STATISTICS

CLASS – XII

Theory = 80 marks
Internal = 20 Marks
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Total = 100 marks

GROUP – A

1. **Mathematical expectation:** Definition of random variable and expectation. Statement of theorem on the expectation of sum and product of several variables. (Proof not necessary) Simple problems.

12 Marks

2. **Standard distribution:** Definition of Bernoulli trials, Binomial, Poisson and Normal distributions. (Their definitions, expressions for mean and standard deviation, properties, example and simple problems involving their uses, no derivations).

20 Marks

GROUP – B

1. **Index Numbers:** Construction and use of index numbers; Simple and weighted relative of aggregates and averages of relatives; Laspeyre's, Paasche's, Marshall Edgeworth's and Fisher's formulae.

16 Marks

2. **Time Series:** Components of time series and moving average. To determine trends. (Only free hand smoothing and method of moving averages).

12 Marks

GROUP – C

Sample survey: Sampling versus census; sources of errors in a survey – sampling and non-sampling: simple random sampling (definitions, uses, expressions for estimation of mean, total and standard deviations). Stratified random sampling; definition, uses, advantages, expression for the estimates of mean and total. (Derivation is not necessary). **20 Marks**

Internal Assessment Plan

1. Overall Assessment of the course is out of 100 marks.

2. The assessment plan consists of an External Exam and Internal Assessment.

3. External Exam will be of 03 hours duration Pen/ Paper Test consisting of 80 marks.

4. The weightage of the Internal Assessment is 20 marks.

Internal Assessment:

The weightage of the Internal Assessment is 20 marks. Internal Assessment must be a combination of periodic tests and project work based on the topics learnt in classes XI and XII. The weightage for periodic tests and project work are as follows:

INTERNAL ASSESSMENT		20 Marks
1	Periodic Tests (Best 2 out of 3 tests conducted)	10 Marks
2	Project work	10 Marks

1. **Periodic Tests**
   - **Conduct of Periodic Tests:**

Periodic Test is a Pen and Paper assessment which is to be conducted by the respective subject teacher. The format of periodic test must have questions items with a balance mix, such as, very short answer (VSA), short answer (SA) and long answer (LA) to effectively assess the knowledge, understanding, application, skills, analysis, evaluation and synthesis. Depending on the nature of subject, the teacher will have the liberty of incorporating any other types of questions too. The modalities of the periodic tests are as follows:

a) Mode: The periodic test is to be taken in the form of pen-paper test. (Preferably one test from each of three groups A, B C mentioned in the syllabus)

b) Schedule: In the entire Academic Year, three Periodic Tests in each subject may be conducted as follows:

For Class XII

Test	I	II	III
Tentative Month	May-June	August-September	November-December

This is only a suggestive schedule and the institutions may conduct periodic tests as per their convenience.

c) Average of Marks: Once the conduct of all the three periodic tests are completed, the weightage of each of the three tests (if needed) can be converted into ten marks each for identifying best two tests. The best two will be taken into consideration and the average of the two shall be taken as the final marks for PT.

d) Maintaining Record of Marks: It is desired that the respective institutions must keep records of the performance of each student in the periodic tests so that it can be produced to the Meghalaya Board of School Education if necessity arises.

e) Sharing of Feedback/Performance: The students' achievement in each test must be shared with the students and their parents to give them an overview of the level of learning that has taken place during different periods. Feedback will help parents formulate interventions (conducive ambience, support materials, motivation and morale boosting) to further enhance learning. A teacher, while sharing the feedback with student or parent, should be empathetic, non-judgmental and motivating. It is recommended that the teacher share best examples/performances of internal assessment with the class to motivate all learners.

2. Guidelines for Project Work in Statistics (Class XI and XII).

Every learner will complete only ONE project in each academic session (one in class XI and one in XII) related to the topic mentioned in the syllabus.

The objectives of the project work are to enable learners to:

• probe deeper into theoretical concepts learnt in classes XI and XII

 • analyse and evaluate real world scenarios using theoretical constructs and arguments

• demonstrate the learning of Statistics.

• follow up the different aspects of Statistics in which learners have interest

• develop the communication skills to argue logically.

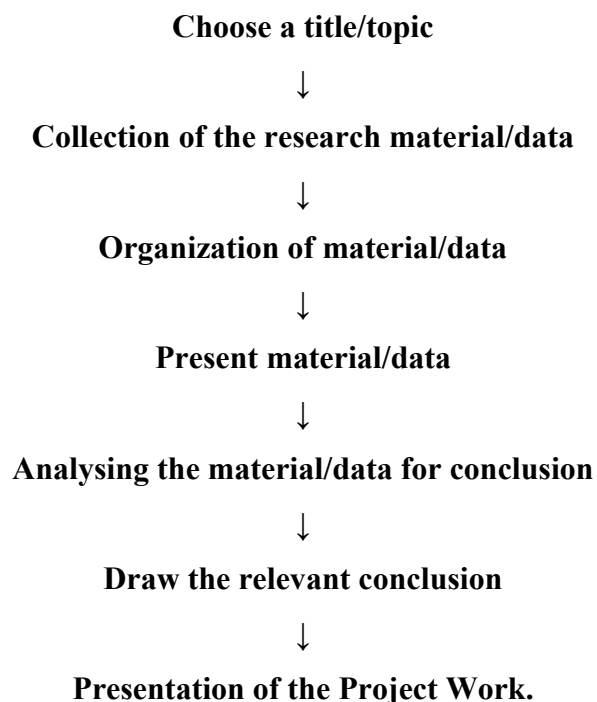The **expectations** of the project work are that:

• project should be of 2000-3,000 words (excluding diagrams & graphs), preferably hand-written

• it will be an independent, self-directed piece of study

Role of the teacher: The teacher plays a critical role in developing thinking skills of the learners. A teacher should:
• help each learner select the topic based on recently published extracts from the news media,

government policies etc, after detailed discussions and deliberations of the topic

• play the role of a facilitator and supervisor to monitor the project work of the learner through

periodic discussions

• guide the research work in terms of sources for the relevant data

• educate learner about plagiarism and the importance of quoting the source of the information to ensure authenticity of research work

• prepare the learner for the presentation of the project work

• arrange a presentation of the project file.

Scope of the project: Learners may work upon the following lines as a suggested low chart:

Choose a title/topic

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Collection of the research material/data

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Organization of material/data

↓

Present material/data

↓

Analysing the material/data for conclusion

↓

Draw the relevant conclusion

↓

Presentation of the Project Work.

Mode of presentation/submission of the Project: At the end of the stipulated term, each learner will present the research work in the Project File to the examiner. The questions should be asked from the Research Work/ Project File of the learner.

Marking Scheme:

Sl. No.	Heading	Marks Allotted
1	Relevance of the topic	1
2	Knowledge Content/Research Work	3
3	Presentation Technique	2
4	Viva-voce	4
	Total	10