

**The Annual Quality Assurance Report (AQAR) of the IQAC**  
**For the academic year 2016-2017**

**Part – A**

**I. Details of the Institution**

1.1 Name of the Institution

BHAIRAB GANGULY COLLEGE

1.2 Address Line 1

2, FEEDER ROAD

City/Town

BELGHARIA

State

WEST BENGAL

Pin Code

KOLKATA - 700056

Institution e-mail address

bhairab1968@gmail.com

Contact Nos.

(033) 25643191 / 25532280

Name of the Head of the Institution:

DR. MINAKSHI RAY

Tel. No. with STD Code:

(033) 25643191

Mobile:

+919830596188

Name of the IQAC Co-ordinator:

DR. PROBIR KARAR

Mobile:

+917980223091

IQAC e-mail address:

bgc.iqac@gmail.com

1.3 NAAC Track ID (For ex. MHCOGN 18879)

WBCOGN13562

1.4 NAAC Executive Committee No. & Date:

(For Example EC/32/A&A/143 dated 3-5-2004.  
This EC no. is available in the right corner- bottom  
of your institution's Accreditation Certificate)

EC/45/A&A/52 dated 28.03.2008 (1<sup>st</sup> cycle)  
EC(SG)/15/A&A/52.2 dated 25.05.16 (2<sup>nd</sup> Cycle)

1.5 Website address:

www.bhairabgangulycollege.ac.in

Web-link of the AQAR:

http://www.bhairabgangulycollege.ac.in/AQAR 2016-17.doc

1.6 Accreditation Details

Sl. No.	Cycle	Grade	CGPA	Year of Accreditation	Validity Period
1	1 <sup>st</sup> Cycle	B	2.24	2008	28 <sup>th</sup> March, 2013
2	2 <sup>nd</sup> Cycle	A	3.01	2016	24 <sup>th</sup> May, 2021

1.7 Date of Establishment of IQAC :

DD/MM/YYYY

25/03/2009

1.8 AQAR for the year

2016-2017

1.9 Details of the previous year's AQAR submitted to NAAC after the latest Assessment and Accreditation by NAAC ((for example AQAR 2010-11 submitted to NAAC on 12-10-2011))

- |                     |                                 |
|---------------------|---------------------------------|
| i. AQAR 2009-2010   | submitted to NAAC on 30/10/2013 |
| ii. AQAR 2010-2011  | submitted to NACC on 26/06/2014 |
| iii. AQAR 2011-2012 | submitted to NAAC on 13/08/2014 |
| iv. AQAR 2012-2013  | submitted to NAAC on 07/10/2014 |
| v. AQAR 2013-2014   | submitted to NAAC on 11/04/2015 |
| vi. AQAR 2014-2015  | submitted to NAAC on 05/01/2016 |

1.10 Institutional Status

University

State

☐

Central

☐

Deemed

☐

Private

☐

Affiliated College

Yes

☒

No

☐

Constituent College

Yes

☐

No

☒

Autonomous college of UGC

Yes

☐

No

☒

Regulatory Agency approved Institution

Yes

☐

No

☒

(eg. AICTE, BCI, MCI, PCI, NCI)

Type of Institution	Co-education	<input checked="" type="checkbox"/>	Men	<input type="checkbox"/>	Women	<input type="checkbox"/>
	Urban	<input checked="" type="checkbox"/>	Rural	<input type="checkbox"/>	Tribal	<input type="checkbox"/>
Financial Status	Grant-in-aid	<input type="checkbox"/>	UGC 2(f)	<input checked="" type="checkbox"/>	UGC 12B	<input checked="" type="checkbox"/>
	Grant-in-aid + Self Financing	<input checked="" type="checkbox"/>	Totally Self-financing	<input type="checkbox"/>		

1.11 Type of Faculty/Programme

Arts	<input checked="" type="checkbox"/>	Science	<input checked="" type="checkbox"/>	Commerce	<input checked="" type="checkbox"/>	Law	<input type="checkbox"/>	PEI (Phys Edu)	<input checked="" type="checkbox"/>
TEI (Edu)	<input type="checkbox"/>	Engineering	<input type="checkbox"/>	Health Science	<input type="checkbox"/>	Management	<input type="checkbox"/>		
Others (Specify)	<div>ASPM (Major in Advertising &amp; Sales Promotion)</div>								

1.12 Name of the Affiliating University (*for the Colleges*)

WEST BENGAL STATE UNIVERSITY

1.13 Special status conferred by Central/ State Government-- UGC/CSIR/DST/DBT/ICMR etc

None

Autonomy by State/Central Govt. / University

Partial autonomy in P.G. Courses

University with Potential for Excellence

—

UGC-CPE

—

DST Star Scheme

—

UGC-CE

—

UGC-Special Assistance Programme

—

DST-FIST

—

UGC-Innovative PG programmes

—

Any other (*Specify*)

—

UGC-COP Programmes

—

## 2. IQAC Composition and Activities

2.1 No. of Teachers	<input type="text" value="6"/>	
2.2 No. of Administrative/Technical staff	<input type="text" value="3"/>	
2.3 No. of students	<input type="text" value="1"/>	
2.4 No. of Management representatives	<input type="text" value="2"/>	
2.5 No. of Alumni	<input type="text" value="0"/>	
2.6 No. of any other stakeholder and community representatives	<input type="text" value="1"/>	
2.7 No. of Employers/ Industrialists	<input type="text" value="0"/>	
2.8 No. of other External Experts	<input type="text" value="0"/>	
2.9 Total No. of members	<input type="text" value="13"/>	
2.10 No. of IQAC meetings held	:	<input type="text" value="05"/>
2.11 No. of meetings with various stakeholders:	No.	<input type="text" value="06"/>
	Faculty	<input type="text" value="02"/>
Non-Teaching Staff / Students	<input type="text" value="03"/>	Alumni
	<input type="text" value="0"/>	Others
		<input type="text" value="Parents (1)"/>
2.12 Has IQAC received any funding from UGC during the year?	Yes	No <input checked="" type="checkbox"/>
If yes, mention the amount	<input type="text" value="—"/>	
2.13 Seminars and Conferences (only quality related)	(i) No. of Seminars/Conferences/Workshops/Symposia organized by the IQAC	
Total Nos.	<input type="text" value="07"/>	International
	<input type="text" value="—"/>	National
	<input type="text" value="02"/>	Workshop
	<input type="text" value="—"/>	
State	<input type="text" value="—"/>	Institution Level
		<input type="text" value="05"/>

(ii) **Themes**

Date	Department	Themes
09.09.2016	Physics	“Journey from Particle to Astrophysics”
02.12.2016	Mathematics	“Securing Digital World through Mathematics”
27.01.2017 to 28.01.2017	Science Forum	Two days National Conference on Advances in Interdisciplinary Science
23.02.2017	Bengali	International Vernacular Day Special Lecture
28.02.2017	Science Forum	Seminar organized by the Science Forum on celebration of National Science Day.
07.03.2017	Urdu	One Day National Seminar on ‘E Kiswein Sadi Mein’
10.04.2017	Physiology	Special Lecturer on ‘Proper Complementary Child Feeding’

2.14 Significant Activities and contributions made by IQAC

- i) IQAC encouraged the departments to organize seminars, workshop and special lectures. As a result, appreciable number of such events was held in the College which added value to the teaching learning process.
- ii) IQAC promoted & coordinated the activities of the various clubs viz. Photography Club, Debate Club, Nature Club and Dance Club of the College.
- iii) The departments were encouraged to publish wall magazines and were provided with the necessary infrastructural facilities.
- iv) IQAC along with the Cell for Gender Sensitization kept vigilance on the College campus to ensure safety and security of the students.
- v) IQAC encouraged the Alumni Association (ABAHAMAN) of the College to take part in various developmental and outreach activities of the College.
- vi) IQAC collected and analysed the feedback responses by the students, parents & academicians who visited our College.
- vii) IQAC also encouraged the departments to conduct Parent-Teacher Meetings and make the parents aware of the performance and attendance of the students in the class.

## 2.15 Plan of Action by IQAC/Outcome

The plan of action chalked out by the IQAC in the beginning of the year towards quality enhancement and the outcome achieved by the end of the year \*

Plan of Action	Achievements
<ol style="list-style-type: none"> <li>1. Purchase of office equipment and ICT requirements with the fund received by IQAC, from UGC.</li> <li>2. Creating liaison with more corporate bodies with the objective of on-campus placements.</li> <li>3. The project 'Megh Kalas' for rain water harvesting to be taken up.</li> </ol>	<ol style="list-style-type: none"> <li>1. File-cabinet, a desk-top computer, a printer with scanner and Xerox- machine, a LCD-projector and two screens have been purchased utilizing the fund.</li> <li>2. Already some corporate bodies like TCS, ICICI Prudential, WIPRO, IBM etc. have been contacted and their response is heartening.</li> <li>3. The process of rain water harvesting is in progress, already.</li> </ol>

\* Attach the Academic Calendar of the year as Annexure. **ANNEXURE-I**

2.15 Whether the AQAR was placed in statutory body      Yes ☒      No ☐

Management ☒      Syndicate ☐      Any other body ☐

Provide the details of the action taken

Please see the excerpt from the proceeding of the Governing Body meeting held on 11-01-2018 in **ANNEXURE-II**

## Part – B

### Criterion – I

#### I. Curricular Aspects

##### 1.1 Details about Academic Programmes

Level of the Programme	Number of existing Programmes	Number of programmes added during the year	Number of self-financing programmes	Number of value added / Career Oriented programmes
PhD				
PG	04		04	
UG	24	03*		
PG Diploma				
Advanced Diploma				
Diploma				
Certificate				
Others				
<b>Total</b>	28	03	04	
Interdisciplinary				
Innovative				

\* Sanskrit & Education as Honours subject

Food & Nutrition as General subject

##### 1.2 (i) Flexibility of the Curriculum: CBCS/Core/Elective option / Open options

##### (ii) Pattern of programmes:

Pattern	Number of programmes
Semester	4 (P.G. Courses)
Trimester	–
Annual	25 (UG)

##### 1.3 Feedback from stakeholders\*

(On all aspects)

Alumni	<input type="checkbox"/>	Parents	<input checked="" type="checkbox"/>	Employers	<input type="checkbox"/>	Students	<input type="checkbox"/>
From the eminent persons visiting the college						<input checked="" type="checkbox"/>	
Mode of feedback	:	Online	<input type="checkbox"/>	Manual	<input checked="" type="checkbox"/>	Co-operating schools (for PEI)	<input type="checkbox"/>

##### 1.4 Whether there is any revision/update of regulation or syllabi, if yes, mention their salient aspects.

Given in **ANNEXURE-III**

##### 1.5 Any new Department/Centre introduced during the year. If yes, give details.

- i) Sanskrit & Education have been introduced as Honours subject in U.G. Course

ii) Food & Nutrition has been introduced as General subject in U.G. Course.

