Test item2: Herons formula

Domain: Mathematical Literacy	Topic/Chapter: Herons formula	Class(es): IX
		Expected time:10 min
		Total Credit:10
Description of Item: Text and image	Learning Outcomes: To make students to apply the Herons formula in daily life situations.	

A landowner has a piece of quadrilateral shaped land ABCD. He wish to use it for people welfare, hence decided to divide it into 3 triangular plots of same area and to develop a HOSPITAL, a SCHOOL and an OLD AGE HOME. He ask an engineer to do the same. The engineer made the walls BD and DM and allocate land ADB,DMC,DMB for constructing a HOSPITAL, a SCHOOL ,OLD AGE HOME by quoting the rates of Rs. 20000, Rs.25000,Rs.15000 per sq m respectively.
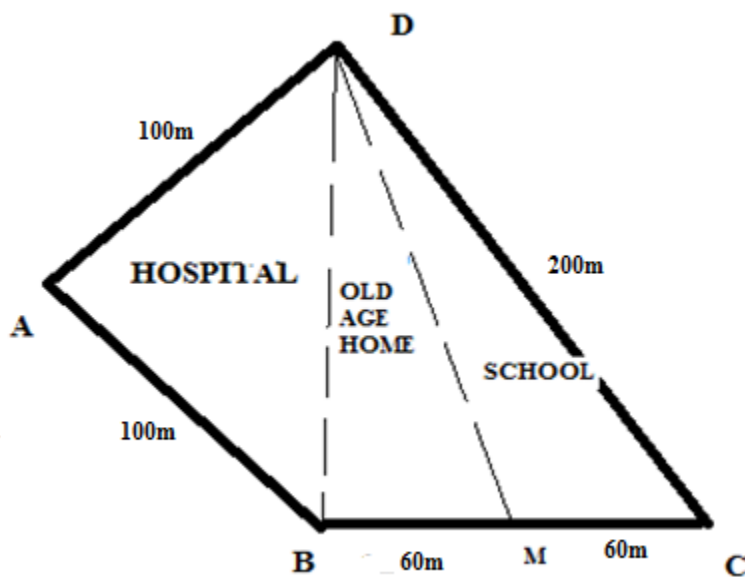
(i)   Engineer said that the wall along BD is smaller than that of DM. True or false?

(ii)   Is Engineer did the correct division of plot in 3 pieces of equal area ?

(iii)   The cost of wall BD @ Rs.500 per m is Rs. (a)40000   (b) 80000   (c) 100000   (d) 240000

(iv)   What is the area of land for HOSPITAL? Show your calculation.

(v)   Cost of constructing the SCHOOL is Rs.
(a)96000000   (b) 120000000   (c) 86400000   (d) 24000000

Question intent

FRAMEWORK	CHARACTERISTICS
Competency Cluster	*Connections*
Overarching Idea	*Space and shape*
Context	*societal*
Item format	(i) Short response items (ii) Short response items (iii) *Simple MCQ* (iv) Closed constructed response items (v) *Complex MCQ*
Cognitive Process	*Interpreting, Problem solvlng*
Proficiency Level	(i) 2 (ii) 2 (iii)3 (iv)5 (v)4

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Description of Answer keys and credit:

(i)Full Credit- true
No Credit- false or missing
(ii)Full Credit- Yes
No Credit- No or missing
 (iii)Full Credit- 80000
 No Credit-For other response
 (iv) Full Credit- Area=4800 sq m(using Herons formula)
     Partial credit – using correct formula but putting incorrect value.
      No Credit- For other response
 (v) Full Credit- For (b)
     No Credit- For other response

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