

ANALYSING ITEM DIFFICULTY INDEX OF HSLCE OF BOSEM, 2018

Dr. W. Jyotirmoy Singh*

Abstract:

The contributor is the HSLC Head Examiner for History, Social Science of Board of Secondary Education Manipur (BOSEM) for the last eight years, and also Higher Level and Standard Level, Diploma Programme online examiner of International Baccalaureate Organisation Examination for the last three years. The paper is developed based on the experience of the contributor of the said examination. It seeks to compare the Item Difficulty set by BOSEM and the actual Item Difficulty by the examinees who appeared in 2018 High School Leaving Certificate (HSLC) Examination of BOSEM.

Every examination has to follow the procedure of framing the Design of Questions, developing Blue Print, Item Writing and Question Analysis. The present study is an attempt to study the actual Item Difficulty Index faced by the examinees in the History section of Social Science question paper of High School Leaving Certificate Examination (HSLCE) of Board of Secondary Education Manipur (BOSEM), 2018.

Objective of the Study:

The objectives of the study are to study

1. the Question Analysis of History Question of HSLC asked in 2018
2. number of Question(s) answered by different mark range of examinees
3. question answering in order by the examinees
4. actual Item Difficulty faced by the examinees.

* Associate professor, D.M.C.T.E., Imphal Manipur

Key Terms:

1. HSLCE: High School Leaving Certificate Examination
2. BOSEM: Board of Secondary Education Manipur
3. K: Knowledge Objective
4. U: Understanding Objective
5. A: Application Objective
6. L: Skill Objective
7. E: Easy Question
8. A: Average Question
9. D: Difficult Question
10. VSA: Very Short Answer Question
11. SA2: Short Answer Question Carrying 2 marks
12. SA3: Short Answer Question Carrying 3 marks
13. LA: Long Answer Question

Tools:

The study is based on the answers of History Section of 2018 Social Science Question Paper of BOSEM's HSLC Examination.

Sample:

385 answer scripts of History Section of 2018 Social Science Question Paper of BOSEM's HSLC Examination were taken up as sample for the study. As the total marks earmarked for History Section was 27, the responses were collected in the mark ranges from 0 to 27 – 0, 1 -5, 6 – 10, 11 – 15, 16 – 20, 21 – 25 and 26 – 27. Some of the examinees did not answer any question of History section while some answer (s) but the answer (s) were in correct. That's why mark range was also taken into consideration.

Effort was made to collect equitable number of responses from all sections of mark ranges. But, the examinees very often score marks in some mark ranges, such as in the case of 1 – 5, 6 – 10 and 21 - 25 mark ranges, while it was not so in the case of mark ranges like, 0, 11 – 15 and 26 –

27. It, thus resulted in the presence of non – uniformity of answer scripts in respect of all mark ranges taken up for study.

Methodology of the Study:

The study is a Case Study based on responses of the examinees in History Section of 2018 Social Science Question Paper of BOSEM’s HSLC Examination.

Finding of the Study:

As mentioned in the objective the study is carried out to determine the Question Analysis of History Question of HSLC asked in 2018, number of Question(s) answered by different mark range of examinees and actual Item Difficulty faced by the examinees among others. The following are the findings of the study:-

I Question Analysis:

Figure 1 is the Question Analysis of HSLC’s History section (Social Science, 2018) of BOSEM. In it, objective of every question is mentioned. To determine the Objective, specifications for all Objectives are also mentioned in the 4th column. Unit from which every question is asked, along with the form of question and mark allotted to every question are mentioned in column 5, 6 and 7. Estimated difficulty level of every question is mentioned in the next column. Some of the questions were asked earlier in the same form, while some of them were modified from the previous year’s questions. They are mentioned in column 9.