## Criterion – II

### 2. Teaching, Learning and Evaluation

2.1 Total No. of permanent faculty

Total	Asst. Professors	Associate Professors	Professors	Others
51	34	16	0	01

2.2 No. of permanent faculty with Ph.D.

25

2.3 No. of Faculty Positions Recruited (R) and Vacant (V) during the year

Asst. Professors		Associate Professors		Professors		Others		Total	
R	V	R	V	R	V	R	V	R	V
15	5							15	05

\*Due to lifting of the embargo by the Dept. of Higher Education, W.B., the number of vacant position has increased.

2.4 No. of Guest and Visiting faculty and Temporary faculty

24

22

31

2.5 Faculty participation in conferences and symposia:

No. of Faculty	International level	National level	State level
Attended	07	55	20
Presented papers	21	71	06
Resource Persons	0	07	01

2.6 Innovative processes adopted by the institution in Teaching and Learning:

- Departmental seminars are regularly organized where the students get the opportunity to have an exposure of the recent developments and interact with eminent persons of their subjects.
- Students are encouraged to give talks and PPT presentations in students seminars. Best speakers are awarded.
- Students are escorted by the teachers to attend seminars in other institutions.
- Remedial classes are taken for students belonging to non-creamy layer (SC/ ST/OBC and Minorities) and also weaker students.
- Teachers organized in-house 'study circle' where teachers give lectures on various contemporary topics.



2.7 Total No. of actual teaching days

270

during this academic year

2.8 Examination/ Evaluation Reforms initiated by the Institution (for example: Open Book Examination, Bar Coding, Double Valuation, Photocopy, Online Multiple Choice Questions)

Open book by Dept. of Geography introduced

2.9 No. of faculty members involved in curriculum restructuring/revision/syllabus development as member of Board of Study/Faculty/Curriculum Development workshop

15

2.10 Average percentage of attendance of students

60%

2.11 Course/Programme wise distribution of pass percentage:

Title of the Programme	Total no. of students appeared	Class/Division			Failed %
		1 <sup>st</sup> class %	2 <sup>nd</sup> class %	Pass %	
M.A. in Urdu	10	60	40	100	nil
M.A. in English	19	16	63	79	21
M.Sc. in Geography	33	64	30	94	6
M.Com.	14	100	00	100	nil

Title of the Programme	Total no. of students appeared	Class/Division				(Part not cleared) PNC%
		1 <sup>st</sup> class %	2 <sup>nd</sup> class %	P-division %	Pass %	
B.A. (Hons.)	164	2.4	45.7	20.7	5.5	25.6
B.Sc. (Hons.)	147	14.3	57.1	9.5	4.1	14.9
B.Com. (Hons.)	55	1.8	6.7	30.9	10.9	36.4
Title of the Programme	Total no. of students appeared	Division				(Part not cleared) PNC %
		1 <sup>st</sup> %	2 <sup>nd</sup> %	P-division %	(Part not cleared) PNC %	
B.A. (Genl.)	337	0.3	3.6	26.1	70.0	
B.Sc. (Genl.)	126	0.8	15.1	30.1	53.2	
B.Com. (Genl.)	133	0	0	20.3	79.7	

## 2.12 How does IQAC Contribute/Monitor/Evaluate the Teaching & Learning processes:

- IQAC coordinate the function of different cells and committees. The members of IQAC are included in such bodies.
- IQAC initiates the departments to organize seminars and special lectures. IQAC particularly monitors the organization of Departmental Student' Seminars. "Best speaker award" is given by IQAC.
- IQAC collect and analyse the 'Feedback' responses from stake holders and modification in the teaching –learning process is done accordingly.
- IQAC coordinates with the 'attendance cell' to record the attendance of the students. Departments are directed to display the records on the notice boards and intimate the parents in case of poor attendance.
- IQAC coordinates for publication of departmental wall magazines and best magazine award is given by IQAC.

## 2.13 Initiatives undertaken towards faculty development

<i>Faculty / Staff Development Programmes</i>	<i>Number of faculty benefitted</i>
Refresher courses	06
UGC – Faculty Improvement Programme	
HRD programmes	04 (Urdu)
Orientation programmes	02
Faculty exchange programme	04 (Urdu)
Staff training conducted by the university	
Staff training conducted by other institutions	02 (Physics)
Summer / Winter schools, Workshops, etc.	06
Others	02 (Urdu + Economics)

## 2.14 Details of Administrative and Technical staff

Category	Number of Permanent Employees	Number of Vacant Positions	Number of permanent positions filled during the Year	Number of positions filled temporarily
Administrative Staff	05	06	0	03
Technical Staff	27	07	0	11

## Criterion – III

### 3. Research, Consultancy and Extension

#### 3.1 Initiatives of the IQAC in Sensitizing/Promoting Research Climate in the institution

1. IQAC intimates the faculties about the various grants available and carries out the necessary formalities for submission of the projects.
2. Recently a separate research unit has been set-up in the Department of Physiology, Zoology and Chemistry under the supervision of IQAC.
3. The faculties are encouraged to publish their works in peer reviewed journals.
4. Computers have been added in the Library for the of faculties, exclusively for research work.
5. IQAC has taken active role in the upgrading of the library, especially in the procurement of Journals and e-journals.
6. IQAC initiated the allotment of research fund by the College for the purpose of research.

#### 3.2 Details regarding major projects

	Completed	Ongoing	Sanctioned	Submitted
Number	–	–	–	–
Outlay in Rs. Lakhs				

#### 3.3 Details regarding minor projects

	Completed	Ongoing	Sanctioned	Submitted
Number		02	04	
Outlay in Rs. Lakhs		Rs. 2,20,000 Rs. 70,000	Rs. 4,00,000 Rs. 4,15,000 Rs. 2,65,000 Rs. 1,15,000	

SEED Grant issued to the following teachers in 2016-17:

- a. Dr. Debabrata Dhadra, Assistant professor, Dept. of Physics, Rs. 40,000.00
- b. Dr. Shantanu Chakraborty, Assistant professor, Dept. of Economics, Rs. 30,000.00
- c. Mr. Arnab Ghoshal, Assistant professor, Dept. of Sanskrit, Rs. 25,000.00

#### 3.4 Details on research publications

	International	National	Others
Peer Review Journals	27	21	–
Non-Peer Review Journals	–	–	–
e-Journals	–	–	–
Conference proceedings	–	2	–

### 3.5 Details on Impact factor of publications:

Range  Average  h-index  Nos. in SCOPUS

### 3.6 Research funds sanctioned and received from various funding agencies, industry and other organisations

Nature of the Project	Duration Year	Name of the funding Agency	Total grant Sanctioned in Rs.	Received in Rs.
Major projects				
Minor Projects	2yrs.	UGC & ICSSR	Rs. 4,00,000 Rs. 4,15,000 Rs. 2,65,000 Rs. 1,15,000 Rs. 70,000 Rs. 2,20,000	Rs. 1,60,000 Rs. 3,82,500 Rs. 1,90,000 Rs. 97,500 -- Rs. 70,000
Interdisciplinary Projects				
Industry sponsored				
Projects sponsored by the University/ College✓	2yrs	Research Fund of the College	40,000.00	
Students research projects (other than compulsory by the University)				
Any other(Specify)				
Total			Rs. 15,25,000.00	Rs.9,00,000.00

3.7 No. of books published i) With ISBN No.  Chapters in Edited Books

ii) Without ISBN No.

### 3.8 No. of University Departments receiving funds from

UGC-SAP  CAS  DST-FIST   
DPE  DBT Scheme/funds

3.9 For colleges Autonomy  CPE  DBT Star Scheme   
INSPIRE  CE  Any Other (specify)

3.10 Revenue generated through consultancy

### 3.11 No. of conferences

organized by the Institution

Level	International	National	State	University	College
Number	-	01	03		12
Funding Body			College		College

3.12 No. of faculty served as experts, chairpersons or resource persons

3.13 No. of collaborations International  National  Any other

3.14 No. of linkages created during this year

3.15 Total budget for research for current year in lakhs:

From Funding agency  From Management of University/College✓

Total

3.16 No. of patents received this year

Type of Patent		Number
National	Applied	-
	Granted	-
International	Applied	-
	Granted	-
Commercialised	Applied	-
	Granted	-

3.17 No. of research awards/ recognitions received by faculty and research fellows  
Of the institute in the year

Total	International	National	State	University	Dist	College
09	0	1	1	-	1	6

3.18 No. of faculty from the Institution who are Ph. D. Guides and students registered under them

3.19 No. of Ph.D. awarded by faculty from the Institution

3.20 No. of Research scholars receiving the Fellowships (Newly enrolled + existing ones)

JRF  SRF  Project Fellows  Any other

3.21 No. of students Participated in NSS events:

University level  State level   
National level  International level

3.22 No. of students participated in NCC events:

University level  State level   
National level  International level

3.23 No. of Awards won in NSS:

University level  State level   
National level  International level

3.24 No. of Awards won in NCC:

University level	<input type="text" value="–"/>	State level	<input type="text" value="–"/>
National level	<input type="text" value="–"/>	International level	<input type="text" value="–"/>

3.25 No. of Extension activities organized

University forum	<input type="text" value="–"/>	College forum	<input type="text" value="6"/>	
NCC	<input type="text" value="–"/>	NSS	<input type="text" value="6"/>	Any other <input type="text" value="–"/>

3.26 Major Activities during the year in the sphere of extension activities and Institutional Social Responsibility

1. Independence Day (15th August, 2016), Birth Day of Netaji (23rd January, 2017) and Republic Day (26th January, 2017) were celebrated in the college campus by the **NSS Unit of the College. Hosting of National Flag** by NSS In-Charge, Dr. Asitendu Roychowdhury and NSS Programme Officer Dr. Saurav Shome. NSS volunteers, office bearers of students' Union and general students, non-teaching staff members and local children were present. The days were also celebrated by discussion on glorious history of these historical days, recitation and National Song. The number of NSS volunteers participated in the Independence Day, Birthday of Netaji and Republic Day celebration were 35, 36 and 35 respectively.
2. NSS Unit organized a Blood Donation Camp (held on 06.01.17) in association with Students' Union. 110 pouches of blood were collected from the camp by Department of Immunohaematology & Blood Transfusion, Medical College & Hospital, Kolkata, Govt. of West Bengal. Among 20 participants from NSS Unit, 12 volunteers also donated their blood in the camp. Sri Gopal Saha, Chairman, Kamarhati Municipality and Sri Madan Mitra, former President of the Governing Body of the College were present.
3. NSS volunteers along with Dr. Saurav Shome, Programme Officer, NSS Unit, participated and provided active logistics support at Swastha Sanman – 2016 on 30<sup>th</sup> December, 2016 organized by Department of Health, Government of West Bengal and State Level Education Convocation – 2017 on 7<sup>th</sup> January, 2017 organized by Department of Higher Education and patronized by Smt. Mamata Banerjee, Hon'ble Chief Minister, Government of West Bengal.

