# M.Sc.

## 2015

## 4th Semester Examination

### BIOTECHNOLOGY

**PAPER—BIT-403**

*Full Marks* : 40

*Time* : 4 Hours

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

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

## *Special Paper*

### *(Pharmaceutical & Medical Biotechnology)*

Answer *all* questions.

1. Using ELISA method estimate the target material of supplied sample with help of a standard graph.

   [*Principle-5, Procedure-5, Result-5*] 15

2. Perform the cell fractionation of the given sample. Stain the nulceus and mitochondria and take picture.
[*Principle-5, Procedure-5, Result-5*] 15

*Or*

Perform the Western Blot of the supplied Protein sample. Take picture of the gel and nitrocellulose membrane.
[*Principle-5, Procedure-5, Result-5*] 15

3. Laboratory Note Book. 5

4. Viva-Voce. 5

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## *Special Paper*

### *(Agriculture & Aquaculture Biotechnology)*

Answer *all* questions.

1. Perform the micropropagation technique with field grown shoot tip.

[*Requirements-2, Demonstration-2, Procedure-4, Precaution-2*] 10

**2.** Demonstrate the xylogenesis procedure using *in vivo* and *in vitro* tissue system provided to you.
[*Requirements-2, Procedure-3, Slide-2, Drawing-2, Comment-1*] 10

**3.** Prepare an extract of Pituitary gland and demonstrate the injection of same into the supplied fish.

[*Requisition-2, Procedure-6, Injection-2*] 10

*Or*

Isolate the vesicles and arbuscles mycorrhiza from plant root supplied in the laboratory.

[*Requisition-2, Procedure-3, Slide-2, Drawing-2, Comment-1*] 10

**4.** Laboratory Note Book. 5

**5.** Viva-Voce. 5

## *Special Paper*

### *(Food Biotechnology & Bioprocessing Technology)*

Answer *all* questions.

1. Determine the total calcium ($Ca^{+2}$) ion content per gram of supplied milk sample.

   [*Principle-3, Procedure-5, Result-5, Comment-2*] 15

2. Estimate the amount of iodine value at the given oil sample.

   [*Principle-5, Procedure-3, Result-5, Comment-2*] 15

3. Laboratory Note Book. 5

4. Viva-Voce. 5

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