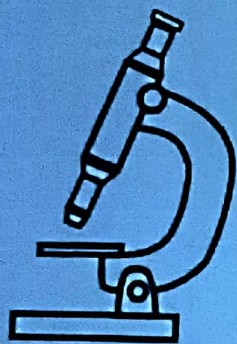


## OUTCOMES OF COURSE

- Students will be aware of the Nanotechnology and the materials prepared from this technology.
- About the opportunities from the technology.
- Interdisciplinary approach of Departments.



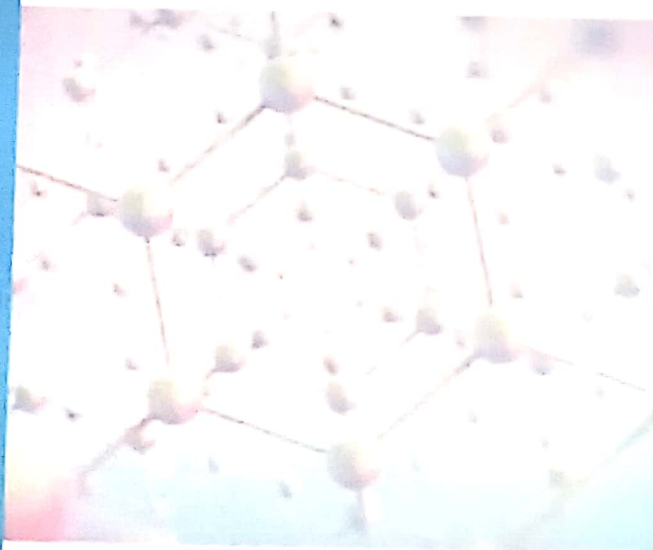
## SYLLABUS

- Scale of Nano systems.
- About the nanotechnologists.
- History of nanotechnology.
- Classification of nanostructured materials (NSMS).
- Differences between nanomaterials and bulk materials.
- Synthesis of nanomaterials

*[Signature]*  
Head, Dept. of Chemistry  
L.V.D. College, RAICHUR.

## OBJECTIVES

- Building and use of nanomaterials.
- Devices and machine scales.
- Making use of unique properties.



### TO JOIN :

- Dr. Narayan Achar  
(Department of chemistry)

*[Signature]*  
PRINCIPAL  
Laxmi Venkatesh Desai College,  
RAICHUR.



TARANATH SHIKSHANA SAMSTHE

LAXMI VENKATESH DESAI  
COLLEGE RAICHUR

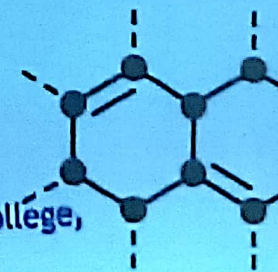
RE-ACCREDITED BY NACC WITH 'B' GRADE

DEPARTMENT OF CHEMISTRY

2019

OFFERS COURSE ON

NANO MATERIALS



**Taranath Shikshana Samsthe**  
**Laxmi Venkatesh Desai College, Raichur**  
Affiliated to Gulbarga University, Kalaburagi & Re-accredited by NAAC with B Grade



**Index for Add-On Course**

**Title : Nanomaterials**

**Academic year : 2018 - 2019**

S.No	Particulars	Page no
1	Declaration	1
2	Permission letter	2
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Taranath Shikshana Samsthe



**LAXMI VENKATESH DESAI COLLEGE, RAICHUR-584103.**  
(Affiliated to Raichur University, Raichur. Re-Accredited by NAAC with "B" Grade)

①

**Sri. Chandrakanth, M.Sc.,**  
**PRINCIPAL**

Office of the Principal  
Ph:( 08532)-240286, 240:  
Fax:+918532 240707  
e-mail: [lvdrccr@gmail.com](mailto:lvdrccr@gmail.com)  
Website: [www.lvdcollege.org](http://www.lvdcollege.org)


Scanned with OKEN Scanner



Date: 4-01-2019

**TO WHOMEVER IT MAY CONCERN**

This is to certify that, the college has introduced the Add\_On course on, "Nanomaterials" with the duration of 32 hours introduced in 2018-19. The said programme is apart from the existing course curriculum.

