

SARDAR PATEL UNIVERSITY

B.Sc. ,Fourth semester Examination

Subject: BOTANY

Code: US04CBOT02

Basics and application of plant sciences

Day: Monday

Date:18.04.2016

Time:10.30am : 1:30pm

Marks: 70

Q.1. Multiple choice questions. Answer all.

10

(i) Inter-xylary phloem is the characteristic feature of the old stem of ?

(a) *Nyctanthes* (b) *Leptadenia* (c) *Tecoma* (d) *Salvadora*

(ii) Which one of the following tissue is responsible for healing of wound?

(a) Phellogen (b) Cambium (c) Apical meristem (d) All of these

(iii) The wood of commerce is produced because because of activities taking place in:

(a) Vascular cambium (b) Xylem and cambium (c) Cork cambium (d) None of these

(iv) Which one of the following is usually triploid?

(a) Coconut milk (b) Pollen grain (c) Synergid (d) Chalaza

(v) Which is adapted for self as well as cross pollination?

(a) *Commelina* sp. (b) *Helianthus* sp. (c) *Ixora* sp. (d) *Citrus* sp.

(vi) What is the fate of vegetative nucleus in a male gamete?

(a) Degenerates in embryo sac
(b) Contribute to the formation of endosperm
(c) Degenerates in the pollen tube
(d) Remains as a vestigial body in the tube

(vii) Which one of the following is usually used for the sterilization of a tissue culture room?

(a) Ultra violet lamp (b) Ultrasonic sound (c) Autoclave (d) Oven

(viii) Which one of the following is usually virus free?

(a) Apical meristem (b) Cambium (c) Leaf -tip (d) Root tip

(ix) What attribute made *Marabilis jalapa* as a famous species?

(a) Blooms at 4 o'clock (b) Incomplete dominance (c) Sex determination (d) All of these

(x) Which is the material of choice for the study of Chromosome morphology?

(a) *Allium cepa* (b) *Allium sativum* (c) Both (d) *Cuscuta reflexa*

Q.2. Short answer questions. Answer any ten only:

20

(i) Lenticel is an organ for aeration – justify.

(ii) Define periclinal division and state its importance the development of inner bark.

(iii) Distinguish between latex cell and latex vessel.

(iv) Why back cross is required in a genetic experiment.

(v) What attribute made Mendel to select garden Pea for his experiment.

(vi) Distinguish between a recessive and a dominant gene.

(vii) Enlist some of the achievements made in the field of agriculture.

- (viii) Write a small paragraph to show that you understand the term Biotechnology.
- (ix) What is moist heat sterilization?
- (x) What are the fate of two male gametes in a pollen tube in angiosperms?
- (xi) Write brief statement regarding the significance of cross pollination in angiosperms.
- (xii) What is a helobial endosperm. Give one example.
- Q.3. (a) Describe the structure of phellogen. 05
 (b) Write a brief account on the structure of laticiferous cells. 05
- OR
- Q.3. (a) Describe the structural features of a fusiform initial. 05
 (b) What can be the probable functions of extra – floral nectary. 05
- Q.4. (a) With the help of an illustrated diagram describe the structure of an embryo sac. 04
 (b) What is female gametophyte in angiosperm? Describe giving one example. 06
- OR
- Q.4. (a) How pollination manifests on *Helianthus* sp. ? 05
 (b) What is the mode of pollination in *Ficus* sp. 05
- Q.5. Describe the Mendel's laws of inheritance in brief. 10
- OR
- Q.5. Describe 9:3:4 ratio giving suitable examples. 10
- Q.6. Write short notes on:
 (a) Application of biotechnology in medicine 05
 (b) Importance of plant tissue culture. 05
- OR
- Q.6 (a) You approach in maintaining aseptic conditions in a plant tissue culture lab. 06
 (b) How biotechnology can help in Biodiversity conservation – explain brief. 04