SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S
SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR

Department of Microbiology
Skill-Based Certificate Course: Biofertilizers & Biopesticides

Session 2018-2019

Office of the Principal
S. S. E. S. Amravati's
Science College, Nagpur.
Inward No. 2258 Dt. 15/02/2019

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY

DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
Gurunanak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860
E-mail : doll.rtmnu@gmail.com

To,
The Principal
S.S.E.S.Amravati's Science College,
Nagpur.

No.DOLLE/259/19
Dated : 14.02. 2019

Subject : **Sanction for Conducting Short Term Courses under Jeevan Shikshan Abhiyan on No Grant Basis.**

Sir/Madam,

With reference to your proposal for conducting Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, I am to inform you that your proposal has been accepted by the Department and your College has been granted permission to conduct the course on the following conditions:

Details of the Course

Sr. No.	Name of the Course	Duration	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.	
1	Certificate Course in Immuno-Diagnostic	12 Weeks	(25) 27	2000/-	10%	Biot
2	Certificate Course in Forestry and wildlife Conservation	6 Weeks	10	2000/-	10%	Zoo
3	Certificate Course in Environmental and Water Management	6 Weeks	20	1000/-	10%	Chem
4	Certificate Course in Biofertilisers and Biopesticides	12 Weeks	11	1500/-	10%	Micro
5	Certificate Course in Mushroom Cultivation	8 Weeks	14	500/-	10%	Bot
6	Certificate Course in Biodegradable Solid Waste Management	12 Weeks	22	1000/-	10%	Micro

Rules & Regulations of this Department regarding these courses should be strictly followed.

1. **This sanction is valid for this particular Batch only.**
2. Fees for the course should be charged as per the norms prescribed.
3. Expenditure on the course should be incurred as per norms.
4. Course should be started within a Month from **the date of sanction.**
   Please communicate your acceptance within **a month and submit Initial Report Along with list of students admitted.**

To,
Dr. Bobade Sir
for N/A
Ghandikar
15/2/2019

Your's faithfully,
Director

SEAL

Dr. Pranita Gulhane
Department of Microbiology
Science College, Congress Nagar,
NAGPUR.

Activity Report: Skill Based Certificate Course- Biofertilizers and Biopesticides (Session 2018-19)

The skill based certificate course syllabus for B.Sc. I, II and III appeared students. A total of 11 students were enrolled to the course. Fifteen weeks certificate course in BIOFERTILIZERS AND BIOPESTICIDES. The examination of course shall comprise of one theory paper of three hours carries 50 marks and practical of one hour duration carries 50 marks. Internal assessment for the course based on one theory paper of 10 marks shall be conducted by university approved teachers. Internal assessment marks should be included in minimum passing marks of the students. Candidates are expected to pass separately in theory, internal assessment and practical examination.

Students require 40% marks in theory for passing including internal marks. Separate passing in practical examination is required, assignment submission is necessary to get internal marks. The structure of syllabus for certificate course along with distribution of marks is also displayed in the following table.

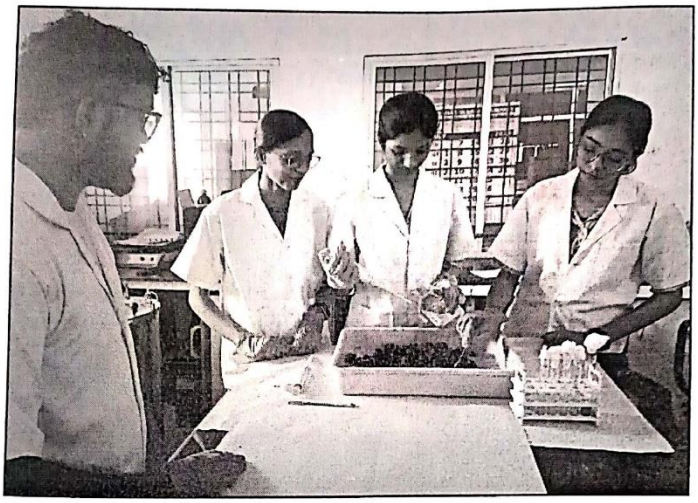
Course	Theory papers and Practicals	Marks			Total Marks
		Theory	Internal Assessment	Practical	
Certificate course in Biofertilizers and Biopesticides	1. Theory paper- Biofertilizers and Biopesticides	50	10		100
	2. Practicals based on course			40	
		Grand Total			100

