

Answer Key - Grades 10

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Ø=Ý Answer Key Grade Levels: 10 Total Questions: 25 Answer 1 Correct text explicitly states under 'Floral characters' that the inflorescence is 'racemose'. Answer 2 Correct Answer: C Explanation: Zygomorphic symmetry means the flower can be divided into two equal halves along only one plane. This is represented by the '%' symbol in the floral formula. Answer 3 Correct Answer: A Explanation: The description of the papilionaceous corolla mentions it consists of 'a posterior standard, two lateral wings, two anterior ones forming a keel'. Answer 4 Correct Answer: C Explanation: 'Diadelphous' (di- meaning two, -adelphous meaning brotherhood) refers to the condition where stamens are united into two bundles. In the pea, it's a bundle of nine and one free stamen. Answer 5 Correct Answer: B Explanation: In a floral formula, 'K' stands for Calyx (sepals). The number '5' indicates five sepals, and the parentheses '(5)' signify that they are fused (gamosepalous). Answer 6 Correct Answer: C Explanation: The text describes the Gynoecium as having a 'superior ovary, monocarpellary, unilocular'. The 'G1' in the formula also indicates a single carpel (monocarpellary) and the line underneath indicates a superior ovary. Answer 7 Correct Answer: D Explanation: Under 'Economic Importance', the text lists sources of pulses including 'gram, arhar, sem, moong'. Arhar is a pulse widely consumed in India. Answer 8 Correct Answer: B Explanation: The text lists 'edible oil (soyabean, groundnut)' as a key product from the Fabaceae family. Answer 9 Correct Answer: D Explanation: Under the floral characters section, the 'Fruit' is identified as a 'legume'. Answer 10 Correct Answer: B Explanation: Non-endospermic (or exalbuminous) seeds are those in which the endosperm is fully utilized by the developing embryo. The food reserve is then stored in the cotyledons. Answer 11 Correct Answer: C Explanation: Under 'Economic Importance', the text mentions 'dye (Indigofera)'. Indigofera tinctoria is the historical source of indigo dye. Answer 12 Correct Answer: A Explanation: The diadelphous condition in pea is specifically A(9)+1, which means nine stamens are fused to form one bundle (or tube), and the tenth posterior stamen is free, forming the second bundle. Answer 13 Correct Answer: D Explanation: The text lists examples of economically important plants from the Fabaceae family, including 'medicine (muliathi)'. Answer 14 Correct Answer: C Explanation: The description of the papilionaceous corolla explicitly states that the keel is 'enclosing the stamens and pistil'. Answer 15 Correct Answer: C Explanation: The text begins the description of family Solanaceae by stating it is 'widely distributed in tropics, subtropics and even temperate zones'. Answer 16 Correct Answer: D Explanation: This specific arrangement of petals is the definition of vexillary or papilionaceous aestivation, a key characteristic of the Fabaceae family. Answer 17 Correct Answer: C Explanation: The floral diagram (f) shows a single carpel with ovules attached in two rows along the ventral suture (the margin). This is characteristic of marginal placentation, found in legumes. Answer 18 Correct Answer: C Explanation: Under 'Economic Importance', sunhemp is listed as a source of 'fibres'. Answer 19 Correct Answer: C Explanation: The description of the Corolla for Fabaceae says 'petals five, polypetalous'. The floral formula $C_{1+2+(2)}$ also adds up to 5 petals. This makes the flower pentamerous in the corolla whorl. Answer 20 Correct Answer: C Explanation: 'G' stands for Gynoecium. The subscript '1' indicates it is formed from a single carpel (monocarpellary). The line drawn underneath the 'G' is the standard notation for a superior ovary. Answer 21 Correct Answer: B Explanation: 'Polypetalous' means the petals are free. The text describes the corolla as 'petals five, polypetalous', even though the two keel petals are fused to each other, they are not fused to the other petals or stamens. Answer 22 Correct Answer: B Explanation: The text states the pea seed is 'non-endospermic'. This is a classic characteristic of many dicots, where food is stored in the cotyledons. Monocots like rice and wheat typically have endospermic seeds where the endosperm persists as a food storage tissue. Answer 23 Correct Answer: D Explanation: The text describes the calyx as 'sepals five, gamosepalous'. The prefix 'gamo-' means united or fused. The parentheses in the floral formula K(5) also indicate this fusion. Answer 24 Correct Answer: B Explanation: In the list of economically important plants, lupin and sweet pea are given as examples of 'ornamentals'. Answer 25 Correct Answer: B Explanation: The notation $C_{1+2+(2)}$ for the Corolla breaks down the five petals into their specific roles in the papilionaceous structure: 1 standard petal, 2 free wing petals, and 2 petals that are fused to form the keel.