

Phytochemistry III

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final 2017

Al Azhar University
 Faculty of Pharmacy
 Department of Pharm. Chemistry & Pharmacognosy
 Phytochemistry 3

29.May.2017

Time: 2h

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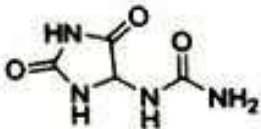
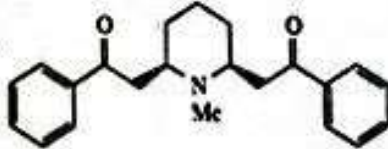
FINAL EXAM May 2017

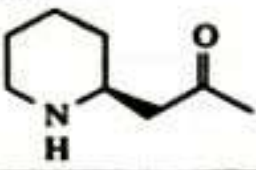
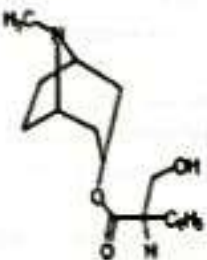
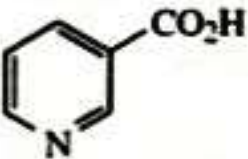
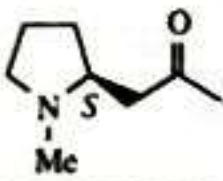
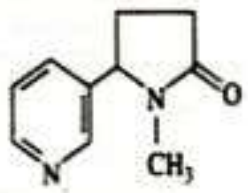
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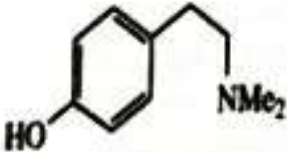
الرجاء عدم الكتابة بقلم الرصاص
 جميع إجابات السؤال الأول والثاني تكون فقط في الجدول

I. True or False

(40M)

1.	Alkaloids can be classifying according to plants sources of active ingredients.	21.	Cocaine's effects appear at once after a single dose.
2.	Pilocarpine belong to imidazole nucleus.	22.	Snorting cocaine can bring about severe allergic reactions and increased risk of HIV/AIDS & hepatitis.
3.	Amphoteric character of morphine due to alkaline properties of the structure.	23.	The best method of cocaine detection is Scott test.
4.	Most of alkaloids are soluble in water.	24.	The following structure is hepatotoxic. <div style="text-align: center;">  </div>
5.	As basic characters: $R_2-NH > R-NH_2 > R_3-N$	25.	Lupinus termis belong to quinolizidine alkaloids.
6.	Saturated hexacyclic amines is more basic than aromatic amines.	26.	The extra methylene group in lysine means this amino acid lead to forming six-membered lobeline rings.
7.	Nicotine is one of secondary amino group	27.	The following structure is (-) Lobeline. <div style="text-align: center;">  </div>

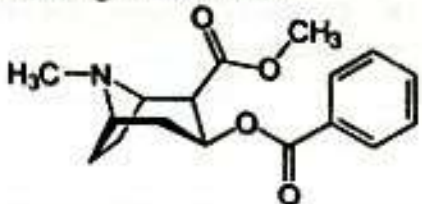
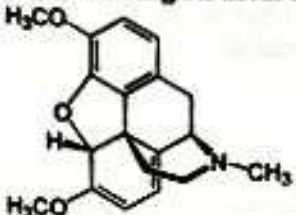
8.	Stability of alkaloids depend on effects of acid and alkali only	28.	The following structure is Pelletierine. 
9.	Van-Urk's test for ergot alkaloids, these give a blue color.	29.	Lobelia inflata is a bronchodilator and antispasmodic
10.	Very weak bases which cannot be found by volumetric methods e.g. caffeine and colchicine.	30.	Pomegranate as cortex is used for infestation with tapeworm, diarrhea and dysentery.
11.	Tropan 3 α -ol are essentially specific to Solanaceae family.	31.	Anabasine is produced from nicotinic acid and lysine via the $\Delta 1$ -pyridinium cation.
12.	The following structure is (-) Hyociamine. 	32.	The following structure is niacin and help in cholesterol reduction. 
13.	The following structure is (-) Hygrine 	33.	The following structure is nicotine 
14.	All of tropan alkaloids have narcotic and hallucination effect.	34.	Vitamin B3 deficiency can lead to mild to severe eczema.
15.	First used of Coca folium as antidote of morphine addiction.	35.	Conversion of tryptophan to vitamin B3 also require the presence of vitamins B6.
16.	Habituation occurs when a drug has been used habitually and the body has become dependent on its effects.	36.	Nicotine is filtered from the blood by kidneys and excreted in the urine as cotinine.
17.	Addiction is a brain disease.	37.	Smoking is an addictive habit.
18.	Pseudotropine present in Coca folium	38.	Nicotine smoking takes only 10-15 seconds to reach the brain.