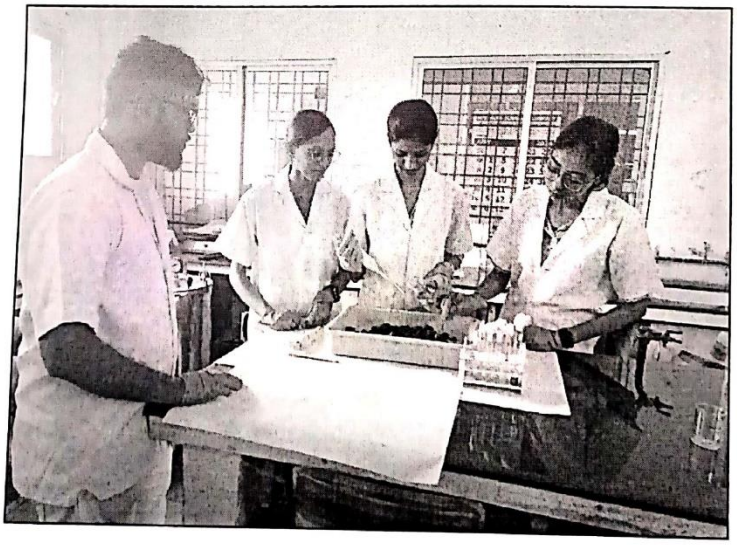
*Internal assessment –Based on student's attendance and performance during unit test exam and assignment/field work.

Based on assignment & the activity conducted for Biofertilizer and Biopesicide production the Internal assessment marks were given. For theory and practical marks, the objective mode (MCQ) of examination was conducted.

Science College, Congress Nagar, Nagpur SEAL

Dr. Pravita Gullare
Department of Microbiology
Science College, Congress Nagar,
NAGPUR.





Biofertilizer Production Process

SEAL

Dr. Pravita Gulhane
Department of Microbiology
Science College, Congress Nagar,
NAGPUR.

List of the Students: Skill Based Certificate Course- Biofertilizers and Biopesticides (Session 2018-19)

Sr. No.	Name of Student	Signature
1)	Akanksha G. Sapate	
2)	Ankita V. Telrandhe	
3)	Niharika P. Bute	
4)	Nikita B. Raghuse	
5)	Prachi R. Dhote	
6)	Pralay M. Ambagade	
7)	Priti R. Kale	
8)	Rasika R. Bhingare	
9)	Rituja M. Deshmukh	
10)	Samiksha S. Dhote	
11)	Sheetal T. Gahane	

Science College, Congress Nagar, Nagpur SEAL

Dr. Pravita Gullare
Department of Microbiology
Science College, Congress Nagar,
NAGPUR.

Rashtrasant Tukadoji Maharaj Nagpur University

Exam Name: Skill based Certificate Course Examination, Summer- 2019

Duration: 1hr

Name of Subject: Biofertilizer and Biopesticides

Max Marks:50

Medium: English

Marks Obtained

Centre Name: Shri Shivaji Science College Congress Nagar, Nagpur

Date: 10/03/2019

Name of Student:

Year: B.Sc Group :

Note:

(1) Each question carries 2 marks

(2) No negative marking

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1. Which of the following statements is correct?

a.Atmosphere is the major reservoir for plants
b.Nitrogen is the most abundant nutrient for plants
c.Nitrogen cycle is a sedimentary cycle
d.All

2. Mycorrhiza is an example of
(a) symbiosis
(b) amensalism
(c) parasitic
(d) competition

3. Ammonification is the formation of
a)Ammonia from nitrates by decomposers
b). Ammonia from nitrogen
c).Ammonia from amino acids
d).Ammonia from nitrates by nitrogen fixers

4. Which of the following is not a free-living Nitrogen-fixing bacteria?
a) *Azotobacter*
b) *Clostridium*
c) *Klebsiella*
d) *Xanthomonas*

5. Which of the following is an aerobic nitrogen-fixing bacterium?
a) *Azotobacter*
b) *Clostridium*
c) *Rhodospirillum*
d) *Rhodopseudomonas*

6.Presence of which of the following elements is required for nitrogen fixation?
a) Phosphorus
b) Carbon
c) Silver
d) Oxygen

7.Which of the following statements is not related to mycorrhiza?
a) Many members of genus *Glomus* forms mycorrhiza
b) Fungal symbiont absorbs nitrogen
c) Plants show resistance to root-borne pathogens
d) There is an overall increase in plant growth and development

8.What is the full form of VAM?
a) Vesicular-arbuscular mycorrhiza
b) Venom Azolla mycorrhiza
c) Venom-arbuscular mycorrhiza
d) Vesicular-azollae mycorrhiza

9.What are bio-insecticides?
a) Insects
b) Living organisms that kill specific insects
c) Insects that kill other big insects
d) Fungi

10. Ammonification is the formation of
a.Ammonia from nitrates by decomposers
b.Ammonia from nitrogen
c.Ammonia from amino acid
d.Ammonia from nitrates by nitrogen fixers

11. Important enzymes involved in nitrogen fixation are
a.Nitrogenase and hydrogenase
b.Nitrogenase and hexokinase

c.Nitrogenase and peptidase
d.Nitrogenase and hydrolyase

12.Which of the following nitrogen fixers is found in rice fields associated with *Azolla***?**

(a) *Tolypothrix*

(b) *Frankia*

(c) *Anabaena*

(d) *Spirulina*

13. Which of the following is not a biofertilizer?

(a) Mycorrhiza

(b) *Rhizobium*

(c) *Agrobacterium*

(d) *Nostoc*

14. **Which of the following is used as a biofertilizer for soybean crop?**

(a) *Nostoc*

(b) *Azospirillum*

(c) *Rhizobium*

(d) *Azotobacter*

15. **This is not used in organic farming**

(a) snail

(b) earthworm

(c) *Oscillatoria*

(d) *Glomus*

16. Symbiotic nitrogen-fixing cyanobacteria are not present in

a.Azolla

b.Gnetum

c.Anthoceros

d.Cycas

17.Which of the following is a pair of biofertilizers?

