Part (2): Quality control testing — 30 marks

A-Provide a definition and write short notes on five only of the following, supporting your answer with examples and applications whenever applicable: — 10 points

-Palisade ratio

-Swelling index

-DNA finger printing techniques in quality control of herbal drugs

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4-Different ash values and their application in quality control of herbal drugs

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5-Physical constant measurements in quality control of herbal drug

4-Quality Control of *Salvia miltiorrhiza*

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B-Match the following statements with the answers in table1 by writing the number of each statement in front of the correct answer: 20 points

1-Extracts, which constitute the basis for finished herbal products.

2-Successful prevention, diagnosis and treatment of physical and mental illnesses.

3-Components of an herbal mixture.

4-The effect of drugs containing saponins and essential oils.

5-An advantage of tea bags.

6-An instant tea that has the disadvantage of caking.

7- An instant tea that contains lower amount of drug extract.

8-Methods for tea preparation that causes diminution of bacterial count.

9-A factor which increases drug deterioration by enhancing the action of fungi and enzymes

10- Containers, which are not convenient for storage of herbal drugs.

11-The use of a tea made of equal parts of Birch leaves, Early golden rod herb and Rest harrow root.

12-The use of lesser centaury herb.

13- The use of a 1tea made of Elder flower, Lime tree flowers and meadowsweet.

14-A problem encountered in quality control of herbal drugs.

15-Tools used in determination of dimensions of a key microscopic element.

16-It is the average number of stomata per square millimeter of leaf epidermis

17-A stationary phase used in moisture determination by gas chromatography.

18-The basic reaction in moisture determination using Karl-Fisher method.

19- A method used to detect adulteration of clove with clove stalks.

20-A method used to reduce levels of ethylene oxide rapidly in herbal drugs.

21-Examples of quantitative chemical tests.

22-A reagent used for precolumn derivatization in HPLC analysis of acid saponins.

23-An example for detection of purity and adulteration by HPLC.

24-A marker substance used to standardize of *Ginkgo biloba* extract.

25-HPLC assay of Escin from *Aesculus hippocastanum* (Hippocastanaceae).

26- A universal, sensitive HPLC detector used to analyze compounds that have weak UV absorbance used in gradient elution.

27- HPLC-MS interface in which ion generation takes place under atmospheric pressure.

28-The reason that dencichine is difficult component to analyze using HPLC or LC-MS.

29-A method used for analysis of underivatised dencichine in *P. notoginseng*.

30-An advantage of using FT-IR in quality control of herbal drugs.

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Table (1):

Answer	Number
For bladder and kidney	
Storage at 30 °C	
Spray dried extract	
Evaporative light scattering (ELSD)	
Flavonoids at 330 nm. after acid hydrolysis of the extracts.	
Stomatal number	
Stimulate appetite and increase gastric secretion in dyspepsia.	
Acid value, iodine value. ester value, acetyl value, volatile acidity	
Electro spray ionization	
Stomatal index	
Therapeutic activity	
Plant materials are chemically and naturally variable	
Alkaline hydrolysis to give a single one major saponin peak	
Hydrophilic interaction chromatography with tandem mass spectrometry	
nfusion & decoction	
-bromophenacyl bromide	
ye piece & stage micrometers and camera lucida	
ecretolytic and secretomotor expectorant	
laceration	
eflon-6 coated with polyethylene glycol	
o need the prior extraction and separation.	
ea granules	

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Reduction of iodine by sulphur dioxide in the presence of water.	
Herbal preparations	
Crude fiber determination.	
For cough	
Presence of *Parthenium integrifolium* root in *Echinacea purpurea*,	
Polyethylene, polypropylene or polyvinyl chloride	
Poor UV absorbance and high polarity	
Contain the correct dose.	
Principle, supplementary and adjunct drugs	
Humidity (moisture)	

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