## Criterion – IV

### 4. Infrastructure and Learning Resources

#### 4.1 Details of increase in infrastructure facilities:

Facilities		Existing	Newly created	Source of Fund	Total
Campus area		8.33(acres)	–	–	8.33(acres)
Class rooms		1205.81m <sup>2</sup>	–	–	1205.81m <sup>2</sup>
Laboratories		916.38 m <sup>2</sup>	–	–	916.38 m <sup>2</sup>
Seminar Halls		283.77 m <sup>2</sup>	–	–	283.77 m <sup>2</sup>
No. of important equipments purchased (≥ 1-0 lakh) during the current year.			01	–	–
Value of the equipment purchased during the year (Rs. In Lakhs)		-	6,440,616.00	College fund	6,440,616.00
Others <b>Infrastructural extensions</b>	i)Canteen	96.53 m <sup>2</sup>		MPLAD & College Fund	960.53 m <sup>2</sup>
	ii)Indoor Sports Complex	864 m <sup>2</sup>		UGC	
	iii) iv) Sports goods	22	22,786.00 26,000.00	College Fund	48,786.00

#### 4.2 Computerization of administration and library

The institution has tried its level best to computerise all works of administration and library. A total of 17 computer terminal with LAN connection along with 15 printers are being used in office for administrative work. In library, a total of 19 computers with LAN connection and three printers are engaged for smooth library functioning where both TS and students can do their academic work.

#### 4.3 Library services:

	Existing		Newly added		Total	
	No.	Value	No.	Value	No.	Value
Text Books	6075	930546	65	36622	6140	967168
Reference Books	23430	3554413	133	74933	23563	3629346
e-Books*	119443	–	3016366	–	3135809	
Journals	–	–	–	–	–	
e-Journals*	6328	–	–	–	6328	
Digital Database	13000	–	–	–	13000	–
CD & Video	–	–	–	–	–	–
Others (specify)	–	–	–	–	–	–

\* all e-books and e-journals are available through N-LIST programme funded by UGC.

#### 4.4 Technology up gradation (overall)

	Total Computers	Computer Labs	Internet	Browsing Centres	Computer Centres	Office (No. of Computers)	Departments (No. of Computers)	Others
Existing	184	7	153	2	–	10	71	8
Added	6	1	*	–	–	–		
Total	190	8	153	2	–	10		

\* The campus has been upgraded as a wi-fi zone.

#### 4.5 Computer, Internet access, training to teachers and students and any other programme for technology upgradation (Networking, e-Governance etc.)

1. The college campus has been upgraded as a Wi-Fi zone.
2. Students can access internet free of cost, in their respective departments, under the supervision of the teachers.
3. Students can access internet in the 'browsing zone' of the library, free of cost.
4. Students also get knowledge of the relevant software in accordance with their curriculum.
5. All the faculties are computer literate and most of them use ICT, Smart Board for teaching.
6. NIELIT Computer centre in our campus offers a compulsory basic course to all 1<sup>st</sup> year students with a nominal fee.

#### 4.6 Amount spent on maintenance in lakhs :

i) ICT

Rs. 3,25,739.00

ii) Campus Infrastructure and facilities

Rs. 31,29,923.00

iii) Equipments

Rs. 6,97,128.00

iv) Others

**Total :**

R. 41,52,790.00



## Criterion – V

### 5. Student Support and Progression

#### 5.1 Contribution of IQAC in enhancing awareness about Student Support Services

1. An orientation programme is held at the beginning of the new session for the 1<sup>st</sup> year students. The Principal, IQAC Coordinator and senior faculties of the College intimate students about the mission and vision of the College facilities and student support service of the College.
2. Every students getting admission to the college are provided with a prospectus where various students service are mentioned in detail.
3. The website is updated regularly and notices on various student support service is displayed there.
4. Two notice boards exclusively displays information on scholarship, facilities for physically challenged, medical facilities for students etc.
5. IQAC with the 'Gender Sensitization Cell' under takes poster on gender sensitization.

#### 5.2 Efforts made by the institution for tracking the progression

- Class tests and mid-term examinations are taken by the college
- Regular guardian meetings are held where they are informed about the performance & attendance of their wards.

#### 5.3 (a) Total Number of students

UG	PG	Ph. D.	Others
3357	177	-	-

#### (b) No. of students outside the state

NIL

#### (c) No. of international students

NIL

	No	%		No	%
Men	1703	48.18	Women	1831	51.82

Level	Last Year						This Year					
	General	SC	ST	OBC	Physically Challenged	Total	General	SC	ST	OBC	Physically Challenged	Total
U.G.	3082	317	18	368	7	3785	2774	299	14	270	8	3357
P.G.	117	21	01	27	-	166	127	15	0	35	-	177

Demand ratio  $\frac{\text{U.G.}}{\text{P.G.}}$  : 2.53:1  
 $\frac{\text{P.G.}}{\text{P.G.}}$  : 2.1:1

Dropout % :  $\frac{\text{U.G.}}{\text{P.G.}}$ :4%  
 $\frac{\text{P.G.}}{\text{P.G.}}$ : NIL

#### 5.4 Details of student support mechanism for coaching for competitive examinations (If any)

Earlier the College has organized coaching and training for students as a part of working of Cell for Students Support and Mechanism for Coaching for competitive Examination with the George Telegraph Training Institute, Dunlop, Kolkata for Teacher Eligibility Test (TET) for Primary and Secondary Level. Now, we are looking for coaching for West Bengal Civil Service (WBCS), Staff Selection Commission (SSC) and School Service Commission (SSC) Examination.

No. of students in the previous year beneficiaries 400

#### 5.5 No. of students qualified in these examinations

NET — SET/SLET — GATE — CAT —

\* No data on these issues are available for the period 2016-17.

IAS/IPS etc — State PSC — UPSC — Others —

#### 5.6 Details of student counselling and career guidance

In the Academic year 2016-17, Suchetana, Psychological Counselling Unit of the College has organized workshops during the month of September, 2016 to December 2016 where students of different departments have participated. The Cell has also organized personal psychological counselling for students of all the departments during the period December, 2016 to April, 2017. A total of 349 students have participated in the workshops on different dates and 138 students have attained personal psychological counselling session.

No. of students benefitted 200

#### 5.7 Details of campus placement

<i>On campus</i>		<i>Off Campus*</i>	
Number of Organizations Visited	Number of Students Participated	Number of Students Placed	Number of Students Placed
TCS-BPS	120	11	

\*Exact data is not available

#### 5.8 Details of gender sensitization programmes

- i. Poster presentations and display on Gender Equity (15 posters) by students on 7<sup>th</sup> – 9<sup>th</sup> February, 2017.
- ii. 1-Day Workshop on “Gender Equity” by SAPHO dated 7<sup>th</sup> February, 2017. 50 students participated in the workshop.

## 5.9 Students Activities

### 5.9.1 No. of students participated in Sports, Games and other events

State/ University level  National level  International level   
(9 in Kabaddi and 6 in Athletics)

No. of students participated in cultural events

State/ University level  National level  International level

### 5.9.2 No. of medals /awards won by students in Sports, Games and other events

Sports : State/ University level  National level  International level

Cultural: State/ University level  National level  International level

## 5.10 Scholarships and Financial Support

Financial Support From	Founding Body		Amount in Rs.	No. of students
Financial support from institution	Students' Aid Fund		3,03,270.00	417
	Students' Welfare Fund (Concession)		45,495.00	99
Financial support from government	Merit Cum Means from W.B. Govt.		15,000.00	
	West Bengal Minority Development & Finance Corporation		5,000.00	
	U.G.C.		10,000.00	03
	Chief Minister Relief Fund		2,10,000.00	21
	O.B.C. (per head)		3,000.00	-
	S.C. (per head)		4,500.00	-
	S.T (per head)		7,000.00	-
	Workers' Welfare		Variable	06
	Urdu Academy		5,400.00	75
	Talent Support		2,97,600.00	62
	Kanyasree Prakalpa, Govt. of W.B.	K1	14,250.00	19
		K2	41,25,000.00	165
Financial support from other sources	Sita Ram Jindal Foundation		4,800.00	18
	Principal's Personal donation		16,165.00	16

### 5.11 Student organised / initiatives

Fairs : State/ University level  National level  International level

Exhibition: State/ University level  National level  International level

5.12 No. of social initiatives undertaken by the students

3\*

\*i) Blood donation camp on 12<sup>th</sup> Dec., 2014

ii) Literacy campaign with NSS unit amongst the backward community of local Kamarhati municipality area.

iii) Collection of fund and relief goods for earth- quake victims of Nepal.

5.13 Major grievances of students (if any) redressed: 1

Major grievances obtained from the students **in the last session** and the modes of redressal are:

Grievances	Redressal
1. The students complained about a price hike in some food items served in the College Canteen.	1. The matter was dissolved in a meeting of student representatives with the Canteen committee.

