

**Model answer**  
**2<sup>nd</sup> year Botany and, chem.**

**Question 1**

**a) Fertilization :...**

this process starts when pollen grains come in contact with the stigma. A pollen tube comes out from the pollen grain. The pollen tube releases the two male gametes inside the embryo sac. One of these gametes succeeds to fertilize the egg and a diploid (2n) nucleus is formed which is known as the zygote. The other male gamete fuses with the primary endosperm nucleus (2n) and 3n nucleus is formed.

**b) Fleshy fruits.**

They are also known as succulent fruits. The pericarp is fleshy, usually differentiated into three distinct layers, epicarp, mesocarp and endocarp. The fruit is indehiscent. Fleshy fruits are either true or false.

**c) Spike inflorescence.**

Flowers are sessile on an elongated peduncle. Several types of the spike are known.

i- **Simple spike:** The peduncle is elongated and the flowers are sessile.

ii- **compound spike :** The peduncle is laterally branched into smaller spikelets.

iii- **panicle:** The pedicels may be themselves branched, but the flowers are sessile.

iv- **catkin:** It is a pendulous spike, often with unisexual flowers.

v- **Spadix:** It is a spike with flowers sunken in the tissues of a fleshy peduncle.

**Question 1**

**a) Dehiscence of the anther.**

Dehiscence of the anther takes place in the following four ways:

1- longitudinal in this type , the anther lobes burst along the length of the anther.

2- porous when the anther lobes open by apical pores

3- valvular when the dehiscence takes place by one or more pores which open on the outer side only

4- transverse the anther lobes split up transversely

### **b) Insertion of the floral organs on the receptacle.**

Insertion of the floral parts, there are three types as follow

**a-**hypogynous flowers: In which the surface of the receptacle is slightly convex and the gynoecium is superior.

**b-** perigynous flowers : In this type, the surface of the receptacle is flattened or slightly concave, and the ovary arranged without adnation, or with partial adnation to the receptacle.

**c-**Epigynous flowers: In which surface of the receptacle is deeply concave, the ovary is adnate to its walls.