

Answer Key - Grades 10

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Ø=Ý Answer Key Grade Levels: 10 Total Questions: 25 Answer 1 Correct
Pisum sativum is the scientific name for the common garden pea, known as 'Matar' in Hindi. It is a member of the Fabaceae family, which is also called the pea family. Answer 2 Correct Answer: C Explanation: Zygomorphic symmetry, also known as bilateral symmetry, means the flower can be divided into two mirror-image halves by only one specific longitudinal plane. This is unlike actinomorphic (radial) symmetry where it can be divided equally in any plane. Answer 3 Correct Answer: B Explanation: The text clearly states under 'Floral characters' that the inflorescence in the Fabaceae family is 'racemose'. In a racemose inflorescence, the main axis continues to grow and flowers are borne laterally in an acropetal succession (older flowers at the base, younger ones at the apex). Answer 4 Correct Answer: B Explanation: A papilionaceous corolla, characteristic of the Fabaceae family, has five petals with a distinct arrangement: one large posterior petal called the standard (vexillum), two lateral petals called wings (alae), and two anterior petals that are fused to form a boat-shaped structure called the keel (carina). Answer 5 Correct Answer: B Explanation: The term 'diadelphous' means the stamens are united into two bundles ('di' means two, 'adelphous' refers to brotherhood or bundle). In the pea plant, there are ten stamens arranged as (9)+1, where nine are fused to form a filament tube and one is free. Answer 6 Correct Answer: B Explanation: In a floral formula, 'G' represents the Gynoecium. The number '1' indicates it is monocarpellary (composed of a single carpel). The line drawn below the number (G1) signifies that the ovary is superior, meaning other floral parts arise from below it. Answer 7 Correct Answer: C Explanation: A legume is a type of simple, dry fruit that develops from a single carpel and typically dehisces (splits open) along two seams to release its seeds. The pea pod is a classic example of a legume. Answer 8 Correct Answer: C Explanation: Pulses, which include lentils, beans, and peas like arhar (pigeon pea) and moong (mung bean), are a primary source of dietary protein, especially in vegetarian diets prevalent in India. Answer 9 Correct Answer: A Explanation: *Indigofera tinctoria*, a member of the Fabaceae family, is the original source of the valuable blue dye called indigo, which was a major trade commodity from India for centuries. Answer 10 Correct Answer: C Explanation: *Muliathi* is the Hindi name for Liquorice (*Glycyrrhiza glabra*). Its roots are used in traditional Indian medicine (Ayurveda) for treating coughs, sore throats, and other ailments. Answer 11 Correct Answer: B Explanation: In non-endospermic (or exaluminous) seeds, the endosperm, which is the nutritive tissue, is completely used up by the developing embryo. The food reserves are then stored in the cotyledons, which become thick and fleshy, as seen in peas and beans. Answer 12 Correct Answer: C Explanation: 'K' stands for Calyx (whorl of sepals). The number '5' indicates there are five sepals. The parentheses around the number, (5), signify that the sepals are fused together. This condition is called gamosepalous. Answer 13 Correct Answer: D Explanation: The notation 'A(9)+1' specifically represents the diadelphous condition, where the androecium ('A') consists of ten stamens arranged in two bundles – one bundle of nine fused stamens and one free stamen. Answer 14 Correct Answer: B Explanation: The textbook explicitly states, 'It is a large family, commonly called as the 'potato family', when introducing the family Solanaceae. This family also includes tomatoes, brinjals, and chillies. Answer 15 Correct Answer: C Explanation: The handwritten note points out that Solanaceae flowers are 'pentamerous,' meaning their floral parts are in multiples of five. They are also typically actinomorphic (radially symmetrical), unlike the zygomorphic (bilaterally symmetrical) flowers of Fabaceae. Answer 16 Correct Answer: C Explanation: Soyabean is a highly versatile crop from the Fabaceae family. It is processed to produce edible oil, and the remaining meal is a rich source of protein used for food (like tofu, soy milk) and fodder. Answer 17 Correct Answer: B Explanation: 'Monocarpellary' means the gynoecium is composed of a single carpel. 'Unilocular' means it has only one chamber or locule inside. This combination describes a simple pistil with one carpel and one internal chamber. Answer 18 Correct Answer: B Explanation: The large standard petal attracts pollinators, while the keel encloses and protects the essential reproductive parts (stamens and pistil). The wings act as a landing platform for insects, and their movement triggers the release of pollen, facilitating pollination. Answer 19 Correct Answer: A Explanation: One of the fundamental differences between dicots (like peas, groundnuts) and monocots (like rice, wheat) is the number of cotyledons (seed leaves) in the embryo. Dicots have two cotyledons, while monocots have only one. Answer 20 Correct Answer: D Explanation: Floral diagrams are drawn with the outermost whorl at the bottom of the diagram. In a typical flower, the outermost whorl is the calyx, composed of sepals, which are usually green and protective. The diagram shows five fused structures, corresponding to K(5) in the