## Criterion – VI

### **6. Governance, Leadership and Management**

#### 6.1 State the Vision and Mission of the institution

Vision – is embodied in Vivekananda’s the Upanishad: ‘Arise, awake and stop not till the goal is reached.’

The mission of the institution is to provide all around development of the students, nurture in them the spirit of cooperation, keeping space with the global changes in academic arena.

Mission of the College summarized through the following Vedic text  
“Charan bai madhu bindati charan swadudumbaran Suryasa pasya  
sromanam yon a tantrayate charan charai bati.”

#### 6.2 Does the Institution has a management Information System – The institution management interaction system which rests on two following vital pillars:

- ❖ The institution has built-up a comprehensive data base on students’ admission, evaluation, examination and attendance.
- ❖ All financial records are maintained in computer data base.

#### 6.3 Quality improvement strategies adopted by the institution for each of the following:

##### 6.3.1 Curriculum Development

1. The teachers who are members of Board of studies for U.G. in the parent University actively participate and contribute to the curriculum development.
2. All the P.G. departments formulate their respective syllabi and frame their question patterns, questions and evaluated the answer scripts, conducted viva-voce etc.

### 6.3.2 Teaching and Learning

Teaching aid	Assessment	Remedial/ Tutorial classes	Faculty Improvement Programme	Seminar/Special Talks
1. Black board/ White board, chalk/ marker pen and duster 2. Ancient Indian Map used by Dept. of Geography and History 3. Overhead projectors and LCD projectors 4. e-class room with smart board 5. Computers with Internet facility 6. Computer Lab equipped with C <sup>+</sup> , C <sup>++</sup> , SQL, VB and various other software 7. GPS (Geographical Positioning System)-Etrex-VIST, Rolta Geometica, 2013 are used by Dept. of Geography 8. Dept. of Chemistry uses-Stick and ball model, for illustrating the three dimensional structure of organic compounds 9. The Dept. of Zoology and Botany have museums enriched with specimen (collected from study trips) belonging to various taxa and plant kingdom respectively which are regularly used as teaching aids. 10. Audio-visual aids e.g. DVDs and CDs are used. 11. Virtual class room: College has set-up a 700 sq.ft virtual classroom named Vikram Sarabhai Virtual Classroom with state of art technology for teaching and learning online classes/ seminars / special lectures / conferences of other institution of repute may be attended by our students.	For UG:  1. Class Tests arranged by the respective dept.  2. Midterm Examination for 1 <sup>st</sup> year (Hons.) students, taken by the College.  3. Selection tests taken by the College.  For PG course:  1. Semester Examination  2. Dissertation Evaluation  3. Project paper presentation  4. Seminar defence  5. Viva-voce	1. Earlier it was done but for non availability of funds last year not conducted.  2. Tutorial classes are conducted for students and special classes are conducted for slow learners.	1. Faculties attend Refresher Courses, Orientation Programmes, Summer/Winter schools and workshops.  2. Leaves are granted generously by the authority to the teachers for the purpose.  3. Faculties are also encouraged to present paper in international /national seminar /conferences.	Science, Arts and Commerce departments organized seminars and special talks by the eminent educationist funded by Institution and U.G.C. from time to time in an academic session.

### 6.3.3 Examination and Evaluation

- The University norms are followed for examination and evaluation of UG students. The P.G. departments adopt the semester system
- Mid-term examination is conducted by the college for the 1<sup>st</sup> year Honours students.
- College conducts Test – Examinations for Part-I, Part-II and Part-III (Hons. + Gen.) prior to the finals, for all U.G. courses.
- The class tests are taken by all departments as and when required.

### 6.3.4 Research and Development

- A total of 27 teachers are pursuing their Ph.D. work.
- A total of three projects have been awarded by UGC to the College in the last academic year.

### 6.3.5 Library, ICT and physical infrastructure / instrumentation

- An e-class room with sitting capacity of 50
- 17 desktop and 1 new laptop having LAN connection have been added to the Library.
- Students avail free internet access in the Library.
- Various ICT tools photocopiers, scanners, printers are being used.
- There are seven Wi-Fi zones.
- Library has joined ENLIST programme (conducted by INFLIBNET). E-Journals and e-books can be availed by this.
- The library has installed library software KOHA compatible with Z39.50. Students can search books through OPAC.
- 16,000 retrospective conversion of bibliographic data taken up
- Xerox facility is available in the library with a nominal charge taken from students.
- Upgrading and expansion of the laboratories is continued.
- Virtual Class room

### 6.3.6 Human Resource Management

- **Different committees and cells** are formed viz. Students' Welfare Committee, Students' Attendance Committee, Disciplinary Committee, Grievance & Redressal Cell, Cell for Gender Sensitization etc. which take care of proper maintenance of academic and social environment of the College campus.
- **Different wings of the Students' Union** viz. Games and Sports Unit, Cultural Unit, Students' Welfare Unit under the guidance of teachers take an active part in human resource management.
- **The clubs viz. Nature Club, Dance Club, Debate Club, Photography Club have been formed** to give students greater exposure in Cultural field, Entrepreneurship, Public speaking, Sports and other extracurricular activities along with academics. Teachers and supporting staff actively participate in such events.

#### 6.3.7 Faculty and Staff recruitment

Twenty one teachers in substantive post have been recruited in the current session.

#### 6.3.8 Industry Interaction / Collaboration

IQAC is giving great thrust for such interaction and collaboration and exploring avenues to interact and directly collaborate with industries.

#### 6.3.9 Admission of Students

**On-line** admission is continued in both U.G. and P.G. Courses. Admission norms as laid down by the University are followed. Admission is done/made strictly on merit.

#### 6.4 Welfare schemes for

Teaching	Group Insurance + Employees' Co-operative
Non teaching	1. Staff health insurance is provided with death gratuity for accidental death benefit of Rs. 1,00,000.00 is given for non-teaching. 2. Apollo Health Scheme subsidized by College for Non-teaching staff. 3. Health scheme under ESI for contractual staff partially subsidized by college.
Students	<ul style="list-style-type: none"><li>• Concession in fees for needy students</li><li>• New India Assurance Company covers medical expenses under an Accident Insurance Scheme : Upto Rs. 20,000.00 benefit with an annual premium of only Rs. 10 per student.</li></ul>

#### 6.5 Total corpus fund generated

Corpus fund of more than Rs. 2,00,000.00 (Donated by Dr. A. Roychowdhury, retired Associate Professor of Geography Dept.)

College has generated fund of Rs. 1,19,573.00 from venue hiring for various examinations of Railway Recruitment Board, CA, etc. in the current session.

6.6 Whether annual financial audit has been done

Yes

☒

No

☐



6.7 Whether Academic and Administrative Audit (AAA) has been done?

Audit Type	External		Internal	
	Yes/No	Agency	Yes/No	Authority
Academic	No*	–	–	–
Administrative	Yes	Appointed by the College Authority	Yes	CA. Suman Chaudhuri

\*Formal academic audit is not initiated. Academic data regarding laboratory up-gradation, Library enrichment, faculty strength and subsequent quality improvement is sent to the State Council of Higher Education for inspection.

6.8 Does the University/ Autonomous College declares results within 30 days?

For UG Programmes	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
For PG Programmes	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

(P.G. results are published within 4 to 5 weeks after completion of examination)

6.9 What efforts are made by the University/ Autonomous College for Examination Reforms?

The College does not have any scope for examination reforms. It follows the norms of the parent University.

- College conducts a mid-term exam for 1<sup>st</sup> year (Hons.) students

6.10 What efforts are made by the University to promote autonomy in the affiliated/constituent colleges?

Not applicable

6.11 Activities and support from the Alumni Association

The Alumni Association ‘ABAHAMAN’ of the College performs enthusiastically in various cultural events and social functions

Some of our local Alumni run an organization named “Belgharia Well Wishers”. They undertake various social outreach activities in the locality.

Alumni Association has organized two awareness programmes on Diabetes and Thalassemia in the College.

The alumni, particularly of the P.G. courses, often participate in the departmental seminars.

6.12 Activities and support from the Parent – Teacher Association

Parent-Teacher meetings are held for the 1<sup>st</sup> year honours students by each department. Many of our students being first generation learners, the teachers give a lot of effort to aware the parents of the new comers on the academic pursuit as well as career aspect of their wards.

#### 6.13 Development programmes for support staff

College regularly updates different software as and when required by the administration, library and different departments. The support staff are encouraged and trained with these software's for better human resource management.

#### 6.14 Initiatives taken by the institution to make the campus eco-friendly

- 1) A nature Club 'Pranarav' has been formed which focuses on holistic and sustainable development of surrounding.
- 2) Nature club and NSS takes up a tree plantation programme every monsoon.
- 3) It is a tobacco-free campus.
- 4) Green corner has been established.
- 5) The College is a plastic free zone.
- 6) E-waste disposal is done through an agency.

## Criterion – VII

### 7. Innovations and Best Practices

7.1 Innovations introduced during this academic year which have created a positive impact on the functioning of the institution. Give details.

- The ‘**Special talks**’ delivered by eminent educationists have created great academic interest amongst students.
- The seminars where students were the speakers were held with a competitive angle and **best speaker from each department was awarded by IQAC.**
- Best Wall Magazine award was given by IQAC and students published such magazine with great enthusiasm.

7.2 Provide the Action Taken Report (ATR) based on the plan of action decided upon at the beginning of the year

- i) A prayer for Rs. 40 lakhs (2<sup>nd</sup> phase) has been sent to U.G.C. for the completion of the **swimming pool.**
- ii) A **Medicinal Garden** named Niramoy Nikunj (Niramoy means healing and Nikunj means garden together meaning healing garden) of about 600sq.ft. area with 28 varieties of herbal plants and more than 60 varieties of medicinal plants in our College premise by the department of Botany. Financial support is given by the College for initial phase and a prayer for a grant has been sent to the Waste Land Development Corporation, Government of West Bengal (undertaking).
- iii) A project on Rainwater harvesting has been undertaken in the college campus. Four ‘**Meg-Kalas**’ (Meg means cloud, here meaning rain and Kalas means big earthen pot in Bengali language) have been set-up in the campus with 7000 litres of water storage capacity.

