

සියලු ම හිමිකම් ඇවිරිණි/முழுப் பதிப்புரிமையுடையது/All Rights Reserved]

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

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

විදුලිය, ඉලෙක්ට්‍රොනික හා තොරතුරු තාක්ෂණවේදය II
மின், இலத்திரன் தகவல் தொழினூட்பவியல் II
Electrical, Electronic and Information Technology II

16 E II

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

අමතර කියවීම් 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 14 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 (09 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 (05 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

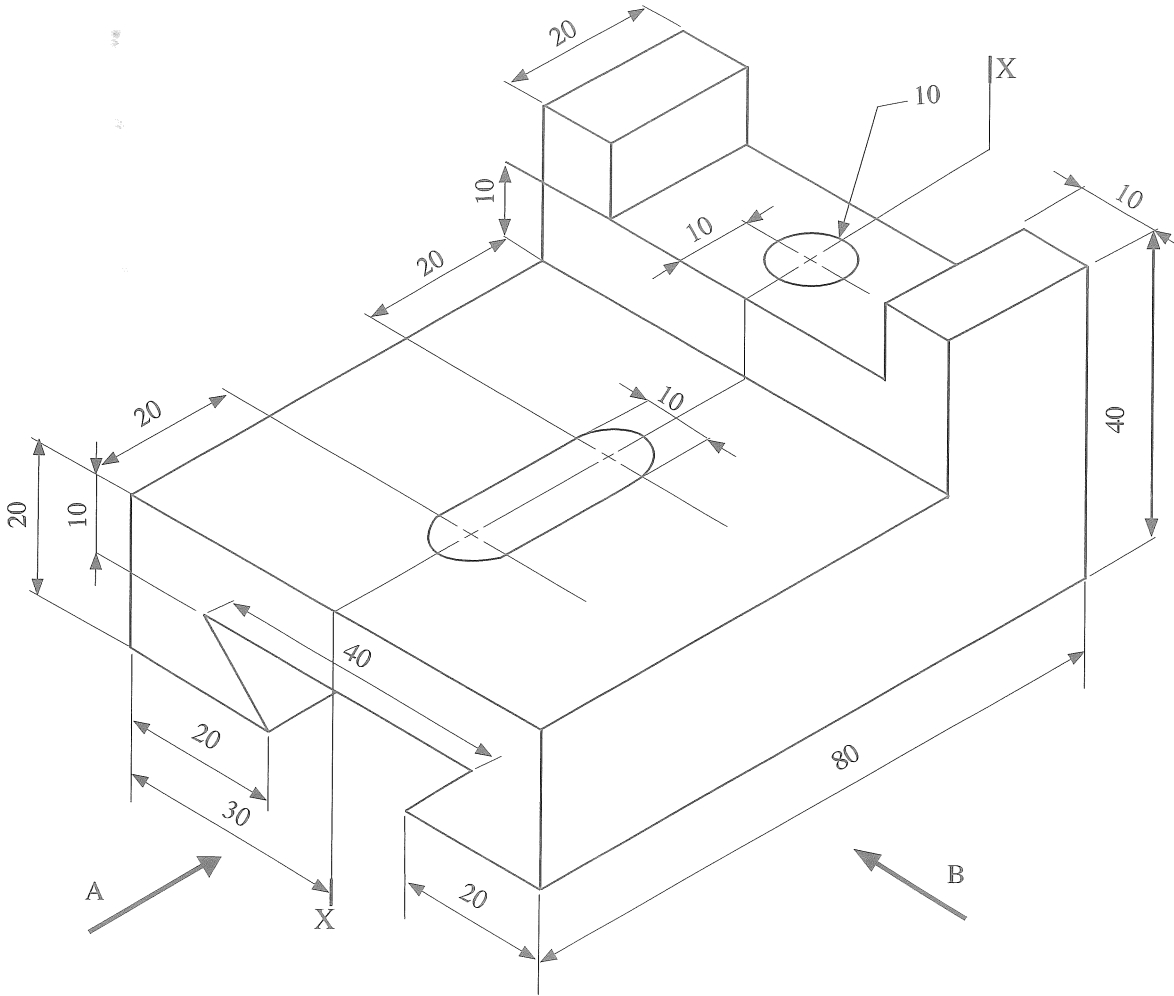
Marking Examiner 1	
Marking Examiner 2	
Checked by	
Supervised by	

