Volatile oils gives ..... saponification with KOH.
14- Upon long exposure to light and air, volatile oils .....
15- Oxygenated hydrocarbons are named .....
16- Some oils on cooling deposit a solid substance called.....
17- Thermostable oils, present in large amounts & not rich in esters can be prepared by .....
18- In steam distillation, plant material should be .....
20- ..... Flask is designed to separate oils lighter and heavier than water from aqueous layer.
21- automatic return to the steam boiler for the generation of more steam and to recover the dissolved oil, this is called .....
22- ..... is sending pulses of steam under low pressure through the plant material from *top to bottom*
23- Among the distillation methods, ... gives the best yield.
24- Mechanical procedures carried at room temperature & based on puncturing & squeezing of the plant material to liberate the oil, which is collected .....
25- Citrus oil is prepared by .....
26- The method in which the fruits are placed in a device and rotate with puncturing the oil gland in the peel of the fruits is .....
27- Thermosensitive oils present in low yield are prepared by .....
28- Carbon dioxide becomes hypercritical at .....
29- Succinic acid is produced by oxidation of ..... by K. permengnate.
30- ..... is an example of optically inactive aromatic hydrocarbon oil.
31- Treatment of limonene by cold acid produces .....
32- A bicyclic monoterpene active against bacteria.....
33- A bicyclic terpene that reduces plasma cholesterol .....
34- a neuroprotective monocyclic sesquiterpene .....

35- Citronellol is separated from geraniol by .....
36- ..... decomposes to hydrocarbon with phthalic anhydride.
37- Geraniol is separated from nerol by the use of .....
38- Linalool is converted to geraniol by treatment with .....
39- An aromatic alcohol used as fixative in perfumes .....
40- Menthol can be synthesized by hydrogenation of .....
41- Oxidation of menthol produces .....
42- Hydration of terpineol produces .....
43- Phenolic volatile oils examples are .....
44- Phenolic ethers examples are .....
45- Aldehydes form .... insoluble complex and regenerated by alkali.
46- In acid medium, citral undergoes .....
47- When Perillaldehyde treated with NH_2OH ..... will be produced
48- Antidepressant and anticonvulsant aldehyde .....
49- Oxidation of lignin produces .....
50- Caraway seeds odour is due to .....
51- A urinary antiseptic phenolic ketone .....
52- Differentiation between natural and synthetic camphor .....
53- Phosphoric acid and resorcinol form addition complexes with .....
54- A mucolytic Peroxide .....
55- A peroxide which ca not form any crystalline derivative .....
56- A peroxide volatile oil is determined by .....

Table A

o.	Answer	No.	Answer
1		29	
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