7.3 Give two Best Practices of the institution (*please see the format in the NAAC Self-study Manuals*)

The two “Best Practices” inculcated by the Institution are:

- 1 Operation Green Neighbourhood
2. Development of Prantick Nagar Slam Area (Belgharia)

***\*Provide the details in annexure (annexure need to be numbered as i, ii,iii)***

7.4 Contribution to environmental awareness / protection

- ✓ A **Nature Club ‘PRANARAV’** has been formed to make our students aware about protection of nature & environment. Plantation of saplings for green cover, posterage and exhibition of wild life photographs of endangered species and naming of trees in the campus (scientific & common) has been undertaken.
- ✓ The **Department of Zoology** has constructed an “**Odonate Diversity Chart**” having more than 20 species.
- ✓ Creation of Green Corner for environmental awareness / protection.
- ✓ College is a Plastic free zone.

7.5 Whether environmental audit was conducted? Yes ☒ No ☐

A group of teachers from different departments have conducted an environmental audit considering certain parameters and factors.

7.6 Any other relevant information the institution wishes to add. (for example SWOT Analysis)

<b>Strength</b>	<ul style="list-style-type: none"><li>■ Catering to the socio-economically backward section of society, including the minority section.</li><li>■ A total of 196 computer terminals are presently working out of which 176 have been connected through LAN in the College. All departments have computer facilities.</li><li>■ Free Internet access for students.</li><li>■ Feedback from stakeholders are considered while formulation the plan of action for institutional growth.</li><li>■ An e-class room named after Dr. Abdul Kalam with 50 sitting capacity.</li><li>■ A virtual class room (named Vikram Sarabhai) of 900 sq.ft with all state of the art technology has been set-up in this academic session.</li></ul>
<b>Weakness</b>	<ul style="list-style-type: none"><li>◆ Lack of active involvement of a large percentage of guardians.</li><li>◆ Presently, faculties are not permitted by the University to take students for Ph.D. Course.</li></ul>
<b>Opportunities</b>	<ul style="list-style-type: none"><li>☞ Institution can make greater use of its infrastructure (Indoor Sports Complex, Gymnasium, College ground) by letting out to outside agencies for various activities.</li><li>☞ Career-development and placement cells need to take further steps for on-campus placements.</li></ul>
<b>Challenges</b>	<ul style="list-style-type: none"><li>● Compelled to lower the cut-off marks for admission of students due to the migration of meritorious students to nearby colleges under Calcutta University.</li></ul>

## 8. Plans of institution for next year

<ol style="list-style-type: none"><li>1) Completion of Swimming Pool</li><li>2) Construction of an elevator</li><li>3) Setting up of new research laboratory and class rooms.</li><li>4) The solar cell plant installed will be further expanded depending on availability of fund.</li></ol>
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**Name:- Dr. Probir Karar**

\_\_\_\_\_  
*Signature of the Coordinator, IQAC*

**Name:- Dr. Minakshi Ray**

\_\_\_\_\_  
*Signature of the Chairperson, IQAC*

\*\*\*

## BHAIRAB GANGULY COLLEGE

(Government Sponsored)

'A' Accredited Institute by NAAC

Belgharia, Kolkata - 700056

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### Excerpt from the proceedings of the Governing Body meeting

held on 11-01-2018 under Item No. 04

Annual Quality Assurance Report for the year 2015-16 and 2016-2017 prepared by the IQAC was placed before the Governing Body for consideration and suggestion. While appreciating the report prepared by the members of Internal Quality Assurance Cell, the House stressed upon the innovations to be incorporated in the area of academics, teaching learning as well as infrastructure and other extension initiatives keeping parity with the approaches and endeavours floating around the arena of higher education.

Sd/-

President, Governing Body

Attested

  
(Dr. S. K. Das)

Vice-Principal

*Vice Principal*  
Bhairab Ganguly College  
Belgharia, Kolkata - 56

## **Institutional Academic Calendar for U.G.**

■ July, 2016	1 <sup>st</sup> July – First working day starts, Admission process of 1 <sup>st</sup> year students continues and 3 <sup>rd</sup> year classes will commence during 3 <sup>rd</sup> week after WBSU Exam.
■ August, 2016	1 <sup>st</sup> year & 2 <sup>nd</sup> year classes will commence, Independence Day Celebration by NSS, Tree Plantation Programme.
■ September, 2016	3 <sup>rd</sup> September – College Foundation Day Celebration and Prize distribution ceremony, Freshers' Welcome organized by Students' Union.
■ October, 2016	Puja Vacation from 6 <sup>th</sup> October, 2016.
■ November, 2016	College resumes on 3 <sup>rd</sup> November, 2016 after Puja vacation and Publication of College Magazine and Departmental Wall Magazines.
■ December, 2016	Mid-Term Test for 1 <sup>st</sup> year students, Annual Sports (Indoor & Outdoor)
■ January, 2017	Selection Test for 3 <sup>rd</sup> year students, Students' Union Election, Netaji Birthday Celebration, Republic Day Celebration by NSS.
■ February, 2017	Selection test for 2 <sup>nd</sup> year students.
■ March, 2017	Selection test for 1 <sup>st</sup> year students, College Social and 7-Day NSS Camp
■ April, 2017	WBSU Examination
■ May, 2017	WBSU Examination, Summer Recess from 16 <sup>th</sup> May and Admission for 1 <sup>st</sup> year students.
■ June, 2017	WBSU Examination, Summer Recess and Admission for 1 <sup>st</sup> year students.

(This calendar is tentative and provisional; College authority may change the schedule if needed)

**BHAIRAB GANGULY COLLEGE**  
**Belgharia, Kolkata-700056**  
**Affiliated to**  
**West Bengal State University**  
**Syllabi of First Semester, P.G. Course in Geography**  
**(Effective from 25<sup>th</sup> August, 2015)**

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**Module- 101; Geotectonics And Geomorphology (50 marks)**

**Unit – I : Geotectonics:**

- 1.1 Plate Tectonics as unified theory of global tectonics.
- 1.2 Tectonic activities along the continental margins.
- 1.3 Geomagnetism with reference to sea floor spreading.
- 1.4 Formation and structure of Himalayas.

**Unit – II : Concepts of Geomorphology:**

- 2.1 Concept of scale, threshold, feedback.
- 2.2 Climatic Geomorphology and Morphogenetic Region.
- 2.3 Models of slope evolution: Davis, Penck, King, Young.
- 2.4 Geochronology: Principles and methods of dating.

**Unit – III : Process Geomorphology:**

- 3.1 Periglacial Environment: Process and landform.
- 3.2 Coastal morphodynamic variables and their influence on coastal form.
- 3.3 Fluvial morphodynamic variables and form.
- 3.4 Evolution of landform in Karst region.

**Unit – IV : Applied Geomorphology:**

- 3.1 Landslide: vulnerability, consequence and management.
- 3.2 Floods: Geomorphic effects; Flood mitigation strategies.
- 3.3 Application of Geomorphology in terrain evolution and hydrological planning.
- 3.4 Geomorphic feasibility assessment of industrial and urban projects.

**Module- 102; Climatology (50 marks)**

**Unit – I : Concepts and Elements:**

- 1.1 Concepts of macro, meso and micro climate and their significance.
- 1.2 Vertical temperature Distribution - Lapse rate: Factors and types, Temperature inversions: cause and consequences.
- 1.3 Wind system: Factors controlling wind circulation: Primary, Secondary and Tertiary Jet streams and Index cycle.
- 1.4 Air mass: source, modification and classification; Influence of airmass on regional climate.

## **Unit – II : Atmospheric Moisture and Instabilities::**

- 2.1 Atmospheric moisture: evaporation, condensation, cloud formation and precipitation.
- 2.2 Stability and Instability of the atmosphere.
- 2.3 Tropical cyclones with reference to India; Case studies with reference to its impact and management.
- 2.4 Thunderstorm, Tornadoes, Andhi and Loo: Genesis, distribution and impact.

## **Unit – III : Trends of Global Climate:**

- 3.1 Scientific evidences and reconstruction of Past Climate.
- 3.2 Theories of climate change.
- 3.3 Climate trends in the Holocene Period.
- 3.4 Recent trends of global climate.

## **Unit – IV : Applied Climatology:**

- 4.1 Approaches and techniques of weather forecasting.
- 4.2 Agro-climatology; Crop calendar; Agro-climatic regions.
- 4.3 Urban climate; Concept of heat island and dust dome.
- 4.4 Man's response to weather and climate.

## **Module- 103; Population and Settlement Geography (50 marks)**

### **Unit – I : Population Characteristics**

- 1.1 Population characteristics (Fertility, Mortality and Migration with reference to developed and developing countries; Population Policies in India.
- 1.2 Population Growth: Theories and models.
- 1.3 Population Quality: literacy, occupation and health.
- 1.4 Population composition.

### **Unit – II : Mobility And Migration**

- 2.1 Factors, Process and types of Mobility; Rural-urban dimensions.
- 2.2 Laws of migration: Gravity model; Lee's model, Ravenstein's model
- 2.3 Population: Displacement and vulnerability.
- 2.4 Problems of exclaves and enclaves.

### **Unit – III : Rural Settlement**

- 3.1 Sites and situation, types and size.
- 3.2 House types and internal morphology.
- 3.3 Hierarchy of Rural Settlements.
- 3.4 Rural service centres; PURA.

### **Unit – IV : Urban Settlement**

- 4.1 Census categories of urban settlements.
- 4.2 Morphology of towns: classical and modern models.



- 4.3 Urban function and hierarchy.
- 4.4 Concept of New Tower, Satellite Towers, Smart city, Urban corridor, Periurban.

### **Module- 104; Resource Appraisal And Management (50 marks)**

#### **Unit – I : Global Perspectives of Economic Resources**

- 1.1 Post-Rio Resources Definition; Resource Process; Resource System.
- 1.2 Concept of Free Goods, Economic Goods and Common Goods, LPG Model.
- 1.3 Population Resource Region: Ackerman's Classification.
- 1.4 Geodemographics, Marketing and Retail Location Analysis.

