Centre/School/Special Centre: Physical Sciences

Department: CHEMISTRY

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Dr Manorama, Professor

Qualifications:

M. Sc. (Analytical Chemistry), 2005, Department of Chemistry, Banaras Hindu University, Varanasi-221005, U. P., India.

Ph. D. (Chemistry), 2011, Department of Chemistry, Banaras Hindu University, Varanasi-221005, U. P., India.

Area of Interest/Specialization:

Electroanalytical Chemistry, Nanocomposites, Electrochemical sensors/biosensors, Electrocatalysis, Modified electrodes, Carbon-based nanocomposites, Metal nanoparticles, Photocatalysis.

Position:

Professor, Department of Chemistry, GGV, Bilaspur

Awards and Honors:

1. CSIR-UGC NET-LS (2005)
2. CSIR-Project–JRF (2006-2009), Banaras Hindu University, Varanasi, U.P.
3. Awarded direct SRF from CSIR (No. 9/13(286)/2010-EMR-I), New Delhi
4. Received Best Oral Presentation Award, RAASI-2011, Hyderabad.
5. Received the Best Paper Award, 2019, IQAC-Guru Ghasidas Vishwavidyalaya, Bilaspur.
6. Received the Best Paper Award, 2021, IQAC-Guru Ghasidas Vishwavidyalaya, Bilaspur.
7. Received the Best Paper Award, ICBPS-2022, GLA University, Mathura.

Research Projects:

S. No.	Title of the Project	Amount Sanctioned	Funding Agency	Duration	Status
1	A Novel Amperometric Pesticide Biosensor for Organophosphates/ Carbamates Based on Acetyl Cholinesterase Immobilized on Graphene-Gold Nanoparticles (AuNPs) Composite.	Rs. 12,40,800/	**UGC**	3 Years (2013-2016)	Completed
2	A Novel Electrocatalytic Sensing Scaffold for …….based on Graphene Nanomaterial	Rs. 14,56,000/	**CSIR**	3 Years (2022-2025)	Ongoing

Best Peer Reviewed Publication (up-to 10):

1. *S. R. Bhardiya, D. Patel, B. Khuntey, Sanju Yadav, A. Rai, V. K Rai,* **Manorama Singh,** *Electrocatalytic quantification of quinol in cosmetic samples using Co-doped graphitic carbon nitride @biomolecules assisted electrochemically reduced graphene nanosheets Talanta,* **2023,** *269,* 125400 **[IF: 6.100]**

2. S. R Bhardiya, A. Asati, H. Sheshma, V. K. Rai, A. Rai, **Manorama Singh,** *Sensitive electrocatalytic determination of p-phenylenediamine using bimetallic nanocomposite of Cu-Ag nanoalloy and ionic liquid-graphene oxide*
***J. Electroanal Chem*, 2021,** *894,* 115360-115368. **[IF: 4.598]**

3. S. R Bhardiya, A. Asati, H. Sheshma, A. Rai, V. K. Rai, **Manorama Singh,** *A Novel Bioconjugated Reduced Graphene Oxide-Based Nanocomposite for Sensitive Electrochemical Detection of Cadmium in Water*
***Sensors & Actuators: B. Chemical*, 2021,** *328,* 129019-129028**. [IF: 9.221]**

4. S. R. Bhardiya, H. Sheshma, A. Asati, A. Rai, V. K. Rai, **Manorama Singh,** *Design of a sensitive electrochemical sensor based on ferrocene-reduced graphene oxide/Mn spinel for hydrazine detection*
***Electroanalysis,* 2021,** *33,* 464-472 **[IF: 3.223]**

5. H. Kashyap, P. K. Singh, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh**, *AuNPs/Neutral red-biofunctionalized graphene nanocomposite for nonenzymatic electrochemical detection of organophosphate via NO_2 reduction*
***Sensors & Actuators: B. Chemical*, 2019**, *290,* 195-202. **[IF: 9.221]**

6. A. Sahu, S. Mahata, P. Shukla, A. Rai, V. K. Rai, **Manorama Singh**, *Efficient electrocatalytic oxidation of p-phenylenediamine using a novel PANI/ZnO anchored bio-reduced graphene oxide nanocomposite*