  
Head of the Department  
*Head, Dept. of Chemistry*  
**L.V.D. College, RAICHUR.**

  
Principal  
**PRINCIPAL**  
**Laxmi Venkatesh Desai College,**  
**RAICHUR.**

2

Date: 20-12-2018

To  
The Principal,  
LVD College, Raichur.

From  
HoD,  
Chemistry Department.

Respected Sir,

Sub: Permission to start an Add\_On course

With respect to the above cited subject I, the undersigned request you to grant permission to start an Add-on course titled "Nano materials" to undergraduate students. The details of syllabus and duration are enclosed. This course helps students to build up their skills. Kindly grant the permission.

Thanking You,

*[Signature]*  
Yours Faithfully,

Head, Dept. of Chemistry  
L.V.D. College, RAICHUR.

*Permitted*  
*[Signature]*  
PRINCIPAL  
L.V.D. College, RAICHUR-03.

3

Taranatha Shikshana Samsthe  
**Laxmi Venkatesh Desai College, Raichur**  
(Affiliated to Raichur University Raichur, Reaccredited with "B"grade)

Prof Chandrakanth  
Principal


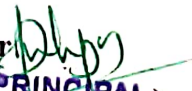
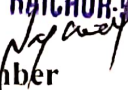
office of the principal  
Ph:(08532) - 240286,240707  
Fax: +918532 240707  
email: [lvdrer@gmail.com](mailto:lvdrer@gmail.com)  
website: [www.lvdcollege.com](http://www.lvdcollege.com)

Date: 17-12-2018

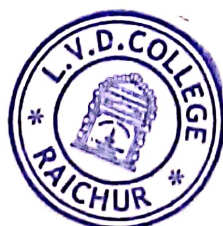
**ORDER Sub: Meeting of Board of Studies members**


A meeting of the following BOS constituted is hereby convened on 17-12-2018at  
11:00 AM in the Department of Chemistry, LVD College, Raichur

**BOARD OF APPOINTMENT OF BOS MEMBERS FOR ADD-ON COURSE**

1)	DR.Narayanachar Assistant Professor PG Coordinator, Department of Chemistry LVD College, Raichur	Chairman  Department of Chemistry LVD College, RAICHUR - 584103
2)	Smt.Pushpa Assistant Professor Department of Chemistry	Member  PRINCIPAL Govt. First Grade College For Womens RAICHUR-584 101.
3)	Dr. Jayateertha N.S Department of Chemistry LVD College, Raichur	Member  Head, Dept. of Chemistry L.V.D. College, RAICHUR.

The Chairman and the members are requested to make it convenient to attend THE  
BOS Meeting



  
PRINCIPAL  
PRINCIPAL  
L.V.D. College, RAICHUR

4

Date: 20-12-2018

To  
The Principal,  
LVD College,  
Raichur.

Respected Sir,

**Sub: Acceptance to be a Member of BOS.**

with reference to the above-cited subject I, Smt. Pushpa Assistant Professor,  
Department of Chemistry, GFGC, Raichur. received your letter of request to  
be a Member of BOS, for the Add-on Course to be conducted by your college

Hence, I give my consent and accept your request as a BOS Member.

Thanking You.

Yours Sincerely



PRINCIPAL

Govt. First Grade College For Womens

RAICHUR-584 101

5

# LaxmiVenkatesh Desai College, Raichur

Affiliated to Gulbarga University, Kalaburagi & Re-Accredited by NAAC with B Grade

## Department of Chemistry

### Notice


All the B.Sc III Semester students are hereby informed to join and get benefit of the Add-on course titled "Nano materials" starting from


**4<sup>th</sup> January, 2019 at 8 to 9 am**

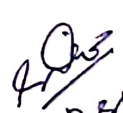
This course enables you to create awareness about the nano materials and their uses in daily life. The future of material science mainly depend on Nano science only, hence it is most useful to the students in future


  
Signature of HoD

Head, Dept. of Chemistry  
L.V.D. College, RAICHUR.

  
PRINCIPAL  
L.V.D. College, RAICHUR-03.

  
B.Sc III Sem

  
B.Sc III Sem.

  
B.Sc III Sem

Taranatha Shikshan Samsthe  
LAXMI VENKATESH DESAI COLLEGE RAICHUR

DEPARTMENT OF CHEMISTRY

Nano materials  
About the Course

Nanomaterials are increasingly important products of nanotechnology. Nanomaterials are coming into use in healthcare, electronics, cosmetics and other areas.