S.N	Q. No	Objective	Specifications	Unit	Form of Questions	Marks allotted	Estimated Difficulty Level	Ques. Modified from earlier asked Ques. *
1	12	U	Explain	I	SA3	3	A	2015 (5) , 2012, 2013, 2014, 2016 (5)
2	13	A	Analyse	I	SA3	3	D	2013 (1), 2015 (5)
3	14	A	Analyse	IV	SA3	3	D	2012 (3), 2014 (3)
4	15	U	Explain	VI	SA3	3	U	2013 (3), 2015 (3)
5	16 a	L	Locate	III	SA2	1	U	
6	16 b	L	Locate	III	SA2	1	U	
7	17	K	Recall	III	SA2	2	E	2011(5), 2017 (5)

8	18	U	Explain	V	SA2	2	A	
9	19	K	Recall	V	SA2	2	E	2011 (2)
10	20	K	Recall	II	VSA	1	E	2013 (3)
11	21	U	Explain	III	VSA	1	A	2013 (2), 2015 (2)
12	22	U	Explain	II	LA	5	A	2012 (3), 2015 (3)
	or							
	22	U	Explain	II	LA	5	A	
Total						27		

Figure 1: Types of Questions and Form of Objectives asked in HSLC Examination of BOSEM 2018

* Figure outside the bracket indicate the year when the question /s was / were asked and within the year indicate the number of marks allotted to each question.

From the above given Figure 1, the following interpretation can be known. Twelve questions were asked in the History Section of Social Science of BOSEM's HSLC Examination. Total marks allotted for the History section was 27. Out of the 27 marks 5 marks (18%) was earmarked for Knowledge objective, while 16 marks (60%) and 6 marks (22%) were earmarked for Understanding and Application objectives respectively. BOSEM labelled all the Knowledge questions as Easy questions, while Understanding and Skills questions were labelled as Average and Application Question as Difficult one.

One notable observation found from Figure 1 is that except for three questions (i.e. Q. No. 16, 18 and alternative question of Ques. No. 22), other questions were asked in the previous HSLC examination of BOSEM. Here arises the issue of if the Application or Understanding questions were still Application or Understanding questions as they were asked earlier. Moreover, when analysing the Item Difficulty Index it will be very interesting to see if all sections of the students have difficulty in answering the Application or Understanding questions and able to answer Knowledge question easily.

II Mark Range of Respondent and the number of Responses chosen per category:

385 answer sheets of the examinees were taken up as a sample for the study. Base upon the response of the examinees, seven categories (shown in Figure 2) with ranges formed 0 to 26 – 27 were classified.

Mark Range	0	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 -27	Total
Total	20	60	60	40	26	159	20	385

Figure 2: Mark Range of Respondent and the number of Responses chosen per category

III No. of Question(s) answered by different mark range of examinees

Another observation found in this study is the number of questions answered by different mark range of examinees.

One can easily see a deep slanting in the attempt to answer the number of questions from those which scores 0 & 1-5 to 26 - 27. 95% of those who scored 26 - 27 attempt to answer all the questions, while only 5% of them of them attempt to answer 10 questions (Fig. 3). In case of those who scored between 21 - 25 maximum (82%) of students attempted to answer all the questions. This is not so in case of those who scored 0 and 1 -5. Some of them answered all the questions while some attempts to answer only 2 questions or none at all.

From this one can easily state that examinees who scored higher marks uniformly attempt to answer all the questions. While it is the opposite for those who scored less marks.

Mark Range	0	1 - 5	6 - 10	11 – 15	16 - 20	21 - 25	26 -27
Marks							
0	5						
1	-						
2	10	2					
3	25	5					

4	10	10	3				
5	20	13	12	15			
6	5	12	10	2.5			
7	10	18	20	5	11	1	
8	-	10	7	17.5	11	2	
9	5	13	14	12.5	9	2	
10	10	7	17	15	27	13	5
11	-	10	17	32.5	42	82	95
Total %	100	100	100	100	100	100	100

Figure 3: Percentage of No. of Question(s) answered by determined mark range of examinees

IV Question answering in orders

Another observation found in this study was to see the relations of the students which answers the questions in order to the marks scored by them. In this aspect, from Figure 4 it is known that a good number of those who scored 26 - 27 (70%) and 21 - 25 (55%) were able to answer the questions in order. It was not so in case of those who scored 20 and less than it.