***New J. Chem.* 2019**, 43, 6500-6505. **[IF: 3.591]**

7. Anjumala Sahu, P. Shukla, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh,** *First bio-covalent functionalization of graphene with threonine towards drug sensing via electrocatalytic transfer hydrogenation*
***Sensors & Actuators*: *B. Chemical*, 2019**, *281*, 1045-1053, **[IF: 9.221]**

8. F. Verma, A. Sahu, P. K. Singh, A. Rai, **Manorama Singh**, V. K. Rai, *Visible-light driven regioselective synthesis of 1H-tetrazoles from aldehydes through isocyanide-based [3+2] cycloaddition*
***Green Chem.* 2018,** *20, 3783-3789* **[IF: 10.18]**

9. I. Tiwari, **Manorama Singh**, M. Gupta, S. K. Aggarwal, *Electroanalytical properties and application of anthraquinone derivative- functionalized multiwalled carbon nanotubes nanowires modified glassy carbon electrode in the determination of dissolved oxygen.*
***Materials Research Bulletin*, 2012**, *47, 1697-1703* **[IF: 5.6]**

10. I. Tiwari, **Manorama Singh,** *Preparation and characterization of methylene blue- SDS-multiwalled carbon nanotubes nanocomposite for the detection of hydrogen peroxide*
***Microchimica Acta,* 2011,** *174*, 223-*230* **[IF: 6.232]**

Recent Books/Book Chapters/Monographs *etc*.:

(A)Book Chapters

1. *Role of MOFs as Electro/-Organic Catalysts,* **Manorama Singh**, A. Rai, V. K. Rai, S. R. Bhardiya, A. Asati, "Applications of Metal-Organic Frameworks and their derived materials", **2020**, ISBN 978-1-119-65098-0, (Wiley-Scrivener Publishing, Beverly, MA)

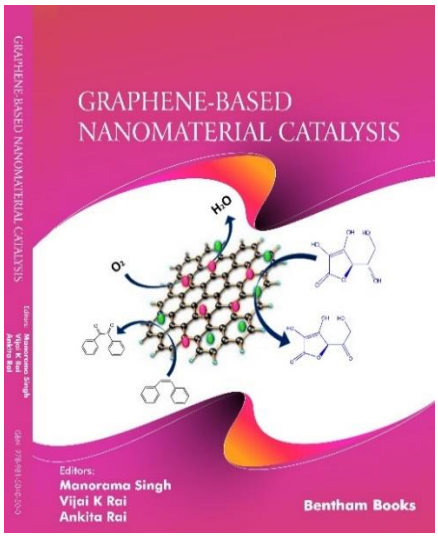
2. *Electrocatalysis: Application of nanocomposite materials,* **Manorama Singh**, A. Rai, V. K. Rai, "Methods for Electrocatalysis: Advanced Materials and Allied Applications" **2020,** ISBN 978-3-030-27161-9. (Springer Nature, Switzerland)

3. *Graphene: a unique constructional material for electroanalytical applications,* I. Tiwari, **Manorama Singh**, "*Sensors, transducers, signal conditioning and wireless sensors network"* **2016,** Advances in Sensors series: Reviews, vol. *3*, ISBN No. 978 -84-608-7705-9

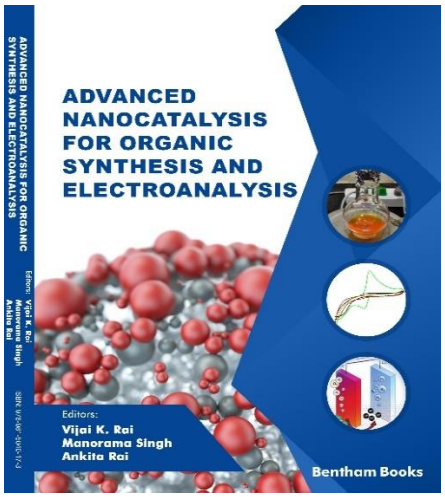
4. *Advances in Sensors' Nanotechnology,* I. Tiwari, **Manorama Singh,** *Advanced Sensor and Detection Materials*" **2014,** ISBN No: 978-1-118-77348-2. (WILEY-Scrivener Publishing, USA).

5. Polyaniline *Based Advanced Nanomaterials for the Sensor Applications,* I. Tiwari, **Manorama Singh,** "*Nanotechnology in Polymers''* **2012,** ISBN: 1-933699-90-6, 2012, 55-67 (Studium Press LLC, Houston, Texas, USA).