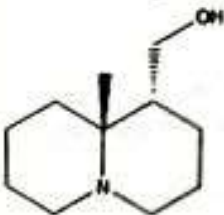
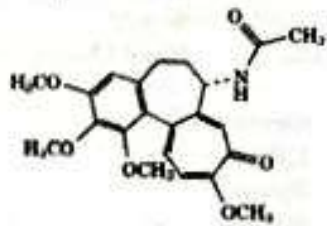
19.	All drugs of abuse directly or indirectly increase dopamine in the nucleus accumbens, contributing to their addictive properties	39.	Nicotine increases the level of neurotransmitters and chemicals that modulate how the brain works such as Endorphins.
20.	Cocaine Hydrochloride: In high doses, the drug causes paralysis of motor neuron fibers and become addictive.	40.	The following structure is tyramine. 

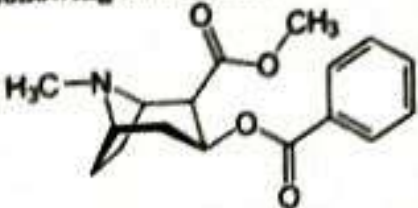
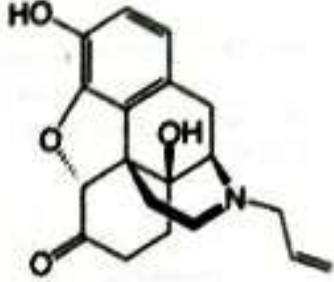
II. Select the Best Correct Answer:

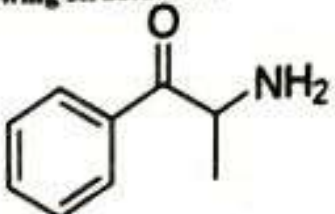
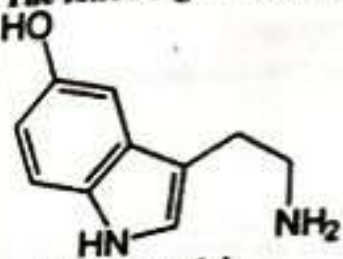
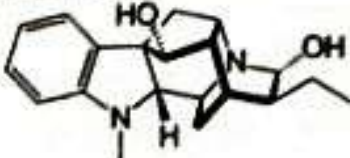
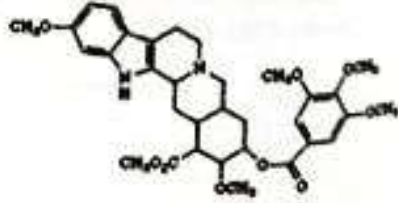
(60M)

1	The biological activity of many alkaloids is often dependent on: a. Amine function b. N-CH ₃ group c. Toxicity level d. Dose administrated	31	Psychoactive and hallucinogenic properties of cactus due to: a. Decarboxylation product from L-DOPA L dihydroxyphenylalanine. b. Convert dopamine into mescaline. c. Convert mescaline into dopamine. d. Dopamine
2	As a prefix, Nor designates: a. Dehydration b. Isomers c. N-methylation d. (A+C)	32	Cathinone is structurally similar to the synthetic amphetamine. a. Truth b. False
3	The value of solubility due to variation in structure and salts are variable. a. Truth b. False	33	Ephedrine is a directly acting sympathomimetic amine with effects similar to noradrenaline. a. Truth b. False
4	Hot dilute acids and concentrated mineral acids may cause: a. Dehydration b. Hydrolysis c. Demethylation d. All of the above	34	Ephedrine is able to displace noradrenaline from storage vesicles in the nerve terminals, which can then act on receptors. a. Truth b. False
5	The pyrrolidine ring system is formed initially as a Δ1-pyrrolinium cation. a. Truth b. False	35	The stimulant and thermogenic effects of <i>Ephedra sinica</i> due to presence of: a. Ephedrine b. Pseudoephedrine c. Norephedrine d. (A+B)

