

**2020**  
**BOTANY**  
**[HONOURS]**  
**Paper : XI**  
**[PRACTICAL]**

Full Marks : 80

Time : 4 hours

*The figures in the right-hand margin indicate full marks.***Answer all the questions.**

1. Draw and label a suitable mitotic metaphase plate from the sample A 20

**Instruction:**

**Choose any one root tip sample of the listed plant material given below as *sample-A***

**List of Plant Material:**

*Allium cepa,* / *Aloe vera,* / *Nigella sativa,* / *Lathyrus sativus*

**Distribution of Marks:**

Write the staining and squashing process of root tips – 6 marks

Free hand drawing and labeling of any two Mitotic stages – 4+4=8 Marks

*[Turn over]*

Identification characters of those two stage – 4 marks

Write the chromosome numbers of your chosen specimen – 2

2. Draw and label two suitable plates of male meiotic stages from the mentioned specimen-**B** and determine chromosome number of the specimen after drawing (free hand). 4+4=8

**Instruction:**

**Choose any one root tip sample of the listed plant material given below as *sample-B***

**List of Plant Material:**

Flower buds of *Rhoeo sp.* / *Allium cepa*

**Distribution of Marks:**

Draw and label two suitable plates (diplotene/ diakinesis /metaphase - I) – 4 Marks

Comment over each stage 4 marks

3. With suitable reasons write identifying characters of given figure C, D, E and F below.  $2 \times 4 = 8$

Figure C

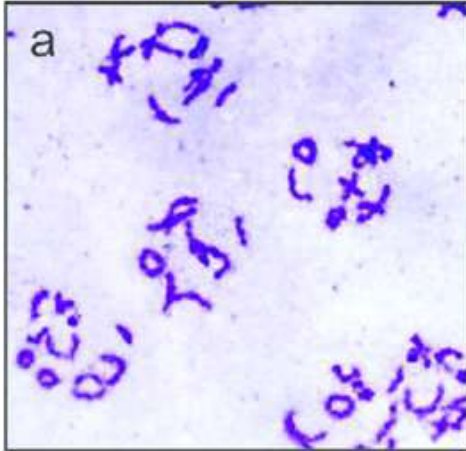


Figure D

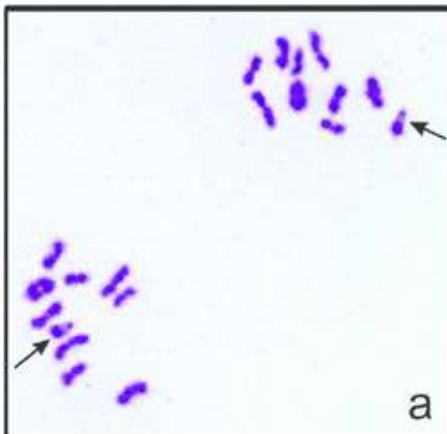


Figure E

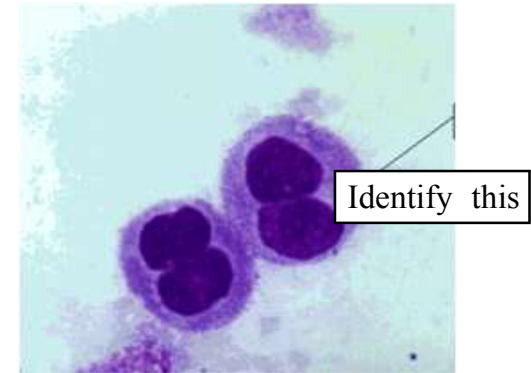


Figure F



4. Perform *chi-square* ( $\chi^2$ ) test for determination of goodness of fit of the qualitative trait like color/shape of the mentioned seed samples G and H. (Use *chi-square* ( $\chi^2$ ) table value from your own documentation)  $6+6=12$

### Specimen – G

#### Problem:

- i) Selfing of a hybrid plant produce a population with 120 pink flowers and 88 white flowers. Explain the result with *chi-square* ( $\chi^2$ ) test – analysis what does the result shows.

**OR**

- ii) In an experiment with Garden pea plants we count there were 1000 population with the following 4 – different kind of characters given in the table below . Explain the result with *chi-square* ( $\chi^2$ ) test – analysis what does the result shows. –

Sl. No.	Characters	Numbers of Plants observed
1	Yellow cotyledons and flattened pod	555
2	Yellow cotyledons and constricted pod	185
3	Green cotyledons and flattened pod	195
4	Green cotyledons and constricted pod	65

### Specimen - H

- iii) In an experiment with Garden pea plants we count there were 110 population with the following 4 – different kind of characters given in the table below . Explain the result with *chi-square* ( $\chi^2$ ) test – analysis what does the result shows. –

Sl. No.	Characters	Numbers of Plants observed
1	Round Yellow	31
2	Round Green	26
3	Wrinkled Yellow	27
4	Wrinkled Green	26

**OR**

- iv) Selfing of a hybrid plant produce a population with 193 brown coloured seeds and 15 white seeds. Explain the result with *chi-square* ( $\chi^2$ ) test – analysis what does the result shows.
5. Write about the Identification of Specimen ' I ' 12

Choose any **one** of the following experiment and then write about that according to -

**List of Experiment:**

i) Identification of Tannin Chemically

**OR**

ii) Identification of Alkaloids Chemically

Distribution of Marks:

Requisition	4 marks
Theory/ Principle	2 marks
Procedure	5 marks
Comment	1 mark

6. Submission of Practical Note Books.

10 marks

[The students should be advised to submit the **signed index page of each practical note book** and along with title page of each experiment and signed page of the same experiment in PDF format to the dedicated email ID of their respective departments.]

7. Class Attendance / Viva in Virtual Mode

10 Marks