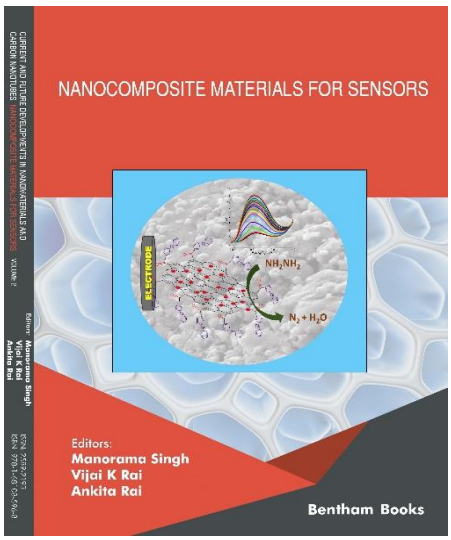
(B)Books (03)



Graphene-Based Nanomaterial Catalysis, **2022**
Bentham Science Publishers. ISBN (online): 978-981-5040-49-4



Advanced Nanocatalysis For Organic Syntheses and Electroanalyses, **2022**
Bentham Science Publishers. ISBN (online): 978-981-5040-16-6



Nanocomposite Materials for Sensors, **2022**
Bentham Science Publishers.
ISBN (online): 978-1-68108-596-8;
ISSN (online): 2589-2193

(B) Editorial Member:

(i)Current Analytical Chemistry (2020-2021)
(ii)SCIREA Journal of Chemistry (2019)

(C) Reviewer in:

(i) Taylor-Francis Journals
(ii) RSC Journals
(iii) Wiley Journals
(iv) Bentham Science Journals.
(v) ACS journals

(D) Conference Proceedings: 03

(E) Invited Talks/Chaired sessions in Seminar/Conferences: 11

(F) Paper Presented Seminar/Conferences: 15

(G) Other publications

1. *S. R. Bhardiya, D. Patel, B. Khuntey, Sanju Yadav, A. Rai, V. K Rai,* **Manorama Singh,** Electrocatalytic quantification of quinol in cosmetic samples using Co-doped graphitic carbon nitride @biomolecules assisted electrochemically reduced graphene nanosheets
***Talanta,* 2023,** *269,* 125400 **[IF: 6.100]**

2. S. R. Bhardiya, A. Rai, V. K Rai, **Manorama Singh,** *Graphene-based Nanomaterials for Electrochemical Sensing of Hydrazine: A Review*
***Current Analytical Chemistry,* 2023**, 19 **[IF: 1.892]**

3. P K Singh, B. Khuntey, S R Bhardiya, **Manorama Singh,** V. K. Rai, A. Rai, Cooperative visible light and Cu/Cu2O@g-C3N4 catalysis towards Hantzsch/Biginelli synthesis of dihydro-pyridine /pyrimidine, ***J Heterocyclic Chemistry,* 2022** ***(In Press)***

4. **Manorama Singh,** S. R. Bhardiya, A. Rai, V. K Rai, *Electrochemical approach for recognition and quantification of p-phenylenediamine: a review*
***Sensors and Diagnostics,* 2022**, DOI: 10.1039/b1nd00070e

5. P. Shukla, **Manorama Singh**, V. K. Rai, A. Rai
Regioselective installation of enolizable ketones and unprotected mercaptoacetic acid into olefins using GO as phase transfer catalyst
***New J. Chem.* 2022**, *45*, (In Press) **[IF: 3.591]**

6. **Manorama Singh,** S. R Bhardiya, A. Asati, H. Sheshma, V. K. Rai, A. Rai
Sensitive electrocatalytic determination of p-phenylenediamine using bimetallic nanocomposite of Cu-Ag nanoalloy and ionic liquid-graphene oxide
***J. Electroanal Chem*, 2021,** *894*, 115360-115368. [**IF: 4.598**]

7. S. R Bhardiya, A. Asati, H. Sheshma, A. Rai, V. K. Rai, **Manorama Singh**

A Novel Bioconjugated Reduced Graphene Oxide-Based Nanocomposite for Sensitive Electrochemical Detection of Cadmium in Water
***Sensors & Actuators: B. Chemical*, 2021,** *328*, 129019-129028**. [IF: 9.221]**