#### **Unit – II : Environmental Resource Utilization**

- 2.1 Informal Sector Activity in the Third world cities: Contribution and conflicts.
- 2.2 Use and misuse of land: Problem associated with derelict and vacant land.
- 2.3 Landuse conflict of the urban fringe.
- 2.4 Rural accessibility and infrastructure.

#### **Unit – III : Environmental Resource Management –I**

- 3.1 Land Resources: EIA and EIS.
- 3.2 Water Resources: Pollution and Purification.
- 3.3 Forest Resources: PFM.
- 3.4 Energy Resources: Alternate energy sources; Solar, Wind, Bio-fuel, OTEC.

#### **Unit – IV : Environmental Resource Management –II**

- 4.1 Principles and Practices of resource utilization; Life Cycle Assessment (LCA), Ecolabelling, Green Marketing, Green Accounting.
- 4.2 Floating human resource, Surplus man-power.
- 4.3 Cyber-crime : Preventive measures.
- 4.4 ICT and resource and man-brain mobility & waste management.

### **Module- 105; Statistical Methods in Geography and Computer Application**

#### **Group-A : Statistical Methods (30 Marks)**

- 1. Probability – normal, poisson and binomial.
- 2. Concept of covariance, correlation and regression – bivariate. Bivariate analysis – linear, exponential, power; explained variance, residuals – mapping of residuals.
- 3. Inferential statistics – samples and population sampling distribution, standard error of mean and best estimates of standard deviation, concept of random numbers.
- 4. Hypothesis testing, Formulation, Rejection rules, one and two tailed tests, significance level, degrees of freedom, type I and type II error, large samples and small samples.
- 5. Students' t-test, Chi-Square test.
- 6. Geographical data and multivariate analysis.
- 7. Elementary ideas and exercises in matrix algebra.

#### **Group-B : Computer Application for Descriptive Statistics**

**(10 Marks)**

1. Tabulation, frequency distribution, cumulative frequency distribution, Mean, Median, Mode, Standard deviation, Mean deviation.
2. Histogram, scatter diagram.
3. Correlation and Regression.
4. Time Series data analysis.

**Laboratory Note Book and Viva-Voce(5+5 = 10 Marks)**

**Proposed Syllabi of Second Semester, P.G. Course in Geography  
(Effective from January, 2015 session)**

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**Module- 201; Hydrology And Oceanography (50 marks)**

**Unit – I : Fundamentals of Hydrology**

- 1.5 Nature and Recent Trends in Hydrology.
- 1.6 Global distribution of water and Global Hydrological Cycle; Concept of Water Budget.
- 1.7 Concept, Measurement and Estimation of Precipitation, Evaporation and Evapotranspiration.
- 1.8 Concept of interception storage, detention storage, overland flow, subsurface flow and ground water flow.

**Unit – II : Surface Hydrology**

- 2.1 Runoff : Definition, factor & Cycle.
- 2.2 Hydraulic Parameters: Width, Depth, Velocity and Discharge; Types of Flow, Reynolds's Number, Froude's Number.
- 2.3 Concept of typology of hydrographs.
- 2.4 Hydrologic design:(Dams, Barrages, Canals and Bridges)

**Unit – III : Groundwater Hydrology**

- 3.1 Sources and types of underground water.
- 3.2 Movement of Groundwater; Application of Darcy's Law.
- 3.3 Physical and Chemical properties of underground water.
- 3.4 Causes and consequence of groundwater depletion and decreased recharge rate.

**Unit – IV : Oceanography**

- 4.1 Evolution and Morphological characteristics of ocean basins.
- 4.2 Coral reefs: Conditions of growth; Theories of formation, Vulnerability to recent environmental changes.
- 4.3 Physical and chemical properties of ocean water.
- 4.4 Concept of Watermass and circulations; Ocean-Atmosphere Interactions.

**Module- 202; Soil and Biogeography (50 marks)**

**Unit – I : Soil Environment and Processes of Profile Development:**

- 1.1 Physical environment of Soil: Temperature, Moisture and Air.
- 1.2 Chemical Element – organic matter soil reaction, base change, fertility.

- 1.3 Soil forming processes: Humification, Ferrallitization, Podsolization, Calcification and Gleization
- 1.4 Soil Profile Development in Humid Tropics, Temperate Grassland and Boreal.

**Unit – II : Soil Degradation and Management:**

- 2.1 Soil Erosion: Processes and Controls
- 2.2 Soil Pollution: Causes, Consequences and Management
- 2.3 Soil degradation: case studies of India
- 2.4 Soil Conservation: Approaches & methods

**Unit – III : Ecosystem and Ecology:**

- 3.1 Concept of Ecology Ecosystem and Habitat
- 3.2 Biotic Community: Genera, Species, Succession, Law of Tolerance
- 3.3 Distribution of Animal Species: Causes of migration, Dispersal
- 3.4 Biodiversity: Types, Hotspot, Loss and Conservation, Bioprospecting

**Unit – IV : Applied Biogeography:**

- 4.1 Animal welfare: Cruelty to animals.
- 4.2 Biodiversity Documentation: People's Ecological Knowledge.
- 4.3 Conservation of coastal and mountain biosphere
- 4.4 Utilization of biotic resources; Forest Policies in India.

**Module- 203; Social and Cultural Geography (50 marks)**

**Unit – I : Concept of Social Geography:**

- 1.1 Social Structure and Social Groups
- 1.2 Social Ecology, Social Change and Social well-being.
- 1.3 Social Environmental Issues, social justice
- 1.4 Concept and Theories of deviant behaviour: Deterministic Theory and Structuralist Theory.

**Unit – II : Issues Related to Rural and Urban Society:**

- 2.1 Accessibility to Service and Amenities, Transport, Drainage, Sanitation and Medical Care.
- 2.2 Social Stratification and Class: Rural and Urban.
- 2.3 Planning and Urban Environment; Strategies of Town and Country Planning in India.
- 2.4 Kolkata Metropolis – Changing urban landscape and its social impact.

**Unit – III : Cultural Perspectives and Issues:**

- 3.1 Evolution of major Cultural Hearths; Cultural Diffusion and Cultural Regions.
- 3.2 Cultural transformation: Acculturation, Sanskritization, Westernization
- 3.3 Cultural Globalization and its impact on regional cultures.
- 3.4 Cultural diversity: Race, Ethnicity and Gender.

**Unit - IV : Tribes in India:**

- 4.1 Cultural differentiation of Indian tribes.
- 4.2 Major tribes in India: Distribution and Characteristic.

- 4.3 Habitat, economy and society of any two major tribes of India.  
 4.4 Tribal Development and planning in Indian context.

### **Module- 204; Historical and Political Geography (50 marks)**

#### **Unit – I : Historical Geography: History and Development**

- 1.1 Role of Historical documents in the development of Geography with special reference to India: Literatures, Travel Accounts, Archives and Chronicles.  
 1.2 Evolution of maps in the making of Historical Geography; Territorial organization in India: Ancient, Medieval and Colonial period.  
 1.3 Trends of agriculture in pre and post-Colonial and its socio-economic implications.  
 1.4 Historical trends of urbanization in India; in relation to trade and commerce.

#### **Unit – II : Political Geography: Concepts and Theories**

- 2.1 Nature and scope of political geography; Relationships with the other branches of Geography.  
 2.2 Phases of political geography - Pre-modern phase, modern phase (1900 onwards)  
 2.3 Concept of Geo-Politics and evolution of Geo-strategic views; Idea of State, Nation and Nation-state.  
 2.4 Frontiers and Boundaries; Buffer states and Land-locked states.

#### **Unit - III: International Relationships of India**

- 3.1 Geopolitical significance of SAARC, International trade relations.  
 3.2 Politics of World resources: oil and water.  
 3.3 Economic and Political blocs  
 3.4 Boundary dispute and Cross-border terrorism.

#### **Unit - IV : Geo-political Scenario in India**

- 4.1 Changing political maps of India since independence.  
 4.2 Emergence of new states in India.  
 4.3 Concept of Regionalism: Interstate dispute on water and labour migration.  
 4.4 Contemporary issues of electoral Geography in India.

#### **Books:**

1. Acemoglu, D. and Robinson, J. (2013): *Why Nations Fail: The Origin of Power, Prosperity and Poverty*, Crown, London
2. Adhikari, Sudeepta (1997): 'Political Geography', Rawat Publications, Jaipur
3. Dikshit, R. D. (1994): 'Political Geography', Tata MacGraw Hill Publication, New Delhi
4. Williams, G., Meth, P. and Willis, K. (2009): *Geographies of Developing Areas: The global south in a changing world*, Routledge, London

### **Module- 205: Interpretation of Maps and Advanced Surveying (50 marks)**

#### **Unit I Interpretation of Maps**

**20 Marks**

1. Hypsometric curve and integral; Ruggedness, Dissection index.
2. Identification of Channel pattern: Straight, Sinuous, Meandering and Braiding.
3. Nearest Neighbour Analysis, Accessibility by Detour index.

4. Interpretation of Geological maps: Complex folds and faults including intrusions.

### **Unit II Advanced Surveying**

**20 Marks**

1. Theodolite Survey: Principles, Determination of height and distance with accessible and inaccessible bases.
2. Contouring by Theodolite Tachaeometry/ Total Station.
3. Global Positioning System (GPS) as a practical field work tool: Principles, uses and applications; Concept of Survey of India and WGS 84 datum.
4. GPS: Data acquisition, Data download to PC, Data plotting.

### **Unit-III: Laboratory Note Book and Viva Voce** **10 Marks**

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**Proposed Syllabi of Third Semester, P.G. Course in Geography**  
**(Effective from July, 2015 session)**

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**Module- 301: Philosophy of Thought (50 marks)**

#### **Unit – I : Genesis of Geographical Thought:**

- 1.1 Place of geography in the classification of knowledge. Changing definitions of geography
- 1.2 Contributions of Greek, Roman and Arab Geographers
- 1.3 Emergence of modern geography since Charles Darwin's era
- 1.4 Impact of World War II on Geographical Thought.

#### **Unit-II : Paradigm shift in Geography:**

- 2.1 Hartshorne and Schaefer debate
- 2.2 Colonialism and post colonialism.
- 2.3 Post-structuralism.
- 2.4 Modernism and Post-modernism.

