

## නව/පැරණි නිර්දේශය - புதிய/பழைய பாடத்திட்டம் - New/Old Syllabus

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව  
 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்  
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka  
 இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்

**NEW/OLD**

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2020  
 கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2020  
 General Certificate of Education (Adv. Level) Examination, 2020

සිවිල් තාක්ෂණවේදය II  
 குடிசார்த் தொழினுட்பவியல் II  
 Civil Technology II

14 E II

ෆය නුනයි  
 மூன்று மணித்தியாலம்  
 Three hours

අමතර කියවීමේ කාලය - මිනිත්තු 10 යි  
 மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்  
 Additional Reading Time - 10 minutes

Use additional reading time to go through the question paper, select the questions you will answer and decide which of them you will prioritise.

Index No. : .....

**Important :**

- \* This question paper consists of 12 pages.
- \* This question paper comprises Parts A, B and C. The time allotted for all parts is three hours. (Use of calculators is not allowed.)

**Part A - Structured Essay (08 pages)**

- \* Answer all the questions on this paper itself.
- \* Write your answers in the space provided for each question. Note that the space provided is sufficient for your answers and that extensive answers are not expected.

**Part B and C - Essay (04 pages)**

- \* Select two questions from each of the parts B and C and answer four questions only. Use the papers supplied for this purpose. At the end of the time allotted for this paper, tie the three parts together so that Part A is on the top of Part B and C before handing over to the supervisor.
- \* You are permitted to remove only Parts B and C of the question paper from the Examination Hall.

**For Examiner's Use Only**

| Part       | Q. No. | Marks |
|------------|--------|-------|
| A          | 1      |       |
|            | 2      |       |
|            | 3      |       |
|            | 4      |       |
| B          | 5      |       |
|            | 6      |       |
|            | 7      |       |
| C          | 8      |       |
|            | 9      |       |
|            | 10     |       |
| Total      |        |       |
| Percentage |        |       |

**Final Marks**

|            |  |
|------------|--|
| In Numbers |  |
| In Words   |  |

**Code Numbers**

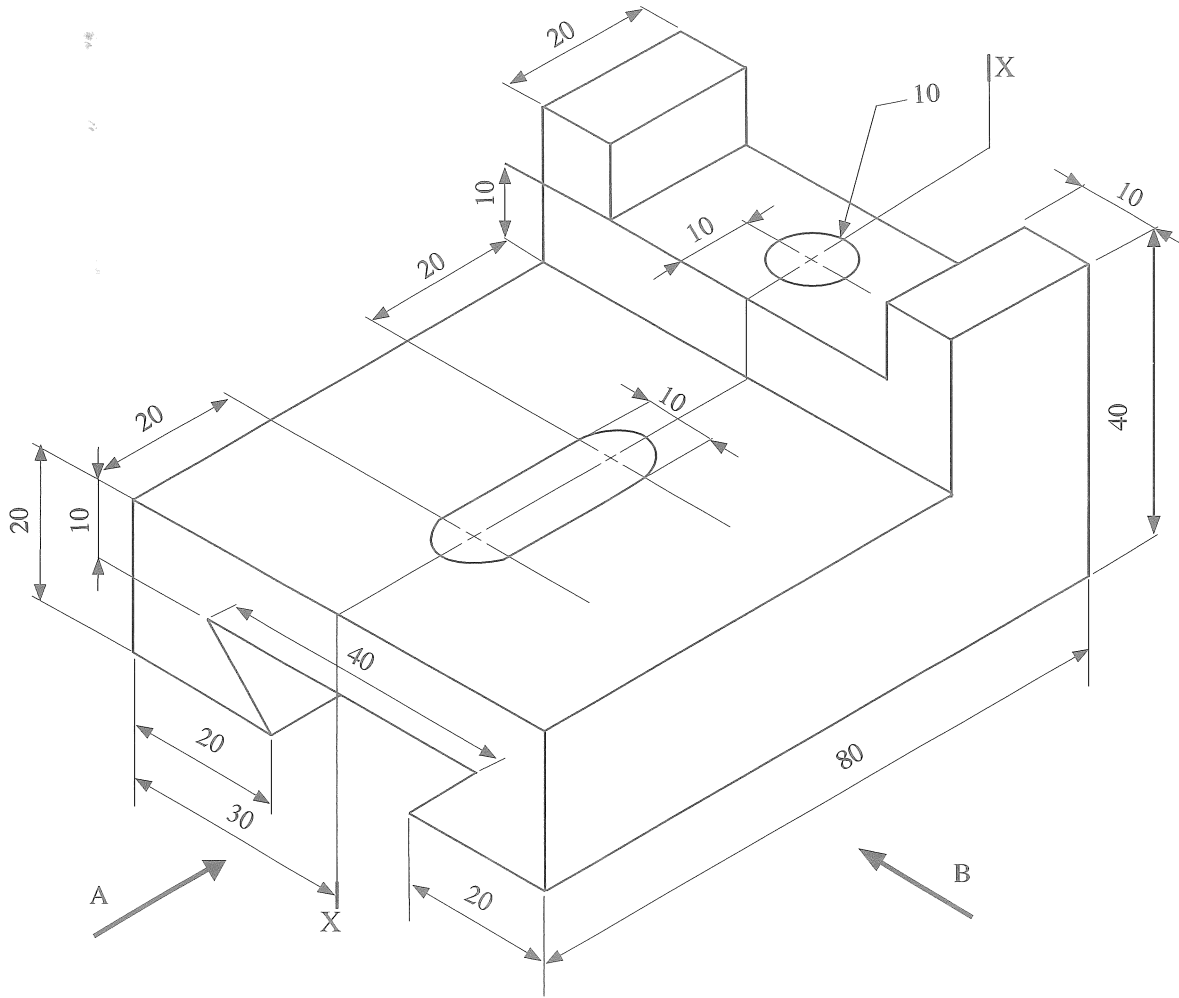
|                    |  |
|--------------------|--|
| Marking Examiner 1 |  |
| Marking Examiner 2 |  |
| Checked by         |  |
| Supervised by      |  |