8. **Manorama Singh,** S. R. Bhardiya, H. Sheshma, A. Asati, A. Rai, V. K. Rai
Design of a sensitive electrochemical sensor based on ferrocene-reduced graphene oxide/Mn spinel for hydrazine detection
***Electroanalysis,* 2021,** *33*, 464-472 **[IF: 3.03]**

9. P. Shukla, A. Asati, S. R. Bhardiya, **Manorama Singh,** V. K. Rai, A. Rai
Metal free C-H activation over graphene oxide toward direct synthesis of structurally different amines and amides in water
***J. Org. Chem*. 2020,** *85*, 15552−15561 [**IF: 4.6]**

10. P. K. Singh, S. R. Bhardiya, A. Asati, V. K. Rai, **Manorama Singh** Ankita Rai
Cu/Cu_2O@g-C_3N_4: Recyclable photocatalyst under visible light to access 2-aryl-/benzimidazoles/benzothiazoles in water
***ChemistrySelect*, 2020**, 5, 14270-14275. **[IF: 2.3]**

11. **Manorama Singh,** A. Sahu, P. K. Singh, F. Verma, V. K. Rai, A. Rai
A novel ternary graphene-based nanocomposite modified electrode for acetaminophen detection
***Electroanalysis, 2020,** 32, 1516-1522* [**IF: 3.03]**

12. V. K Rai, F. Verma, S. R. Bhardiya, H. Sheshma, A. Rai, **Manorama Singh**
Facile Syntheiss of γ-Ketonitriles in water via C(Sp2)-H Activation of Aromatic Aldehydes over Cu@g-C3N4 under Visible light
***Eur. J. Org. Chem*., 2020**, 5841-5846. **[IF: 3.021]**

13. V. K. Rai, S. Mahata, H. Kashyap, **Manorama Singh,** A. Rai
Bioreduction of Graphene oxide: Catalytic applications of (reduced) GO in organic synthesis
***Current Organic Synthesis*, 2020**, *17*, 164-191. **[IF: 1.983]**

14. P. Shukla, A. Asati, S. R. Bhardiya, **Manorama Singh,** V. K. Rai, A. Rai
Cu(I)-Induced Activation of Furan for Inverse Electron Demand ADAR with Alkenes toward Regioselective Synthesis of Tetrahydropyridine,
***J. Org. Chem*. 2020**, *85*, 7772−7780. [**IF: 4.6]**

15. **Manorama Singh,** S. R. Bhardiya, F. Verma, V. K. Rai, A. Rai
Graphene based nanomaterials for fabrication of Pesticide electrochemical sensors
***Current Graphene Science*, 2020**, *3*, 26-40.

16. V. K. Rai, F. Verma, S. Mahata, S. R. Bhardiya, **Manorama Singh**, A. Rai
Metal doped -C_3N_4/Fe_2O_4: Efficient and versatile heterogeneous catalysts for organic transformations
***Current Organic Chemistry*, 2019**, *23, 1282-1304.* **[IF: 1.933]**

17. **Manorama Singh**, Anjumala Sahu, S Mahata, P K Singh, V. K. Rai, A. Rai
Efficient electrochemical determination of p-aminophenol using a novel tricomponent graphene- based nanocomposite
***New J. Chem.* 2019**, *43*, 14972 **[IF: 3.591]**

18. **Manorama Singh**, H. Kashyap, P. K. Singh, S. Mahata, V. K. Rai, A. Rai
AuNPs/Neutral red-biofunctionalized graphene nanocomposite for nonenzymatic electrochemical detection of organophosphate via NO_2 reduction
***Sensors & Actuators: B. Chemical*, 2019**, *290*, 195-202. **[IF: 9.221]**

19. **Manorama Singh**, A. Sahu, S. Mahata, P. Shukla, A. Rai, V. K. Rai
Efficient electrocatalytic oxidation of p-phenylenediamine using a novel PANI/ZnO anchored bio-reduced graphene oxide nanocomposite
***New J. Chem.* 2019**, 43, 6500-6505. **[IF: 3.591]**

20. P. K. Singh, F. Verma, S. R. Bhardiya, **Manorama Singh**, V. K. Rai, A. Rai
A Facile Iodine-Promoted N-Ts Insertion into Enals: cis-Selective Construction of Aziridin-2-aldehyde in Water,
***ChemistrySelect*, 2019**, *4*, 1240-1243. **[IF: 2.3]**