**Aims Of the course:**

- Building and use of nanomaterials
- Devices and machine scales
- Making use of unique properties

**Eligibility:** Any student with 10+2

**Fee:** Free

**Intake:** 20 students

**Duration:** 32 Hours in three months

**Syllabus:**

- I. Scale of Nano systems
- II. About the nanotechnologists
- III. History of nanotechnology
- IV. Classification of nanostructured materials(NSMS)
- V. Differences between nanomaterials and bulk materials
- VI. Synthesis of nanomaterials
- VII. Application of nanomaterials

**Outcome of the course:**

Students will be aware of the Nanotechnology and the materials prepared from this technology  
About the opportunities from the technology  
Interdisciplinary approach of Departments

**Reference:**

1. Breslow *Chemistry today and Tomorrow-The central, useful and creative science: American Chemical Society, Washington DC 1997*
2. Murthy b s et al., *Text book of Nanoscience and Technology, universities press, Hyderabad 2012*

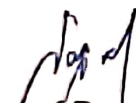




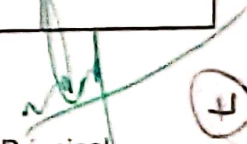
Taranath Shikshana Samsthe  
**LAXMI VENKATESH DESAI COLLEGE, RAICHUR**

Time Table with effect from 4-01-2018 Class B.Sc III sem Department Chemistry Section III Sem Room No. FF6

Time → Days ↓	8-9 AM								
Mon	Chemistry ← Add on Course →								
Tue	- do -								
Wed	- do -								
Thu	- do -								
Fri	- do -								
Sat	- do -								

  
Head of Department  
Head, Dept. of Chemistry  
L.V.D. College, RAICHUR.

Name of the Staff : Dr. Narayan Achar

  
Principal  
PRINCIPAL  
Laxmi Venkatesh Desai College,  
RAICHUR.

# Laxmi Venkatesh Desai College, Raichur

Affiliated to Gulbarga University, Kalaburgi & Re-Accredited by NAAC with B Grade

## Attendance Sheet

Department of Chemistry																																						
Class: B.Sc. III Semester			Course title: Nanomaterials																		Faculty Name: Dr. Narayan Achar																	
Sl.No	Register No	Name of the Student	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20	22	23	24	25	26	27	29	30	31	1	2	3	5	6	7	Total	Signature of Student				
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2			2	Present		
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
1	1865616	Bhimappa	P	P	P	P	P	P	P	P	P	A	A	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	24	Blas			
2	1868855	Raghavendra	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	27	Ravi		
3	1871565	K. Anusha	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	28	K	
4	1871570	Umme Salma	P	P	P	P	P	A	A	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	23	Umm	
5	1871580	P. Mahantesh	P	P	P	A	A	P	P	P	P	P	A	A	P	P	P	P	P	A	A	P	P	P	P	A	A	P	P	P	P	P	P	P	P	23	D	
6	1871586	Ambika	P	P	P	P	P	P	P	P	A	A	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	26	A	
7	1871591	Sangeeta. P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	A	P	P	P	P	P	P	P	P	P	26	S	
8	1871597	Shravani	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	26	S	
9	1871611	Ravi	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	A	A	A	A	A	A	A	A	22	Ravi	
10	1871617	Geetika. Y	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	28	G	
11	1871622	Chetana	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	27	C	
12	1871637	Manjula	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29	M
13	1871648	Manisha	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	28	M
14	1871658	Aslampasha	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	28	A
15	1871671	Savitha	P	P	P	P	P	P	A	A	A	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	24	S

Signature of Faculty  
*[Signature]*

Signature of HOD  
Head Dept. of Chemistry  
L.V.D. College, RAICHUR.

Signature of Principal  
PRINCIPAL  
L.V.D. College, RAICHUR-03.