6	<p><i>Atropa belladonna</i> preparations act as a parasympatholytic via dopamine transmitter.</p> <p>a. Truth b. False</p>	36	<p>The initial burning effect of capsaicin is found to:</p> <p>a. Affect reward system b. Affect pain receptors c. Inhibit CNS, making pain less sensitive d. Feel reducing the pain not analgesic effect</p>
7	<p><i>Atropa belladonna</i> preparations release hallucinogenic effect.</p> <p>a. Truth b. False</p>	37	<p>Peyocactin, one of the active ingredients of peyote with:</p> <p>a. Hallucinations effect b. Narcotic effect c. Antidepressant effect d. Antibiotic effect</p>
8	<p>By blocking the action of serotonin, atropine serves as an antidote for organophosphorus poisoning.</p> <p>a. Truth b. False</p>	38	<p>The principal opium alkaloid (s) is/are:</p> <p>a. Morphine b. Morphine, codeine, & thebaine c. Morphine, codeine, & papaverine d. All ingredients mention above.</p>
9	<p>Injections of atropine are used in the emergency treatment of:</p> <p>a. Angina pectoris b. Tachicardia c. Cardiac arrest d. Ventricular fibrillation</p>	39	<p>Biosynthetically, morphine can be arise from:</p> <p>a. conversion of thebaine by way of codeine b. conversion of thebaine by way of oripavine c. Total extract of opium d. (A+B)</p>
10	<p>Henbane was traditionally used as:</p> <p>a. Antiasthmatic b. Pain killer c. Antispasmodic (in biliar spasm) d. (A+C)</p>	40	<p>Crude opium has been used since antiquity as:</p> <p>a. An sleeping agent (narcotic sleeping) b. An analgesic & cough treatment agent c. An anti-diarrhea therapy. d. All of the above</p>
11	<p>Henbane:</p> <p>a. Inhibit affects the muscarinic action b. Stimuli affects the muscarinic action c. Inhibit affects the nicotinic receptors d. Stimuli affects the nicotinic receptors</p>	41	<p>Morphine in small doses, in pharmacy, used as:</p> <p>a. Analgesic agent for cancer diseases b. Antidepressant agent c. An anti-diarrhea in severe cases. d. None of the above</p>
12	<p>The following structure is:</p> 	42	<p>The following structure is:</p> 

18	Cocaine is a strong CNS stimulant that increases levels of a. Acetyl choline b. Dopamine c. Serotonin d. Cocaine base	48	Serotonin is one of simple hydroxylated derivatives of tyramine. a. Truth b. False
19	Elimination of cocaine from the body depend on: a. Amount of drug administrated b. Regularity of using c. Body weight d. All of the above	49	<i>Hordium vulgare</i> is a good remedy for weight reduction. a. Truth b. False
20	Cocaine is detectable in saliva after a. Few minutes b. Few hours c. Few days d. Not detectable	50	Eating whole grain barley can: a. Suppress appetites b. Regulate blood sugar c. Increase diureses d. All of the above
21	Borage contains gamma-linolenic acid (GLA). a. Truth b. False	51	<i>Peganum harmala</i> is used as: a. Anti-inflammatory agent b. Antidepressant c. Antitumor d. Antihypertensive
22	Borage oil is used for neurodermatitis, Pre Menstrual Syndrome (PMS) and as a food supplement. a. Truth b. False	52	<i>Rauwolfia</i> has been used in traditional medicine as: a. Antidote to snake-bite & against stomach pains b. Antidote to snake-bite & against fever c. Antidote to snake-bite & against vomiting d. All of the above
23	The following structure is 	53	The following structure is: 
24	Eyebright refer to: a. <i>Lupinus termis</i> b. <i>Lobelia inflata</i> c. <i>Punica granatum</i> d. <i>Ephedra sinica</i>	54	Reserpine in small doses used as hypotensive and in big doses used as tranquillizers. a. Truth b. False

