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| 1. | Which of the following structures represents flavone structure? |
|  | (A) (C)   | (B) (D)  |

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| 1. 2.
 | Which of the following parts of the Siberian Ginseng is used to treat diabetes? |
|  | A. | Leaves |
|  | B. | Rhizomes |
|  | C. | Roots |
|  | D. | Seeds |
|  | E. | Fruits |

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| 1. 3.
 | Which of the following aglycone is obtained after the hydrolysis of Rutin by the enzyme Rhamnodiastase? |
|  | A. | Glycyrrhizinic acid |
|  | B. | Rutinose |
|  | C. | Catechin |
|  | D. | Quercetin |
|  | E. | Glucose |

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| 1. 4.
 | Which of the following flavonoids is also known as Vitamin P? |
|  | A. | Rutin |
|  | B. | Genistein |
|  | C. | Hesperidin |
|  | D. | Diadzein |
|  | E. | Asiaticoside |

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| 1. 5.
 | Which of the following disease, licorice is used for the treatment?  |
|  | A. | Peptic ulcer |
|  | B. | Diabetes |
|  | C. | Hypertension |
|  | D. | Kidney stone |
|  | E. | Pain |

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| 6. | Which of the following statements are **TRUE** regarding the classification of glycosides?1. They are classified based on the position of the phenyl ring on flavonoid nucleus.
2. They are classified based on the configuration.
3. They are classified based on their properties.
4. They are classified based on the glycosidic linkage.
 |
|  | A. | I and II  |
|  | B. | I and III |
|  | C. | II and III |
|  | D. | I, II, and III |
|  | E. | II, III, and IV |

|  |  |
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| 1. 7.
 | What is the name of the glycone obtained after the complete hydrolysis of Glycyrrhizin? |
|  | A. | Glycyrrhetinic acid |
|  | B. | Glucuronic acid |
|  | C. | Glycyrrhetic acid |
|  | D. | Rhamnose |
|  | E. | Rutinose |

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| 1. 8.
 | Which of the following is **FALSE** regarding the classification of flavonoids? |
|  | A. | They are classified based on the position of phenyl ring B. |
|  | B. | They are classified based on the degree of oxidation. |
|  | C. | They are classified based on the saturation in the ring C. |
|  | D. | They are classified based on the presence of different glycones. |
|  |  |  |
| 1. 9.
 | Which of the following phytoconstituents is used to treat non-melanoma skin cancer?  |
|  | A. | Quillaic acid |
|  | B. | Equol |
|  | C. | 7',3',4'-THIF |
|  | D. | Genistein |
|  | E. | Apigenin |

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| 1. 10.
 | Which of the following Dioscorea species is used specifically for treating Rheumatism?  |
|  | A. | Dioscorea colletii |
|  | B. | Dioscorea spongiosa |
|  | C. | Dioscorea panthaica |
|  | D. | Dioscorea hypoglauca |
|  | E. | Dioscorea nipponica |

**Questions 11** to **16: TRUE** or **FALSE** type of questions.

 **Study the below statements** and write **T** of **F** on the **report sheet only**.

(**06 × 01 = 06 Marks**)

11. Naringin is 1000 times sweeter than table sugar.

12. Daidzein can bind to estrogen receptors.

13. Genistein has isoflavone structure.

14. Centella is having anticancer activity.

15. Roselle inhibits angiotensin-converting enzyme.

16. Phytoalexins are the antibodies produced by the plants.

**Questions 17** to **20: MATCH** the **herbal plant (Column A)** withthe suitable **Family Name**

 (**Column B**).

 **Your** correct **answer** **code** must be written on the **report sheet** only. (**04 × 01 = 04 Marks**)

|  |  |  |  |
| --- | --- | --- | --- |
| **Question No.** | **Herbal Plant****(Column A)** | **Code** | **Family Name****(Column B)** |
| 17 | Ginseng  | **A** | Apiaceae  |
| 18 | Licorice | **B** | Rutaceae |
| 19 | Centella | **C** | Geraniaceae  |
| 20 | Pelargonin | **D** | Araliaceae  |
| **---** | --------------------------------- | **E** | Leguminosae |
| **---** | --------------------------------- | **F** | Erythroxylaceae  |
| **---** | --------------------------------- | **G** | Fabaceae  |

**QUESTIONS 21** to **25**: **DRAWING** Structures and **WRITING** Answers.

21. **Draw the structures** of the glycoside provided in the table below. **(02 Marks)**

|  |  |
| --- | --- |
| **SALICIN** | **GENISTEIN** |

22. Write **TWO** differences between **steroidal saponins** and **triterpenoidal saponins** and write one

 example for each of **steroidal saponins** and **triterpenoidal saponins.** (**03 Marks**)

|  |  |  |
| --- | --- | --- |
| **Item** | **Steroidal saponins** | **Triterpenoidal saponins** |
| **Difference number 1** |  |  |
| **Difference number 2** |  |  |
| **Example** |  |  |

23. (**A**) What is the effect of taking **Quillaia** and **Metformin** tablets together at the same time?

(**B**) Write the **CORRECT** advice to your patients if they want to take Quilaia and Metformin

 tablets.

 (**01 + 01 = 02 Marks**)

(**A**) The effect of taking Quillaia along with Metformin tablet together at the same time is

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(**B**) The **CORRECT** advice to my patients to take Quillaia and Metformin tablets is

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24. How **Centella** can heal the wound? Explain its wound-healing **mechanism**. (**01 Mark**)

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25. Write the mechanism of action (**ANY ONE**) of **flavonoids** in the treatment of (**A**) **Asthma**

and (**B**) **Human immunodeficiency virus (HIV) infection** (**01 + 01 = 02 Marks**)

(**A**) The mechanism of action of **flavonoids** in the treatment of **Asthma** is

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(**B**) The mechanism of action of **flavonoids** in the treatment of **HIV infection** is

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---**END**---