From the above figure (Figure 5) it would not be wrong to interpret that examinees who scored extremely good mark i. e. 21 and above 21 were able to answer the questions in order. It was not in case of other categories.

Mark Range	0	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 27
% of Question answered in Order	50	30	30	20	38	55	70

Figure 4: Question answering in orders

V Determining Item Difficulty

One of the main objectives of the study is to determine the actual Item Difficulty faced by the students while answering History Section of Social Science Question of BOSEM, 2018. The

Item Writer had set certain question as different level of Item Difficulty. The response of the students gave different pictures of Item Difficulty level. This can be known from the following Figure 5. It reveals that the actual difficulty faced by the examinees were different from that of the traditional concept of difficulty assumed by Item Writer and experts.

Ques. No.	Objective	Not Answered %	Wrong Answer %	Low Mark %	Answer Correctly %
12	U	13.25	<u>18.18</u>	20.52	48.05
13	A	<u>25.19</u>	20.78	26.49	27.53
14	A	<u>10.13</u>	12.21	26.75	50.91
15	U	9.09	17.66	<u>17.44</u>	56.10
16 a	L	<u>20.78</u>	33.77	-	45.45
16 b	L	<u>21.56</u>	54.55	-	23.90
17	K	<u>16.36</u>	41.82	7.72	34.03
18	U	26.75	<u>23.89</u>	14.03	35.53
19	K	<u>21.56</u>	26.23	9.87	42.34
20	K	<u>13.27</u>	25.45	-	60.77
21	U	<u>23.89</u>	27.79	-	48.31
22	U	9.87	<u>15.34</u>	26.23	48.05

Figure 5: Determining Item Difficulty for each question

Question number 20, 15, 12, 22 and 14 are the questions in order that the examinees answer without much difficulty (Fig. 6). They were also asked in different form of questions in the previous HSLCE. Thus may be one of the main reasons for the examiners to answer these questions easily.

Ques. No.	Objective	Item Difficulty of Question	Marks	Answer Correctly %	Ques. Modified from earlier asked Ques.*
20	K	E	1	60.77	2013 (3)
15	U	A	3	56.10	2013 (3), 2015 (3)
12	U	A	3	48.05	2015 (5) , 2012, 2013, 2014, 2016 (5)
22	U	A	5	48.05	2012 (3), 2015 (3)
14	A	D	3	50.91	2012 (3), 2014 (3)

Figure 6: Question Answered Correctly

* Figure outside the bracket indicate the year when the question /s was / were asked and within the year indicate the number of marks allotted to each question.

On the other hand, the examinees have difficulty in answering Question Numbers 16 b, 17, 16a, 21, 18, 19 and 13 (Fig. 7). They were not able to answer them or answered wrongly. Of them Question numbers 17 and 19 were asked in Knowledge Objective. While Question numbers 18 and 21 were asked in Understanding Objective. Question number 16a and 16b are asked in Skill Objective and Question number 13 asked in Application Objective.

Ques. No.	Objective	Item Difficulty of Question	Marks	Not Answered %	Wrong Answer %	Low Mark %	Ques. Modified from earlier asked Ques.*
16 b	L	A	1	<u>21.56</u>	54.55	-	
17	K	E	2	<u>16.36</u>	41.82	7.72)	2011(5), 2017 (5)
16 a	L	A	1	<u>20.78</u>	33.77	-	
21	U	A	1	<u>23.89</u>	27.79	-	2013 (2), 2015 (2)
18	U	A	2	<u>26.75</u>	<u>23.89</u>	14.03	
19	K	E	2	<u>21.56</u>	26.23	9.87	2011 (2)
13	A	D	3	<u>25.19</u>	20.78	26.49	2013 (1), 2015 (5)

Figure 7: Question not answered, incorrectly answered and not awarded full marks

The most difficult Question seems to be Question number 16 b and 16 a. Both of them are skill questions. They were asked for the first time. Question 16 asked the examinees to locate the place where the cotton mill was established in 1854 (Mumbai), while Question 16 b asked to locate the places where the Empress Cotton Mill was established by Jamshedji Tata in 1887 (Nagpur). In these two questions the examinees either failed to name the places of both the question and also locate Mumbai and Nagpur on the Map of India. These shows their knowledge towards skills based question is very poor. They are either not taught skill - based question or they did not take interest in skill - based question.