**PART A – Structured Essay**

Answer **all four** questions on this **paper itself**.  
(Each question carries 10 marks)

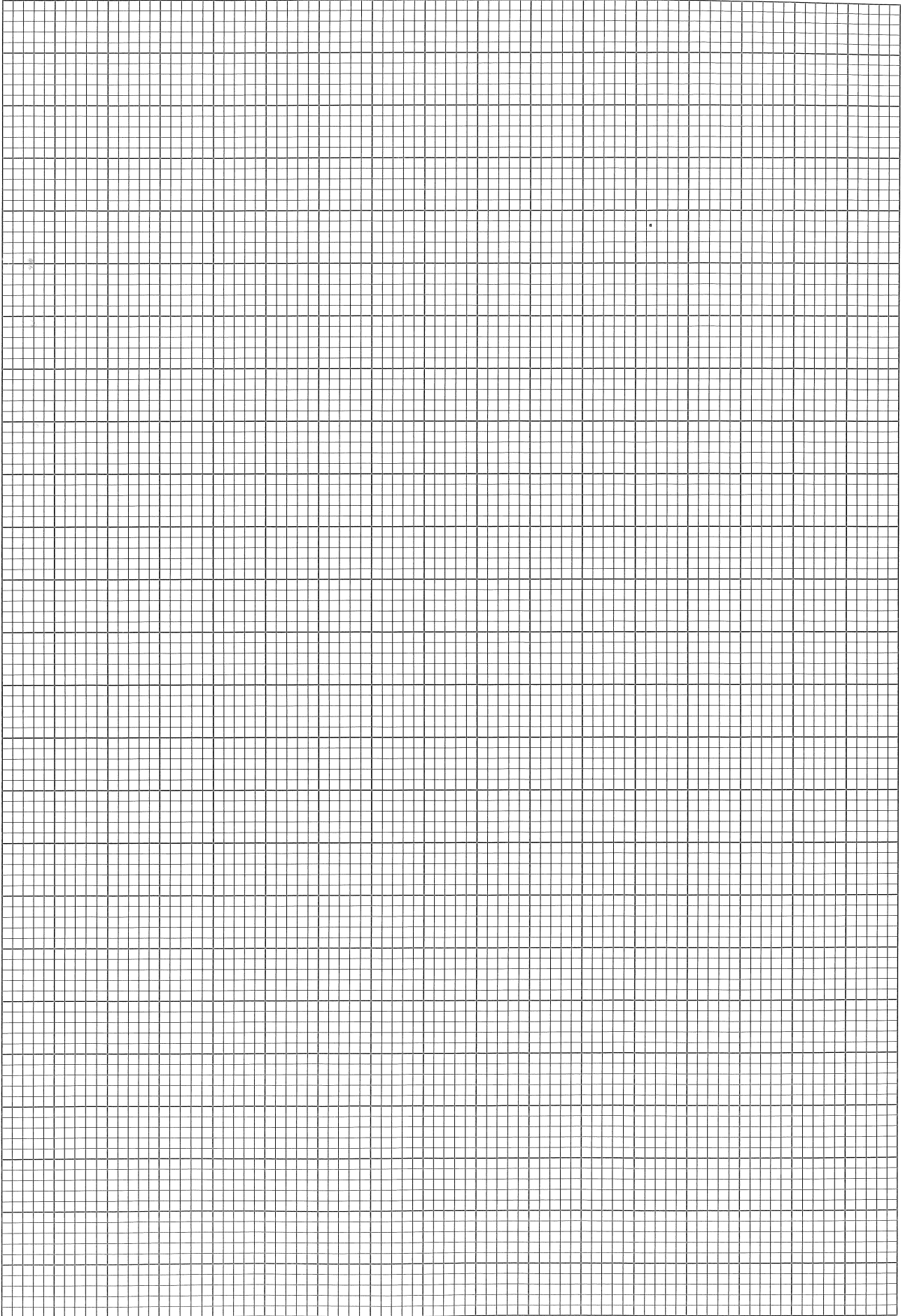
Do not write in this column

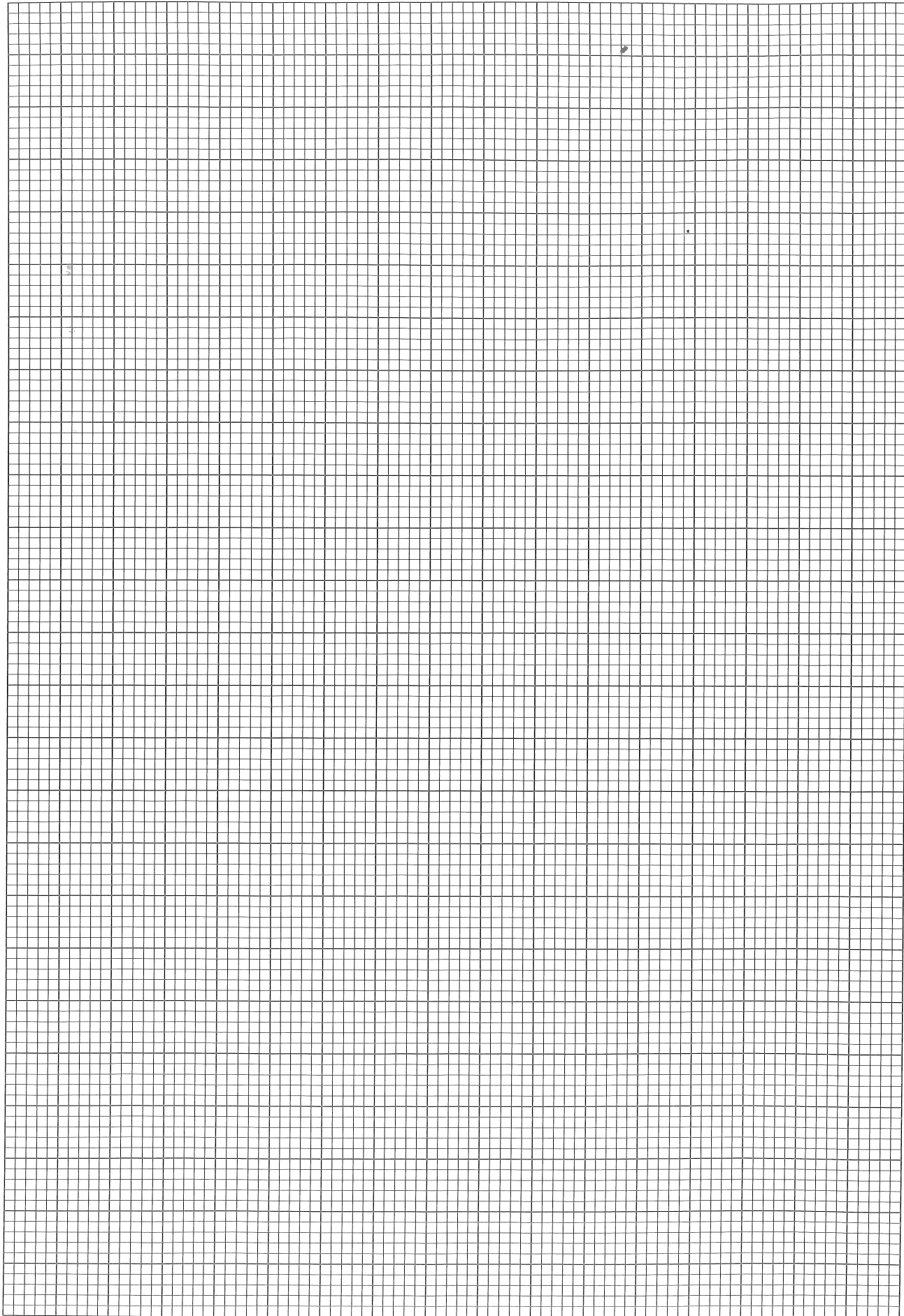
1. The diagram shows an isometric view of a bracket made of light steel. The bracket is symmetric along the vertical plane passing through X-X. Assuming any missing dimensions draw the following views to a suitable scale using first angle projection principles. Show all relevant dimensions in the sketches. Use the graph sheets given on page 3 and 4 to answer the questions. (All dimensions are in millimetres.)