21. F. Verma, P. Shukla, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai
Photocatalytic C(sp^3)–H activation towards α-methylenation of ketones using MeOH as 1C source steering reagent
***Advanced Synthesis & Catalysis*, 2019**, *361*, 1171-1462. **[IF: 5.9]**

22. V. K. Rai, S. Mahata, S. R. Bhardiya, P. Shukla, A. Rai, **Manorama Singh**
A novel carbocatalytic hydride transfer strategy for efficient reduction of structurally different aldehydes and ketones in water
***Tetrahedron Lett.*, 2019**, *60*, 524-529. **[IF: 2.379]**

23. A. Sahu, P. Shukla, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh**
First bio-covalent functionalization of graphene with threonine towards drug sensing via electrocatalytic transfer hydrogenation
***Sensors & Actuators*: *B. Chemical*, 2019**, *281*, 1045-1053, **[IF: 9.221]**

24. P. Shukla, S Mahata, H Kashyap, **Manorama Singh**, V. K. Rai, A. Rai
A facile and efficient carbocatalytic route to quaternary C-bearing N-tosylaziridines from Morita-Baylis - Hillman adduct in water
***Tetrahedron Lett.*, 2019**, *60*, 1943-1948. **[IF: 2.379]**

25. S. Mahata, A. Sahu, P. Shukla, A. Rai, **Manorama Singh**, V. K. Rai
A novel and efficient reduction of graphene oxide using Ocimum sanctum L. leaf extract as an alternative renewable bio-resource
***New J. Chem.* 2018**, *42*, 19945-19952. [**IF: 3.591**].

26. F. Verma, P. Shukla, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai
Visible Light-Induced Direct Conversion of Aldehydes into Nitriles in Aqueous Medium Using Co@g-C_3N_4 as Photocatalyst
***Cat. Comm.* 2019**, *119*, 76-81. **[IF: 3.626]**

27. F. Verma, A. Sahu, P. K. Singh, A. Rai, **Manorama Singh**, V. K. Rai

Visible-light driven regioselective synthesis of 1H-tetrazoles from aldehydes through isocyanide-based [3+2] cycloaddition
Green Chemistry 2018, *20, 3783-3789* **[IF: 10.18]**

28. V. K. Rai, F. Verma, G. P. Sahu, **Manorama Singh**, A. Rai
One-Pot Allan–Robinson/Friedländer Route to Chromen-/Quinolin-4-ones through the Domino Acetylative Cyclisation of 2-Hydroxy-/2-Aminobenzaldehyde
Eur. J. Org. Chem. **2018**, 537-544. **[IF: 3.021]**

29. S. Mahata, A. Sahu, P. Shukla, A. Rai, **Manorama Singh**, V. K. Rai
Bio-inspired unprecedented synthesis of reduced graphene oxide: a catalytic probe for electro-/chemical reduction of nitro groups in an aqueous medium,
New J. Chem. **2018**, *42*, 2067-2073. [**IF: 3.591**]

30. S. Mahata, A. Sahu, P. Shukla, A. Rai, **Manorama Singh**, V. K. Rai
Graphene oxide catalyzed C-N/C-S/[3+2] cyclization cascade for green synthesis of thiazolidinone in water
Lett. Org. Chem. **2018**, *15*, 665-672. **[IF: 0.867]**

31. V. K. Rai, F. Verma, M. Satnami, **Manorama Singh**, A. Rai
Morita-*Baylis-Hillman enal-based triple cascade strategy for anti-selective synthesis of highly functionalized tetrahydropyridines using iminium-enamine catalysis*
Tetrahedron Lett., **2018**, *59*, 1783–1786. **[IF: 2.032]**

32. H. Kashyap, P. K. Singh, F. Verma, V. K. Rai, A. Rai, **Manorama Singh**
Facile construction of AuNPs modulated SDS wrapped G-TC tailored electrode for sensitive detection of ascorbic acid
New J. Chem. **2017**, *41*, 6938. **[IF: 3.925]**

33. F. Verma, P. K. Singh, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai
A co-operative effect of visible light photocatalysis and $CoFe_2O_4$ nanoparticles for green synthesis of furans in water
New J. Chem. **2017**, *41*, 4937-4942. **[IF: 3.925]**

34. P. Shukla, S. Mahata, A. Sahu, **Manorama Singh**, V. K. Rai, A. Rai
First graphene oxide promoted metal-free nitrene insertion into olefins in water: towards facile synthesis of activated aziridines
RSC Advances, **2017**, *7*, 48723–48729. **[IF: 4.036]**