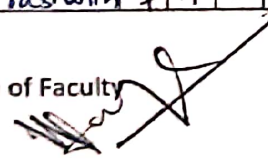
# Laxmi Venkatesh Desai College, Raichur

Affiliated to Gulbarga University, Kalaburgi & Re-Accredited by NAAC with B Grade

## Attendance Sheet

Department of Chemistry																																		
Class: B.Sc. III Semester										Course title: Nanomaterials										Faculty Name: Dr. Maryan Achar														
Sl.No	Register No	Name of the Student	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20	22	23	24	25	26	27	29	30	31	1	2	3	5	6	7	Total Present	Signature of Student
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2		
			19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
16	1871678	Shanthamma	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	A	A	A	P	P	P	P	P	A	A	23	<i>Shantha</i>	
17	1871684	Shwetha	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	A	P	P	P	25	<i>Shwetha</i>	
18	1871691	Bussanna	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	27	<i>Bussanna</i>	
19	1871700	Thiseen	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	<i>Thiseen</i>	
20	1871723	Sharada	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	A	P	P	25	<i>Sharada</i>	
21	1871729	Nagaveni	P	P	A	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	25	<i>Nagaveni</i>	
22	1871735	Madhura	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	27	<i>Madhura</i>	
23	1871747	Vinutha.D	P	P	P	A	A	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	A	A	P	P	P	A	1	22	<i>Vinutha</i>		
24	1871756	Anusha	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	26	<i>Anusha</i>	
25	1871760	Ahmadia.A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	A	P	P	P	P	25	<i>Ahmadia</i>	
26	1871766	Mamatha.G	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	<i>Mamatha</i>	
27	1871776	Navyashree.	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	25	<i>Navyashree</i>	
28	1871783	Naveerada	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	26	<i>Naveerada</i>
29	1871788	Bushra.A.	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	26	<i>Bushra</i>	
30	1871792	P. Prashanth	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	A	A	A	24	<i>P. Prashanth</i>	

Signature of Faculty



Signature of HOD

*Handwritten Signature*  
Hod, Dept. of Chemistry  
L.V.D. College, RAICHUR.

Signature of Principal

*Handwritten Signature*  
**PRINCIPAL**  
L.V.D. College, RAICHUR-03.

(5)

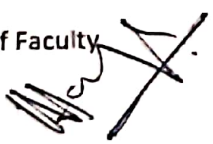
# Laxmi Venkatesh Desai College, Raichur

Affiliated to Gulbarga University, Kalaburgi & Re-Accredited by NAAC with B Grade

## Attendance Sheet

Department of Chemistry																																		
Class: B.Sc. III Semester						Course title: Nanomaterials												Faculty Name: Dr. Narayan Achar																
Sl.No	Register No	Name of the Student	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20	22	23	24	25	26	27	29	30	31	1	2	3	5	6	7	Total Present	Signature of Student
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
			19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19			
31	1871801	Asima anjum	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	A	A	P	P	P	P	A	24	<i>Asima</i>	
32	1871809	Mallikarjun	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	26	<i>Mallikarjun</i>	
33	1871814	Gururaj	P	P	A	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	A	23	<i>Gururaj</i>	
34	1871822	Veereeb.R.H	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	<i>Veereeb.R.H</i>	
35	1871834	Ganga.G.	A	P	P	P	A	P	A	P	P	P	P	P	P	P	A	P	P	A	A	P	P	P	P	A	P	A	P	P	P	22	<i>Ganga.G.</i>	
36	1871841	Annapoorna	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	<i>Annapoorna</i>	
37	1871848	Soujanya	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	A	A	P	P	P	P	P	A	24	<i>Soujanya</i>	
38	1871862	Ashok.S.N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	<i>Ashok.S.N</i>	
39	1871867	Mounesh	P	A	P	A	P	P	P	A	A	P	P	P	A	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	A	22	<i>Mounesh</i>	
40	1871872	Pooja	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	28	<i>Pooja</i>	
41	1871567	Fatima.T	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	A	P	P	P	P	26	<i>Fatima.T</i>	
42	1871569	Udaya Kumar	A	P	P	P	P	A	P	P	P	P	P	P	P	P	A	A	A	P	P	A	P	P	P	P	P	P	P	P	A	29	<i>Udaya Kumar</i>	
43	1871573	Swathi.N	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	26	<i>Swathi.N</i>	
44	1871578	Archana	P	P	P	P	A	P	P	P	A	P	P	P	P	P	A	P	P	A	P	P	P	P	P	A	A	A	A	A	A	24	<i>Archana</i>	
45	1871592	Shalu	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	27	<i>Shalu</i>	

Signature of Faculty



Signature of HOD

*Nyad*  
Head, Dept. of Chemistry  
L.V.D. College, RAICHUR.