- (i) Front elevation seen through direction A
- (ii) End elevation seen through direction B
- (iii) Plan







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2. Assume that you are assigned to develop the Information Technology (IT) infrastructure for conducting online classes for a school during Covid-19 pandemic. The requirements are given below.

- \* A recording room to record video lessons to be uploaded to the school website.
- \* A room for teachers to conduct online classes, in realtime. Students should be able to participate in the classes interactively.
- \* Computer station to prepare teaching materials, e.g. power point slide presentations.
- \* Use of online storage and online documents during classes.

Assume that the school administration is designing a room with IT facilities.

(a) There are stations with desktop computers (main central processing unit-CPU, monitor, keyboard and mouse) in the room.

(i) Write two additional hardware items required for each station.

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(ii) Name one software item that can be used to conduct and record online classes, in realtime.

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(b) (i) Name two additional hardware items required by students to connect with online classes in realtime.

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(ii) List one facility required for students in addition to the hardware items mentioned in (b)(i) above, to connect with online classes.

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(c) If the learning activities require students to interactively prepare a group project report online, suggest one online facility that they could use for this purpose.

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(d) A teacher has requested a method to share additional reading materials with students. State two ways you would suggest to fulfill this purpose.

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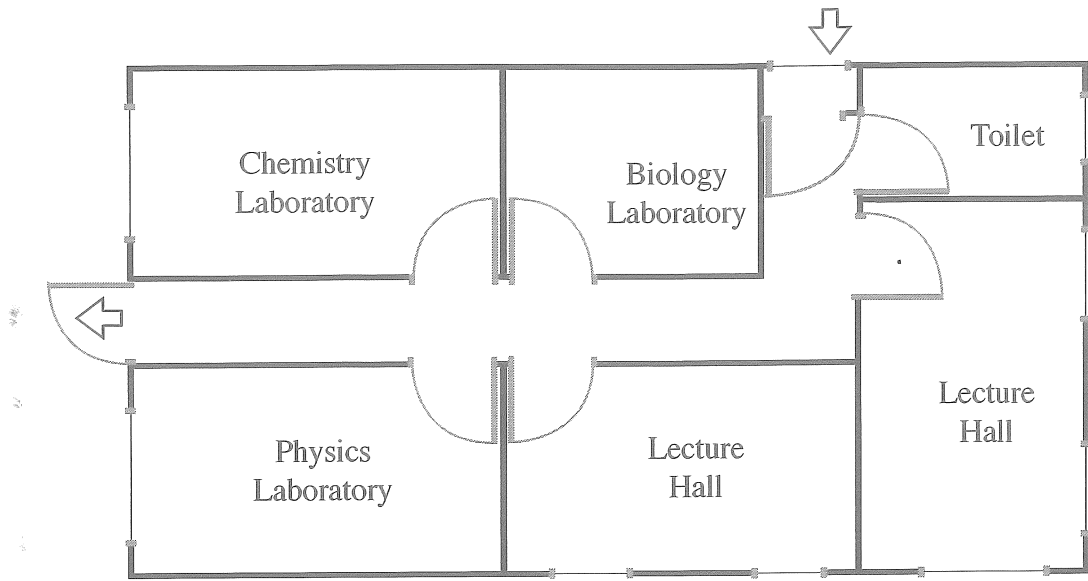
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3. Figure shows the layout of a single-story laboratory building of a school. This facility is used by all the students in the Science Stream.

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Legend:

(i) Explain the basis for the selection of locations for fire extinguishers in this building. Mark these locations in the building layout. Use a suitable symbol to identify these locations; Show the symbol in the legend.

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(ii) Explain the basis for the selection of locations for hardwired smoke detecting devices in this building. Mark these locations in the building layout. Use a suitable symbol to identify these locations; Show the symbol in the legend.

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(iii) Explain the basis for the selection of locations to install the first-aid boxes in this building. Mark these locations in the building layout. Use a suitable symbol to identify these locations; show the symbol in the legend.

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(iv) Explain the basis for the selection of a communication method in an emergency. Show the communication equipment and accessories on the building layout. Use suitable symbols to identify these; show the symbol in the legend.

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(v) State occupational health and safety measures to be incorporated in the Chemistry laboratory.

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4. Figure shows a foot operated valve, which supplies water to a sink. When the foot pedal is made to slide forward horizontally (refer figure B) the ball valve is made to open via a simple lever mechanism connected to its axis of rotation. When the foot pedal is made to slide backwards the valve closes.

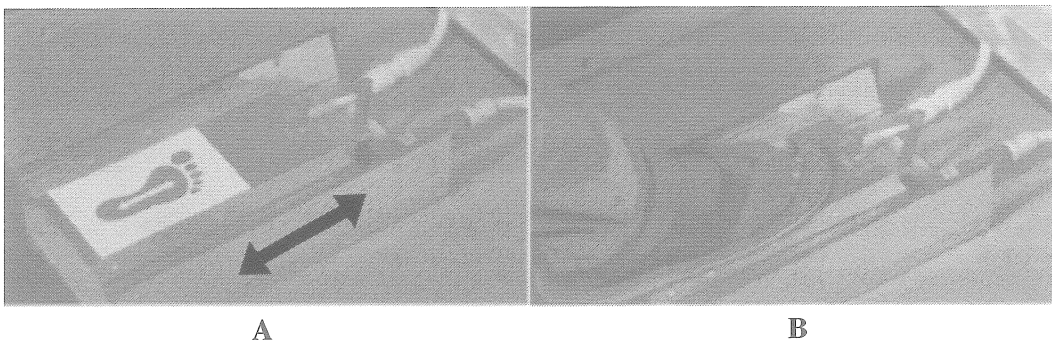


Fig. Foot operated valve <http://www.youtube.com/watch?v=bIPxSMUsqyA>

(a) Show a schematic view of the ball valve; show how it opens and closes during the movement of the foot pedal.

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(b) Show a schematic view of the lever mechanism which gives the desired rotation to the ball valve axis.

(c) Describe the merits of this innovation.

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(d) Mention the shortcomings of this innovation.

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