(a) *Salmonella* and *E.coli*

(b) *Rhizobium* and grasses

(c) *Nostoc* and legume

(d) *Azolla* and BGA

18.Which of the following fern is a biofertilizer?

(a) *Salvinia*

(b) *Azolla*

(c) *Pteridium*

(d) *Marsilea*

19. Which of the following is an endomycorrhiza?

(a) *Rhizobium*

(b) *Agaricus*

(c) *Glomus*

(d) *Nostoc*

20.Pick the correct statement

(a) legumes do not fix nitrogen

(b) legumes fix nitrogen independent of bacteria

(c) legumes fix nitrogen through bacteria in their roots

(d) legumes fix nitrogen through bacteria in their leaves

21. Conversion of ammonia to nitrite and then to nitrates is called

a.Ammonification

b.Denitrification

c.Assimilation

d.Nitrification

22. A biofertilizer involving a pteridophyte host is

(a) *Azotobacter*

(b) *Clostridium*

(c) *Anabaena*

(d) *Rhizobium*

23. Which of the following plants form a symbiotic relationship with two nitrogen-fixing bacteria Rhizobium and Aero rhizobium in root and stem nodules respectively?

(a) *Sesbania rostrata*

(b) *Crotalaria juncea*

(c) *Sesbania aculeata*

(d) *Cyamopsis tetragonoloba*

24. This plant is used in sandy soils and as green manure in crop fields

(a) *Lantana camara* and *Saccharum munja*

(b) *Phyllanthus niruri* and *Calotropis procera*

(c) *Azolla pinnata* and *Dichanthium annulatum*

(d) *Alhagi camelorum* and *Crotalaria juncea*

25, What does the term “biocontrol” mean?

a) Use of biological methods for controlling plant diseases

b) Use of chemical methods for controlling plant diseases

c) Use of morphological methods by the plants to control the attack of pathogens

d) Use of physical methods by the plants to control the attack of pathogens

Signature of Valuer: 

Name of Valuer: Dr.Pranita B. Gulhane

Answer key

1.a
2.d
3.c
4.b
5.a
6.b
7.b
8.c
9.d
10.a
11.a
12.a
13.c
14.b
15.d
16.a
17.c
18.c
19.a
20.c
21.a
22.b
23.d
24.a
25.c

Mark List: Skill Based Certificate Course- Biofertilizers and Biopesticides (Session 2018-19)

Sr. No.	Name of Student	Marks obtained out of 50 (Theory)	Marks obtained out of 40 (Practical)	Marks obtained out of 10 (Internal)	Total Marks 100
1	Akanksha G. Sapate	50	37	10	97
2	Ankita V. Telrandhe	48	36	10	94
3	Niharika P. Bute	42	35	10	87
4	Nikita B. Raghuse	48	36	10	94
5	Prachi R. Dhote	44	35	10	89
6	Pralay M. Ambagade	50	34	10	94
7	Priti R. Kale	48	35	10	93
8	Rasika R. Bhingare	42	34	10	86
9	Rituja M. Deshmukh	48	36	10	94
10	Samiksha S. Dhote	50	38	10	98
11	Sheetal T. Gahane	46	39	10	95

SEAL

Dr. Pravita Gulhane
Department of Microbiology
Science College, Congress Nagar,
NAGPUR.

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

[Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1st of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2016(Mah. Act No. VI of 2017)]

University Skill Development Centre

(under Board of Lifelong Learning and Extension)

Certificate

No. .....

Shri/Smt./Ku. ....Akanksha Sapate..... is awarded with Certificate on successful completion of the course titled .....Biofertilizers and Biopesticides..... in session ....2018 - 19..... under ***Jeevan Shikshan Abhiyan*** conducted for ***45 hours*** from ....14/02/2019.... to ....19/04/2019.... by the ***Board of Lifelong Learning & Extension*** in collaboration with Department of Botany, ***S.S.E.S. Amt's Science College Congress Nagar, Nagpur, 440012.***

He/She has passed the Examination with ....A..... Grade

Total Credits Earned : 01

Principal
SSES Amt's Science College
Congress Nagar, Nagpur-12

Course Co-ordinator
SSES Amt's Science College
Congress Nagar, Nagpur-12

Director
Board of Lifelong Learning
and Extension, RTMNU, Nagpur