Signature of Principal

*Nyad*  
**PRINCIPAL**  
L.V.D. College, RAICHUR-03.

(5)

**Laxmi Venkatesh Desai College, Raichur****Affiliated to Gulbarga University, Kalaburagi & Re-Accredited by NAAC with B Grade****Department of Chemistry****Report of Add on course****Title of the Add on course : Nano materials****Duration : 32 Hours****Started on : 4-1-2019****Completed on : 20-2-2019****Name of the faculty : Dr. Narayan Achar.****Total No. of students admitted : 45****Total No. of classes taken : 30****Total No. of students benefited : 45**

**Learning outcomes :** Students will be aware of the Nano materials, materials preparation and their uses in daily life. The future of material science mainly depend on Nano science only, Hence, it is most useful to the students in future.

**PRINCIPAL**  
**L.V.D. College, RAICHUR-03.**



Taranath Shikshana Samsthe


# LAXMI VENKATESH DESAI COLLEGE RAICHUR

(Re-Accredited by NAAC with 'B' Grade)

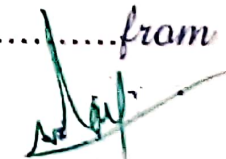
## Certificate

This is to Certify that Miss. / Mr. Udaya Kumar  
of B.Sc III Semester has completed the Certificate Course in  
Nanomaterials

Conducted by the Department of Chemistry  
4-1-2019 to 7-2-2019 from

  
Head of the Department  
L.V.D. College, RAICHUR



  
PRINCIPAL  
L.V.D. College, RAICHUR-03.

Principal

Taranath Shikshana Samsthe's  
LAXMI VENKATESH DESAI COLLEGE, RAICHUR  
ADD ON COURSE, INTERNAL ASSESSMENT  
TOPIC - NANOMATERIALS  
BSC III SEMESTER - 2019

Time : 9:00 to 9:45  
Max.Marks : 20M

Date : 12-02-2019

19  
20

Name : Mallikarjun  
Register No : 1871809

Instructions: Choose and tick the correct answer

1. Which property of Nanomaterials make them suitable to be used for elimination of pollutants?

- a) High purity.
- b) Better thermal conductivity.
- c) Enhanced chemical activity.
- d) Small size

2. Nano crystalline materials synthesised by sol-gel technique results in a foam like structures called \_\_\_\_\_.

- a) Gel
- b) Aerosol
- c) Foam
- d) Aerogel

3. Which nanomaterial is used for cutting tools?

- a) Fullerene
- b) Aerogel
- c) Tungsten Carbide
- d) Gold

4. Nanoscale aluminium oxide increases the \_\_\_\_\_.

- a) Conductivity
- b) Resistance
- c) Ductility
- d) Stability

5. The four types of Artificial nanomaterials are \_\_\_\_\_.

- 1
- a) Carbon-based, non-metallic, composites and ceramics
  - b) Carbon-based, metallic, composites and ceramics
  - c) Carbon-based, non-metallic, composites and dendrimers
  - d)  Carbon-based, metallic, composites and dendrimers

6. HyFn stands for \_\_\_\_\_.

- 1
- a) Hydrated Fluorine
  - b) Hydrolysed Fluorine
  - c) Hydrolysed Fullerene
  - d)  Hydrated Fullerene

7. Nano sized polymers built from branched units are called \_\_\_\_\_.

- 0
- a) Dendrimers
  - b)  Composites
  - c) Carbon-based materials
  - d) Metal-based materials

8. Which property of nanoparticles provides a driving force for diffusion?

- 1
- a) Optical Properties
  - b)  High surface area to volume ratio
  - c) Sintering
  - d) There is no such property

9. The colour of the nano gold particles is \_\_\_\_\_.

- 1
- a) Yellow
  - b) Orange
  - c) Red
  - d)  Variable

10. On both ends of the CNTs, which carbon nanostructure is placed?

- 1
- a) Graphite
  - b) Diamond
  - c)  C<sub>60</sub>
  - d) Benzene

11. Vesicle is a type of \_\_\_\_\_.

- 1
- a) Nanostructure
  - b) Nanoparticle
  - c) Nanocrystal
  - d)  Supramolecular system