#### **Unit-III : Geography of Inequality and Welfare:**

- 3.1 Critical theory and its implications: Habermas and Peet
- 3.2 Geography of inequality, social wellbeing and welfare approach
- 3.3 Sustainability and Globalization
- 3.4 Geography of Gender

#### **Unit-IV : Changing Face of Geography:**

- 4.1.1 Changing nature of man-environment relation and revival of ecological approach
- 4.2 Spatial Theory and Systems Analysis in Geography
- 4.3 Role of Laws, Theories and Models in Geography
- 4.4 Trends in Indian Geography

### **Module- 302: Research Methodology (50 marks)**

#### **Unit – I : Principles of Geographical Research**

- 1.1 Identification of research problem and selection of study area.
- 1.2 Specifying the objectives and framing research questions.
- 1.3 Literature Review: Exploring the relevant sources.
- 1.4 Formulation of research hypothesis.

#### **Unit – II : Methodology in Geographical Research**

- 2.1 Applicability of quantitative and qualitative methods.
- 2.2 Inventory and use of secondary data sources.
- 2.3 Field methods in physical geography: Instrument-based study, sample collection and field verification of secondary data.
- 2.4 Field methods in human geography: Preparation of survey schedule and questionnaire.

#### **Unit – III : Presentation of Research and Report Writing**

- 3.1 General principles of report writing and seminar presentation.
- 3.2 Principles of hypothesis testing and drawing conclusion.
- 3.3 Style of referencing, Preparation of glossary, bibliography.
- 3.4 Editing, preparation of content, page arrangement and set-up.

#### **Unit – IV : Advanced Statistics**

- 4.1 Geographical data application of multivariate analysis.
- 4.2 Principles and methods of Multiple and Partial Correlation Analysis.
- 4.3 Principle Component Analysis.
- 4.4 Factor Analysis.

### **Module- 303: Special Paper--Advanced Geomorphology I (50 marks)**

#### **Unit –I : Geomorphic Concepts:**

- 1.1 Place of Geomorphology in science and society.
- 1.2 Major Geomorphic concepts – uniformitarianism, catastrophism, system approach, threshold and equilibrium.
- 1.3 Space and time in Geomorphology.
- 1.4 Paleogeomorphology: Concept and techniques.

#### **Unit –II : Coastal Geomorphology:**

- 2.1 Coastal Morphodynamics, Relative dominance of Wave, Tidal and Fluvial processes in Coasts.
- 2.2 Processes and effects of Bioturbation, Bio-tidal accretion, Coral formation and Storm surge/tsunamis in coasts.
- 2.3 Formation and Classification of Coastal Landforms with special reference to Beach Topography, Coastal Dunes and Deltas.
- 2.4 Quaternary shoreline changes: causes and evidences.

#### **Unit -III : Fluvial Geomorphology**

- 3.1 Hydraulics and Hydrological properties of Channels: Regime, Velocity, Discharge and Energy. Factors controlling Entrainment, Transportation and Deposition by running water.
- 3.2 Morphological properties and modification of channels: profiles, platforms and patterns.

- 3.3 Formation, system of change and Classification of Fluvial Landforms with special reference to Badlands, Terraces, Alluvial Fans and Floodplains.
- 3.4 Quaternary fluvial systems with reference to river metamorphosis.

**Unit –IV : Tropical Geomorphology:**

- 4.1 Definition and boundary of Humid Tropics. Their climatic and vegetation characteristics.
- 4.2 Geomorphic processes and landforms of Humid Tropics.
- 4.3 Factors and Processes of Deep Weathering with special reference to formation of tors, domed Inselberges and Laterite Duricrusts.
- 4.4 Karstic processes and forms in Humid Tropics with special reference to Tower and Cone Karsts.

**Module- 303: Special Paper-- Social Environment And Welfare Geography I (50 marks)**

**Unit –I : Social Environment: Concept & Issues:**

- 1.1 Concept of social development and social justice
- 1.2 Issues of deprivation (against women, transgender underprivileged children and aged)
- 1.3 Politicization of different social groups.
- 1.4 Constitutional provisions for empowerment of weaker sections

**Unit –II : Resource and development:**

- 2.1 Human Resources: Issues of Development
- 2.2 Policies of infrastructural development: transport, sewerage, health and drinking water
- 2.3 Sustainable Development Policies and Instruments
- 2.4 Sustainable development in terms of Energy, Water Use and other Land Utilization

**Unit –III : Welfare Issues:**

- 3.1 Empowerment of women and transgender.
- 3.2 Issues related to subalterns and first generation migrants
- 3.3 Problems of pavement dwellers and hawkers
- 3.4 Rural and urban poverty

**Unit –IV : Contemporary Issues of Change:**

- 4.1 Mass Media as a driving force in socio-economic change
- 4.2 Indian Movies : its reflection on society and vice-versa in space and time
- 4.3 Social networking and related issues
- 4.4 Globalisation : Instruments of change of economy and society.

**Module 303: Special Paper-- Applied Climatology I (50 marks)**

**Unit I : Basic Concepts and Methods**

- 1.1 Definition, importance, relation with sister disciplines; contemporary trends
- 1.2 Principles and measurement of radiation, electromagnetic spectrum atmospheric and soil temperature, humidity and dew point, precipitation, cloud, dew, hail, fog, snow and frost, evaporation and evapotranspiration, air movements
- 1.3 Concept and definition of temperature, humidity, dew point
- 1.4 Techniques of measurement and recording of weather data

## **Unit II : Broad climatic zones, adaptation and climatic classification :**

- 2.1 Tropical weather and climate : Tropical airmasses and circulation systems sea interactions: El Nino formation, ocean oscillation and their impacts.
- 2.2 Types and nature of 'Tropical Climate'
- 2.3 Special climates: Mountain, Continental and Coastal
- 2.4 Principle and methodology of applied climatic classification—Thornthwaite and Mather

## **Unit III : Micro climate, modification of weather and climate :**

- 3.1 Special feature of tropical urban climate.
- 3.2 Urban surface: modification of atmospheric composition, heat budget, surface characteristics: Wind circulation and effect on pollution.
- 3.3 Artificial weather making and weather modification, and their implications.
- 3.4 Boundary layer climate: vegetated surface—forests---modification of energy transfer, air flow, humidity, thermal environment.

## **Unit IV Impact of weather and climate:**

- 4.1 Soil, water, vegetation, wildfire, air quality and energy production.
- 4.2 Agriculture, irrigation, ground water recharge, water resource management.
- 4.3 Industry, settlement, and architectural planning, dress.
- 4.4 Transport and tourism

## **Module- 304: Map Projection and Quantitative Techniques (50 marks)**

### **Unit – I : Map Projection**

**20 Marks**

- 1.1: Map Projection: Definition, principles and purpose.
- 1.2: Zenithal group of projections -- Equal area, Equidistant, Orthographic in one net (Polar case only).
- 1.3: Conical projection with two standard parallels, Uninterrupted Sinusoidal projection.
- 1.4: Mercator's projection, UTM.

### **Unit-II : Quantitative techniques**

**20 Marks**

- 2.1: Exponential growth curve and population projection.
- 2.2: Mean centre of population and its shift.
- 2.3: Standard distance from mean centre of population.
- 2.4: Population potential using Gravity Model.
- 2.5: Index number: consumer price index.
- 2.6: Location Quotient and Z-Score.

Unit-III : Viva Voce on Laboratory Note Book

**10 Marks**



**Module- 305: Remote Sensing and Geographical Information System (50 marks)****Unit I : Remote Sensing****20 Marks**

- 1.1: Concept and Principles of Remote Sensing.
- 1.2: Common types of IRS and Landsat sensors and their characteristics.
- 1.3: Extraction of spectral signature of different Land Use and Land Cover features from satellite data.
- 1.4: Image georeferencing, mosaicing, preparation of color composites and image enhancement.
- 1.5: Image classification: Supervised and Unsupervised, accuracy assessment of classified images.

**Unit-II : Geographical Information System****20 Marks**

- 2.1: Vector layer generation, editing of vector layer.
- 2.2: Attachment of attribute tables and spatial analysis.
- 2.3: Preparation of thematic maps and change detection.
- 2.4: Preparation of Digital Elevation Models (DEM) from satellite data and spot heights.

**Unit-III : Laboratory Note Book and Viva Voce****10 Marks**

**Proposed Syllabi of Fourth Semester, P.G. Course in Geography  
(Effective from January, 2016 session)**

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**Module- 401; Geography of India (50 marks)****Unit – I : Regions of India**

- 1.1 Different schemes of classification of Indian regions; Problems of regional delineation.
- 1.2 Physiographic regions
- 1.3 Agro-climatic regions
- 1.4 Planning regions

**Unit – II : Resources**

- 2.1 Energy Resource, crisis, and policies
- 2.2 Forest Resource: Management and wildlife conservation
- 2.3 Agricultural Resource: Cropping Pattern, Crop combination and Crop intensity; Land Reforms in India.
- 2.4 Changing Pattern of Industrial Activities and Locations – Iron & Steel, Petrochemical, IT, e-commerce, tourism, SEZ.

**Unit – III : Population, Technology and Development**

- 3.1 Population problems & policies, food security.
- 3.2 Strategies for development of backward areas.
- 3.3 Human and gender disparity in India.
- 3.4 Space Technology for furtherance of Development.

**Unit - IV : Geography of Deltaic West Bengal**

- 4.1 Hydromorphological characteristics: Geomorphic units, changes in surface hydrology.
- 4.2 Problems of flood, drought and ground water contamination.
- 4.3 Population dynamics: Growth, migration and changing composition.
- 4.4 Agricultural and Industrial scenario: Problems and prospects.