	<ul style="list-style-type: none"> a. Atropine b. Hyocyamine c. Cocaine d. Hyocine 		<ul style="list-style-type: none"> a. Morphine b. Codeine c. Thebaine d. Reticuline
13	<p>Addiction is:</p> <ul style="list-style-type: none"> a. Psychological disorder. b. Compulsive use and loss of control of a drug. c. A brain disease with permanent relapse d. None of the above 	43	<p>Codeine used in pharmacy as:</p> <ul style="list-style-type: none"> a. Morphine-like b. Just antitussive c. An analgesic instead of morphine (one-tenth the potency of morphine) d. None of the above
14	<p>The following structure is:</p>  <ul style="list-style-type: none"> a. Ecgonine b. Cocaine c. Methylecgonine d. Benzoulecgonine 	44	<p>The following structure is:</p>  <ul style="list-style-type: none"> a. Codeine b. Naloxone c. Naltrexone d. Methadone
15	<p>Tolerance :Is a state of adaptation in which exposure to a drug induces changes that result in a diminution of one or more of the drug's effects over time.</p> <ul style="list-style-type: none"> a. Truth b. False 	45	<p>Noscapine or narcotine, a drug with:</p> <ul style="list-style-type: none"> a. Antitussive without narcotic effect. b. Antitussive with narcotic effect. c. Antitumor effect. d. (A+C)
16	<p>The high poisoning propertels of pyrrolizidine skeleton due to:</p> <ul style="list-style-type: none"> a. 1,2-unsaturation in the pyrrolizidine ring b. 2,3-unsaturation in the pyrrolizidine ring c. ester function on the side-chain of the pyrrolizidine ring d. (A+C) 	46	<p>Ipecacuanha has anti amoebic activity because emetine and cephaeline are both potent inhibitors of protein synthesis, inhibiting at the translocation stage.</p> <ul style="list-style-type: none"> a. Truth b. False
17	<p>Indicine-N-oxide demonstrated significant:</p> <ul style="list-style-type: none"> a. Hepatotoxic activity b. Antileukaemic activity c. Antidepressant d. (B+C) 	47	<p>Actually, colchicine is the one of a good remedy for:</p> <ul style="list-style-type: none"> a. Gout b. Cancer as antiphlogistic effect c. Eczema

25	<p>Lobelia is applied to the skin for muscle pain, joint lumps associated with rheumatoid arthritis.</p> <p>a. Truth b. False</p>	55	<p>Cathartus vinca rosea have:</p> <p>a. Anti cancer properties. b. Anti diabetic properties. c. Antioxidant properties. d. All of the above</p>
26	<p>The main alkaloid in Pomegranate is:</p> <p>a. Punicalagin b. Isopelletierine c. Piperidine d. None of the above</p>	56	<p>Ergotamine is:</p> <p>a. A partial agonist of α-adrenoceptors and 5-HT receptors. b. A vasoconstrictor compound c. A reversible inhibitor of cholinesterase. d. A compound with ability to act as α-adrenergic, dopaminergic and serotonergic receptors.</p>
27	<p>The following structure is:</p>  <p>a. Norpseudoephedrine b. Pseudoephedrine c. Amphetamine d. Cathinone</p>	57	<p>The following structure is:</p>  <p>a. Tramadol b. Serotonin c. Dopamine d. Acetylcholine</p>
28	<p>The nicotinic acid component of nicotinamide is synthesized in animals by degradation of:</p> <p>a. Phenylpropane b. Phenylalanine c. Tryptophan d. Anthranilic acid</p>	58	<p>Black piper increase the metabolic rate.</p> <p>a. Truth b. False</p>
29	<p>Anabasin is produced from nicotinic acid and:</p> <p>a. Ornithine b. Lysine c. Tyrosine d. Niacin</p>	59	<p>Paulinia cupana used to:</p> <p>a. Relieve mental and physical fatigue. b. Relieve abdominal spasm c. Stimulate CNS. d. Burn fats</p>
30	<p>The following structure is:</p>  <p>a. Ajmalicine b. Ajmaline c. Strychnine d. Brucine</p>	60	<p>The following structure is:</p>  <p>a. Reserpine b. Serpentine c. Rescinnamine d. Deserpidine</p>

Comment

(10M)

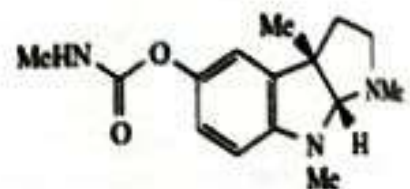
a. Dry mouth and secretion reduction during hyoscyamine administration.

b. Papaverine is not addictive compound

- IV. Answer ONE of the following
- a. Isolation of Codeine
 - b. Isolation of Eserine

(5M)

- V. Comment the following structure:



- a. Mention the name of the structure. (1M)

- b. Mention the name of pharmacological group? (1M)

- c. Regarding to this group, mention 3 pharmacological properties for the drug. (3M)

- 1.
- 2.
- 3.

VI. Discuss briefly clear, chronologic and in points: How Does Cocaine, Nicotine & Morphine Affect the Brain? (15M)

VII. Starting from anthranilic acid to obtain 5-HTP.

(15M)

GOOD LUCK!
Dr. Mazen A. El-Sakka
May 29, 2017