12. What's the procedure in the Top-down fabrication method?

- a) Nano-particles  $\Rightarrow$  Powder  $\Rightarrow$  Bulk
- b) Powder  $\Rightarrow$  Bulk  $\Rightarrow$  Nano-particles
- c) Bulk  $\Rightarrow$  Powder  $\Rightarrow$  Nano-particles
- d) Nano-particle  $\Rightarrow$  Bulk  $\Rightarrow$  Powder

13. The initial tools used to help launch the nanoscience revolution were

- a) Binoculars
- b) Microscope
- c) Scanning probe instruments
- d) Interferometer

14. Particles of  $ZrO_2$ ,  $Y_2O_3$  and Nano whiskers have been produced by

- a) Sol-gel
- b) CVC
- c) Plasma spraying
- d) Laser pyrolysis

15. Nanomaterials are the materials with at least one dimension measuring less than \_\_\_\_\_.

- a) 1 nm
- b) 10 nm
- c) 100 nm
- d) 1000 nm

16. A material with one dimension in Nano range and the other two dimensions are large and are called \_\_\_\_\_.

- a) Micro-material
- b) Quantum wire
- c) Quantum well
- d) Quantum dot

17. The first talk about nanotechnology was given by \_\_\_\_\_.

- a) Albert Einstein
- b) Newton
- c) Gordon E. Moore
- d) Richard Feynman

18. Which of the processes of materials was not described as \_\_\_\_\_ Nanotechnology?

- a) Separation
- b) Creation
- c) Processing
- d) Consolidation

19. Solution of pure buckminsterfullerene has a colour of \_\_\_\_\_.

- a) Green
- b) Purple
- c) Pink
- d) Yellow

20. Quantum dots can be used in \_\_\_\_\_.

- a) Crystallography
- b) Optoelectronics
- c) Mechanics
- d) Quantum physics

**Marks list**

Department of Chemistry				
Class: B.Sc. III Semester				
Course title: Nano materials				
Faculty Name: <i>Dr. Narayana Achar.</i>				
Sl.No	Register No	Name of the Student	Marks	Signature of Student
1	1865616	Bhimappa	16	<i>Bhimappa</i>
2	1868855	Raghavendra	18	<i>Raghavendra</i>
3	1871565	K. Anusha	19	<i>Anusha</i>
4	1871570	Umme Salma	19	<i>Umme Salma</i>
5	1871580	P. Mahantesh.	18	<i>P. Mahantesh.</i>
6	1871586	Ambika.	17	<i>Ambika.</i>
7	1871591	Sangeeta.P.	17	<i>Sangeeta.P.</i>
8	1871597	Shravani	16	<i>Shravani</i>
9	1871611	Ravi	16	<i>Ravi</i>
10	1871617	Girija. Y	16	<i>Girija. Y</i>
11	1871622	Chetana	18	<i>Chetana</i>
12	1871637	Manjula	19	<i>Manjula</i>
13	1871648	Manisha	19	<i>Manisha</i>
14	1871658	Aslam pasha	18	<i>Aslam pasha</i>
15	1871671	Savitha	17	<i>Savitha</i>
16	1871678	Shanthamma	18	<i>Shanthamma</i>
17	1871684	Shwetha	18	<i>Shwetha</i>
18	1871691	Bussanna	18	<i>Bussanna</i>
19	1871700	Thaiseer	16	<i>Thaiseer</i>
20	1871723	Sharada	17	<i>Sharada</i>
21	1871729	Nagaveni	17	<i>Nagaveni</i>
22	1871735	Madhura	18	<i>Madhura</i>
23	1871747	Vinitha.D	17	<i>Vinitha.D</i>
24	1871756	Anusha	16	<i>Anusha</i>
25	1871760	Ahmadi. A.	19	<i>Ahmadi. A.</i>
26	1871766	Mamatha. G.	18	<i>Mamatha. G.</i>
27	1871776	Navyashree	17	<i>Navyashree</i>
28	1871783	Naveera. A.	16	<i>Naveera. A.</i>

*[Signature]*  
Signature of Faculty

*[Signature]*  
Signature of HOD  
Head, Dept. of Chemistry  
L.V.D. College, RAICHUR.

*[Signature]*  
Signature of Principal  
**PRINCIPAL**  
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