Of the remaining questions, Question number 18 was asked for the first time. The remaining questions were asked by changing the structure of previously asked questions.

Understanding (Q. No. 17, 18 and 21) and Application (Q. No. 13) Objective questions are no longer Understanding or Application Objectives in true sense. These questions are already known to the students. In fact, they can be termed as Knowledge Objective Questions.

Difficulty in answering the Knowledge questions and also the questions previously asked but in another form shows that the students have not understood what was asked in the question.

Unable to answer the questions that were repeatedly asked earlier shows that most of examinees must have appeared the examination for the sake of examination. Either they did not read the topics properly or they were not taught about the topic properly.

Ques. No.	Objective	Not Answered %	Wrong Answer %	Ques. Modified from previous one.*	Question asked in BOSEM's HSLC 2018 Examination
16 b	L	<u>21.56</u>	54.55		the Empress Cotton Mill was established by Jamshedji Tata in 1887
17	K	<u>16.36</u>	41.82	2011(5), 2017 (5)	State the conditions of industrial labourers after 1833.
16 a	L	<u>20.78</u>	33.77		the cotton mill was established in 1854
21	U	<u>23.89</u>	27.79	2013 (2), 2015 (2)	How did the demand of cotton yarn increases alarmingly after the

					invention of Flying Shuttle?
13	A	<u>25.19</u>	20.78	2013 (1), 2015 (5)	After 1815 liberals national went underground. Analyse this statement.
18	U	<u>26.75</u>	<u>23.89</u>		After the enforcement of the American Constitution in 1787, the American newspaper became extremely partisan. Explain this statement
19	K	<u>21.56</u>	<u>26.23</u>	2011 (2)	What did the Colonial Administration order to the press in August 1942?

Figure 8: Questions asked earlier

* Figure outside the bracket indicate the year when the question /s was / were asked and within the year indicate the number of marks allotted to each question.

Conclusion:

Main findings of the paper are listed as below:-

- i. Of 27 marks asked in History section of Social Science Question Paper of HSLCE of BOSEM, only four marks (15%) are asked for the first time.
- ii. It also means that 85% of the questions are asked in the previous examinations of HSLCE.
- iii. As all the Application Objective and Understanding Objective questions are asked earlier they are Application Objective and Understanding Objective questions in name sake only. These should be familiar to the examinees.
- iv. Despite this, 44% of the examinees taken up for study find the question difficult to answer. Here, a deep introspection is needed.

In this aspect it is necessary to determine what went wrong with the studies of the examinees. The plausible reasons may be either

- i. students do not know the meaning of the question, or
- ii. the method of transaction imparted to them and their learning process are insufficient
- iii. they were drilled in Question and answer method for most of the time and face difficulties when there is / was slight change of the question.

It seems that the process of their learning needs to be changed at the earliest so that they can grasp with any question asked to them. Instead of drilling them in rote memorisation and Question and Answer methods, alternative methods of teaching where the students can understand the topic easily should be imparted to them. More exercises on map work is also necessary.

References:

Gronlund, Norman E., Assessment of Student Achievement, 2006, Pearson Education Inc, Boston

Gronlund , Norman E., Writing Instructional Objectives for Teaching and Assessment, 7th ed. 2000, Pearson Prentice Hall

Singh, Pritam, Handbook of Measurement and Evaluation, First Edition : 2005, Doaba House, Nai Sarak, Delhi 110 006

Singh, Pritam, School Based Assessment, Theory into Practice, First Edition, 2011, Shipra Publications, New Delhi

====