**Module- 402: Geography of Environment and Development (50 marks)****Unit – I : Mans' Adaptation to Environment:**

- 1.1 Principles of ecology, Human ecology
- 1.2 Ecological challenges and imbalances (Global and Local)
- 1.3 Ecological Adaptation of man in a rural environment
- 1.4 Environmental problems of the urban areas

**Unit – II : Environmental Consequences of Developmental Activities:**

- 2.1 Agriculture: use of fertilizers, insecticides and pesticides
- 2.2 Ground Water Contamination: sources, mechanism and mitigation
- 2.3 Soil erosion: problems and management
- 2.4 Industry: Air pollution, water pollution, radio-active pollution

**Unit – III : Environmental Education and Sustainable Development:**

- 3.1 Environmental Education and Legislation
- 3.2 Sustainable Development: policies and instruments
- 3.3 Environmental movements with special reference to India
- 3.4 Earth summit and Agenda 21

**Unit – IV : Environmental degradation and conservation:**

- 4.1 River valley planning and environmental impacts
- 4.2 Urban industrial expansion and ecological consequences
- 4.3 Problems of Wetlands and their management
- 4.4 Environmental impacts of exploitation of marine resources

## **PECIAL PAPER : ADVANCED GEOPMORPHOLOGY**

### **Module- 403; Advanced Geomorphology II (50 marks)**

#### **Unit –I : Fundamentals of Applied Geomorphology:**

- 1.1 Applied Geomorphology: Nature and objectives
- 1.2 Application of Geomorphology in terrain evaluation, EIA and EMP.
- 1.3 Principles of Integrated Drainage Basin Management.
- 1.4 Integrated Coast Zone Management.

#### **Unit –II : Geomorphologic Hazards and their management:**

- 2.1 Geomorphic approach to hazard studies
- 2.2 Management of Flood.
- 2.3 Management of coastal erosion
- 2.4 Management of landslide

#### **Unit – III : Management of Geomorphic Problems**

- 3.1 Management of Mining Subsidence with special reference to Coal Belts of Raniganj and Darjiling hills.
- 3.2 Management of River Discharge and its effect with special reference to Damodar Valley Corporation and Farakka Barrage Project.
- 3.3 Management of Urban Water Supply and Disposal with special reference to Kolkata.
- 3.4 Management of Reclaimed Coastal areas with special reference to Indian Sundarban.

#### **Unit –IV : Studies of selected Geomorphic landscape units**

- 4.1 Lower Ganga Delta in West Bengal
- 4.2 Lateritic badlands of Rarh Bengal
- 4.3 Alluvial fans of North Bengal
- 4.4 Shoreline dynamics of coastal Medinipur

### **Module- 404; Advanced Geomorphology Practical (50 marks)**

- Unit - I :** Geomorphological Mapping based on field study (10)
- Unit – II :** Generation of DEM from SRTM data and generation of long and cross profiles of Rivers (10)
- Unit - III :** Study of fluvial and coastal forms based on field observation and satellite images (10)
- Unit- IV :** Calculation of velocity and discharge of a Channel, computation of hydraulic geometry from field data. (10)
- Unit – V :** Analysis of pebbles and sediments: Shape indices, textural analysis by sieving. (5)
- Viva-voce on Lab Note Book.** (5)

### **Module 405**

#### **Group – A Dissertation**

**35 Marks**

Students will prepare a dissertation work related to special papers opted during the third semester and required to deliver a seminar lecture in the presence of the examiners and peers. A panel of examiners comprising of both internal and external shall evaluate the dissertation (20 marks) and the presentation (15 marks). The dissertation should be prepared on a specific geographic problem by an individual student under the supervision of a teacher, teaching the special paper. It should normally consist of not more than 30 pages of A4 size including maps, diagrams and photographs. The matter should be neatly presented, typed and duly certified by the supervisor.

#### **Group - B Group Project**

**15 Marks**

The students, in a group, shall prepare a project report on a local geographical problem, mainly based on primary data, under the supervision of a teacher. The report (10 marks) and group discussion (5 marks) will be evaluated by a board comprising of both internal and external examiners. The report should normally consist of not more than 20 pages of A4 size including maps, diagrams and photographs. The matter should be neatly presented, typed and duly certified by the teacher concerned.

## **(Special Paper)Module-403:**

### **Social Environment & Welfare Geography II(50Marks)**

#### **Unit-I: Social Welfare: Concept & Issues**

- 1.1 Concept of Social Welfare.
- 1.2 Social Wellbeing and its indicators: developed & developing Countries.
- 1.3 Social welfare approaches towards senior citizens
- 1.4 Issues related to workers in formal and a informal sectors.

#### **Unit-II: Crime & Social Welfare:**

- 2.1 Geography of crime and social welfare: Victims, Reporting and Recording.
- 2.2 Crime Detection, Prosecution and justice.
- 2.3 Criminal psychology; fear of crime, reducing crime.
- 2.4 Juvenile crime, drug addictions, trafficking against women and children.

#### **Unit-III: Disaster Management and Mitigation**

- 3.1 Concept – Objective and principles.
- 3.2 Disaster types – Policy and Preparedness.
- 3.3 Disaster Mitigation and Management.
- 3.4 Disaster management in West Bengal.

#### **Unit-IV: Social Well-being & quality of life in India**

- 4.1 Regional Variations in social well being & quality of life.
- 4.2 Employment patterns and Women in the workforce.
- 4.3 Population and welfare – education Health and other major welfare schemes of the govt.
- 4.4 Drinking Water supply: Urban and rural areas

### **Module-404 : Social Environment and Welfare Geography Practical .**

#### **Group – A: Practical (50 Marks)**

#### **Unit - I : Status of living--- A Quantitative Approach (20)**

Calculation of Cost of Living Index, Analysis of Income & Expenditure, Determination of HDI, GDI , MPI for micro-level units(rural / urban).  
Correlation regression analysis and curve Fittings- Literacy and income, in-migration and out migration of labour force, crime and justice, nutrition and health, poverty and population growth.

#### **Unit –II : Application of GIS in Human Geography (10)**

Computation and Mapping: Poverty (multidimensional poverty index), health and family welfare, crime and justice, slum, water supply etc. on selected parameters.

#### **Unit – III : Techniques of Qualitative Data Collection and Analysis (10)**

Focused Group Discussion, Case Study, Preparation of inventory and questionnaire to study social environment

#### **Viva –voce on Lab Note Book (5+5) =10**

## **Module 405**

### **Group – A Dissertation**

**35 Marks**

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### **Group - B Group Project**

**15 Marks**

The students, in a group, shall prepare a project report on a local geographical problem, mainly based on primary data, under the supervision of a teacher. The report (10 marks) and group discussion (5 marks) will be evaluated by a board comprising of both internal and external examiners. The report should normally consist of not more than 20 pages of A4 size including maps, diagrams and photographs. The matter should be neatly presented, typed and duly certified by the teacher concerned.

## **Special Paper: Applied Climatology**

### **Module- 403; Applied Climatology II [West Bengal & India] (50 marks)**

#### **Unit –I : Climate Controls and Seasonal Character of Weather and Climate:**

- 1.1 Geographical location and physical set up.
- 1.2 Winter season
- 1.3 Summer season
- 1.4 South West Monsoon and Retreating Monsoon seasons

#### **Unit –II : Special weather events, weather hazards and disasters; Nature of occurrence, impact and their management:**

- 2.1 Western disturbance, snowfall, cold wave.
- 2.2 Thunderstorm, nor'wester, tornado, hail storm, heat wave
- 2.3 Vagaries of monsoon – drought and flood.
- 2.4 Monsoon depression, pre and post monsoon cyclones.

#### **Unit –III : Climatic and agro-climatic regions of West Bengal and India; Climate change scenario :**

- 3.1 Climatic regions.
- 3.2 Agro-climatic regions.
- 3.3 Bio-climatic regions and human comfort.
- 3.4 Climate change scenario of West Bengal and India: Trends, implications and adaptive measures.

#### **Unit –IV : Agro-climatic scenario of West Bengal:**

- 4.1 Climatology of principal crops-Rice, wheat, mustard, cotton, jute and potato.
- 4.2 Agro-climatic crop planning, preparation of crop-weather calendar and its use.
- 4.3 Deposition of dew, its variation and impact.
- 4.4 Weather forecast and its use in agriculture; crop-weather advisory services.

### **Module- 404; Applied Climatology [Practical] (75 marks)**

#### **GROUP-A : Laboratory Works (50 marks)**

#### **Unit –I : Principles and use of meteorological instruments: (5+5=10)**

- 1.1 Sun-shine recorder, thermometers, thermograph, dry and wet bulb thermometers, barometer, wind vane, anemometer, soil thermometers, evaporimeter, rain gauge, dew gauge.
- 1.2 Visit to a meteorological / agro-meteorological station and preparation of report.

#### **Unit –II : Observation of meteorological instruments and recording of data: (10)** Temperature, air pressure, wind direction, wind speed, relative humidity, rainfall, evaporation, period of bright sun shine hours.

**Unit –III : Analysis of Weather Data:**

- 3.1 Trend analysis of rain fall and temperature, rainfall dispersion, co-efficient of variability of rainfall; Identification of agricultural drought from satellite images.
- 3.2 Estimation of growing season and wet period.

**Unit –IV : Analysis of Indian Daily Weather Report (IDWR) and Forecasting of weather: (15)**

- 4.1 Interpretation of Indian daily weather map for three consecutive days and issues of forecast for the fourth day.
- 4.2 Identification on IDWR: Western disturbance; situation favourable for fog over coastal West Bengal and Orissa; Norwester, Monsoon through, active monsoon, break of monsoon condition, Monsoon depression, cyclone and severe cyclone.
- 4.3 Preparation and interpretation of Weather / climatic hazards.

**Unit –V : Laboratory Note-book & Viva-voce: (5)**

**Module 405**

**Group – Dissertation**

**35 Marks**

Students will prepare a dissertation work related to special papers opted during the third semester and required to deliver a seminar lecture in the presence of the examiners and peers. A panel of examiners comprising of both internal and external shall evaluate the dissertation (20 marks) and the presentation (15 marks). The dissertation should be prepared on a specific geographic problem by an individual student under the supervision of a teacher, teaching the special paper. It should normally consist of not more than 30 pages of A4 size including maps, diagrams and photographs. The matter should be neatly presented, typed and duly certified by the supervisor.

**Group - B Group Project**

**35 Marks**

The students, in a group, shall prepare a project report on a local geographical problem, mainly based on primary data, under the supervision of a teacher. The report (10 marks) and group discussion (5 marks) will be evaluated by a board comprising of both internal and external examiners. The report should normally consist of not more than 20 pages of A4 size including maps, diagrams and photographs. The matter should be neatly presented, typed and duly certified by the teacher concerned.