**Report on Final Exam, CPM-A-Fall 2014**

CPM-A Final exam was requested by 18 high schools. A request was sent to the instructors of these schools to submit a feedback on the performance of the students taking the final exam. For 9 of those 18 schools, we have the feedback. Out of these 9, 2 took the hardcopy final exam and 7 took WebWork final.

Final exam was divided into 3 parts: Part-I had 14 questions, Part-II had 13 questions and Part-III had 13 questions totaling 40. Total number of students took the final exam is 14+110=124 and 12+48=60 students received 70% or higher. The percentage of students receiving 70% or higher is 48%. For hardcopy exam this percentage is 86% and for WebWork exam it is 44%. The number of hardcopy user is 14 and that number for WebWork is 110. All this information is based on the feedback we received from instructors. Some instructors, especially hardcopy ones, did not give us any feedback.

Student Learning Outcomes (SLO) for CPM-A are

1. Identify and apply properties of real numbers, and perform accurate arithmetic operations with numbers in various formats and number systems.
2. Demonstrate an understanding of linear equations, inequalities, and graphs.
3. Demonstrate the ability to perform basic operations on polynomials, and an understanding of algebraic operations.
4. Solve word problems and application problems.

Mapping of SLOs to various questions in the CPM-B final exam are as follows:

SLO #1: Q3, Q13 of Part-I.

SLO #2: Q7, Q11 of Part-III.

SLO #3: Q8 of Part-1, Q1 of Part-III.

SLO #4: Q7, Q9 of Part-II.

The number of schools included in this analysis is 9. These schools include Edinburg High, Hidalgo ECHS, LyJoya, Mission, RG City High, San Benito, Sharyland, Weslaco High, Weslaco East High.

The first and last columns of the following table show the SLOs and the number of correct responses.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SLO# | Question #  For Final Exam | Number of  correct responses  (hard copy + WW) | Number of  wrong responses  (hard copy + WW) | Percent of number of  correct responses |
| 1 | Q3 & Q13 of Part-I | 20+135=157 | 8+83=91 | 63% |
| 2 | Q7 & Q11 of Part-III | 14+85=99 | 14+127=141 | 41% |
| 3 | Q8/Part-I & Q1/Part-III | 19+113=132 | 9+105=114 | 54% |
| 4 | Q7 & Q9 of  Part-II | 13+90=103 | 15+130=145 | 42% |

From the final exam results of these schools, it is clear that SLO# 2 and SLO # 4 need to be addressed.

Following table compares outcomes from hard copy and WebWork final exam users for all SLO based questions.

|  |  |  |  |
| --- | --- | --- | --- |
| Exam Type | Number of  correct responses | Number of  wrong responses | Percent of number of  correct responses |
| Hard Copy: | 66 | 46 | 59% |
| WebWork: | 423 | 445 | 49% |

The probability that 112 students selected at random from the whole group would have 59% or greater percentage of correct responses is 2.7%. Thus this is a statistically significant difference.

**Final Exam Responses**

1. **School Name: 1**

7 students took the final exam. 3 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong Partial Credit

Responses Responses

Q3/Part-I 6 1

Q8/Part-I 6 1

Q13/Part-I 5 2

Q7/Part-II 3 4

Q9/Part-II 3 4

Q1/Part-III 3 4

Q7/Part-III 3 4

Q11/Part-III 2 5

1. **School Name: 2**

3 students took the final exam. 2 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong Partial Credit

Responses Responses

Q3/Part-I 2 1

Q8/Part-I 2 1

Q13/Part-I 3 0

Q7/Part-II 1 2

Q9/Part-II 2 1

Q1/Part-III 3 0

Q7/Part-III 2 1

Q11/Part-III 1 2

1. **School Name: 3**

43 students took the final exam. 1 student received 70% or higher in the final exam.

Q# No of Correct No of Wrong

Responses Responses

Q3/Part-I 6 37

Q8/Part-I 14 29

Q13/Part-I 28 15

Q7/Part-II 10 33

Q9/Part-II 8 35

Q1/Part-III 14 29

Q7/Part-III 4 39

Q11/Part-III 4 39

1. **School Name: 4**

8 students took the final exam. 7 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong

Responses Responses

Q3/Part-I 8 0

Q8/Part-I 7 1

Q13/Part-I 5 3

Q7/Part-II 6 2

Q9/Part-II 5 3

Q1/Part-III 6 2

Q7/Part-III 8 0

Q11/Part-III 4 4

1. **School Name: 5**

7 students took the final exam. No student received 70% or higher in the final exam.

Q# No of Correct No of Wrong Partial Credit

Responses Responses

Q3/Part-I 2 5

Q8/Part-I 0 7

Q13/Part-I 5 2

Q7/Part-II 1 6

Q9/Part-II 4 3

Q1/Part-III 1 6

Q7/Part-III 0 7

Q11/Part-III 6 1

1. **School Name: 6 (Hard Copy Exam)**

4 students took the final exam. 4 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong

Responses Responses

Q3/Part-I 2 2

Q8/Part-I 3 1

Q13/Part-I 4 0

Q7/Part-II 3 1

Q9/Part-II 0 4

Q1/Part-III 4 0

Q7/Part-III 3 1

Q11/Part-III 4 0

1. **School Name: 7**

34 students took the final exam. 30 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong Partial Credit

Responses Responses

Q3/Part-I 20 14

Q8/Part-I 20 14

Q13/Part-I 34 0

Q7/Part-II 16 18

Q9/Part-II 23 11

Q1/Part-III 27 7

Q7/Part-III 33 1

Q11/Part-III 22 12

1. **School Name: 8**

8 students took the final exam. 5 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong

Responses Responses

Q3/Part-I 6 2

Q8/Part-I 8 0

Q13/Part-I 7 1

Q7/Part-II 4 4

Q9/Part-II 4 4

Q1/Part-III 4 4

Q7/Part-III 4 4

Q11/Part-III 1 7

1. **School Name: 9 (Hard Copy Exam)**

10 students took the final exam. 8 students received 70% or higher in the final exam.

Q# No of Correct No of Wrong

Responses Responses

Q3/Part-I 6 4

Q8/Part-I 9 1

Q13/Part-I 8 2

Q7/Part-II 4 6

Q9/Part-II 6 4

Q1/Part-III 3 7

Q7/Part-III 2 8

Q11/Part-III 5 5