35. **Manorama Singh**, S. R. Bhardiya, H. Kashyap, F. Verma, V. K. Rai, I. Tiwari
Decoration of GO with Fe spinel-Naf/DMAP: an electrochemical probe for sensing H_2O_2 reduction,
RSC Advances, **2016**, *6*, 104868-104874. **[IF: 4.036]**

36. V. K. Rai, G. P. Sahu, **Manorama Singh**, A. Rai
A facile anti-selective synthesis of 3-nitropyridin-2-ones using Morita-Baylis Hillman adduct of nitroalkene
Lett. Org. Chem. **2016**, *13*, 547-553. **[IF: 0.867]**

37. I. Tiwari, **Manorama Singh**, K. P. Singh

Fabrication, characterization and application of carbon ceramic nanocomposite prepared by using multiwalled carbon nanotubes and organically modified sol-gel glasses
***J. Indian Chem. Soc.* 2014**, *91*, 1793-1798. [**IF: 0.243**]

38. I. Tiwari, **Manorama Singh**, M. Gupta, S. K. Aggarwal
Electroanalytical properties and application of anthraquinone derivative- functionalized multiwalled carbon nanotubes nanowires modified glassy carbon electrode in the determination of dissolved oxygen.
***Materials Research Bulletin*, 2012**, *47, 1697-1703* **[IF: 5.6]**

39. I. Tiwari, K. P. Singh, **Manorama Singh**, C. E. Banks
Polyaniline/polyacrylic acid/multi-walled carbon nanotube modified electrodes for sensing ascorbic acid
***Anal. Methods*, 2012**, *4*, 118-124. **[IF: 3.5]**

40. I. Tiwari, **Manorama Singh**
Preparation and characterization of methylene blue- SDS-multiwalled carbon nanotubes nanocomposite for the detection of hydrogen peroxide
***Microchimica Acta,* 2011,** *174*, 223-*230* **[IF: 6.4]**

41. I. Tiwari, **Manorama Singh**
Amperometric biosensor for nanomolar detection of hydrogen peroxide based on encapsulation of thymol blue-ormosil composite
***Sensor Letters*, 2011**, *9,* 1323-1330 **[IF: 0.64]**

42. Ida Tiwari, K.P.Singh, **Manorama Singh**
A novel amperometric hydrogen peroxide biosensor based on Horseradish Peroxidase incorporated in organically modified sol-gel glass matrix /graphite paste with multiwalled carbon nanotubes
***Analytical Letters,* 2010**, *43*, 2010-2030**. [IF: 2.26]**

43. I. Tiwari, K. P. Singh, **Manorama Singh**
An insight review on the application of polymer-carbon nanotubes based composite materials in sensor technology
***Russian Journal of General Chemistry*, 2009**, *79*, 2685-269 **[IF: 0.87]**

Member (Various Committees):

1. Member, Admission Committee (UG, PG, PhD, B.Tech), GGV
2. Assist Superintendent, Vishwavidyalaya Entrance Test and Vishwavidyalaya Research Entrance Test, GGV
3. Member, Unnat Bharat Abhiyan, GGV
4. Assist Superintendent, University UG & PG Exams, GGV
5. Polling Officer, Student Council Election, GGV
6. Member, Community Development Cell, GGV
7. Member, Various Departmental Committees
8. Member, organizing conferences/seminars/workshops, GGV
9. Warden, University Girls Hostel, GGV
10. Member, University Repair & Maintenance, GGV.
11. Member, National Science Day celebration committee, GGV
12. Member, Faculty Scrutiny Committee, GGV
13. Member, Verification Committee, Faculty Recruitments, GGV

14. Assistant Proctor, Proctorial Board, GGV.
15. Member, Various Verification Committees, GGV
16. Member, School Discipline Committee, GGV (Continue…)
17. Member, Innovation Cell, R & D Cell, GGV. (Continue…)
18. Member, Board of Studies, Department of Chemistry, GGV. (Continue…)
19. Member, Capacity building Programme, GGV (Continue…)
20. Member, university Anti-ragging Committee, GGV (Continue…)
21. Member, university Industry Interface Cell, GGV (Continue…)
22. Admin Warden, Minimata Hostel, GGV (Continue…)
23. Chief coordinator, Psychological counselling cell, GGV (Continue…)

Manorama