PART A – Structured Essay

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

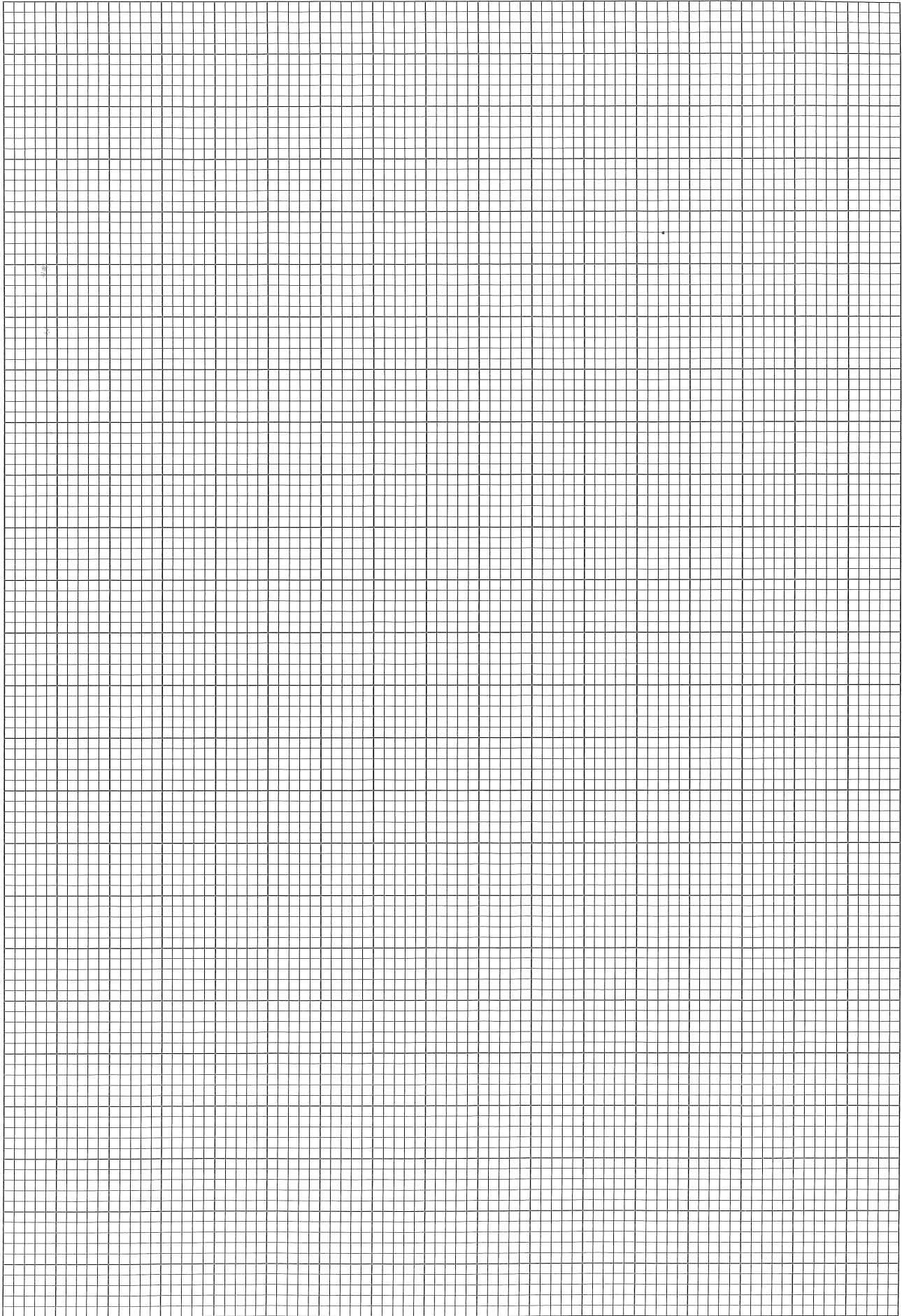
Do not write in this column

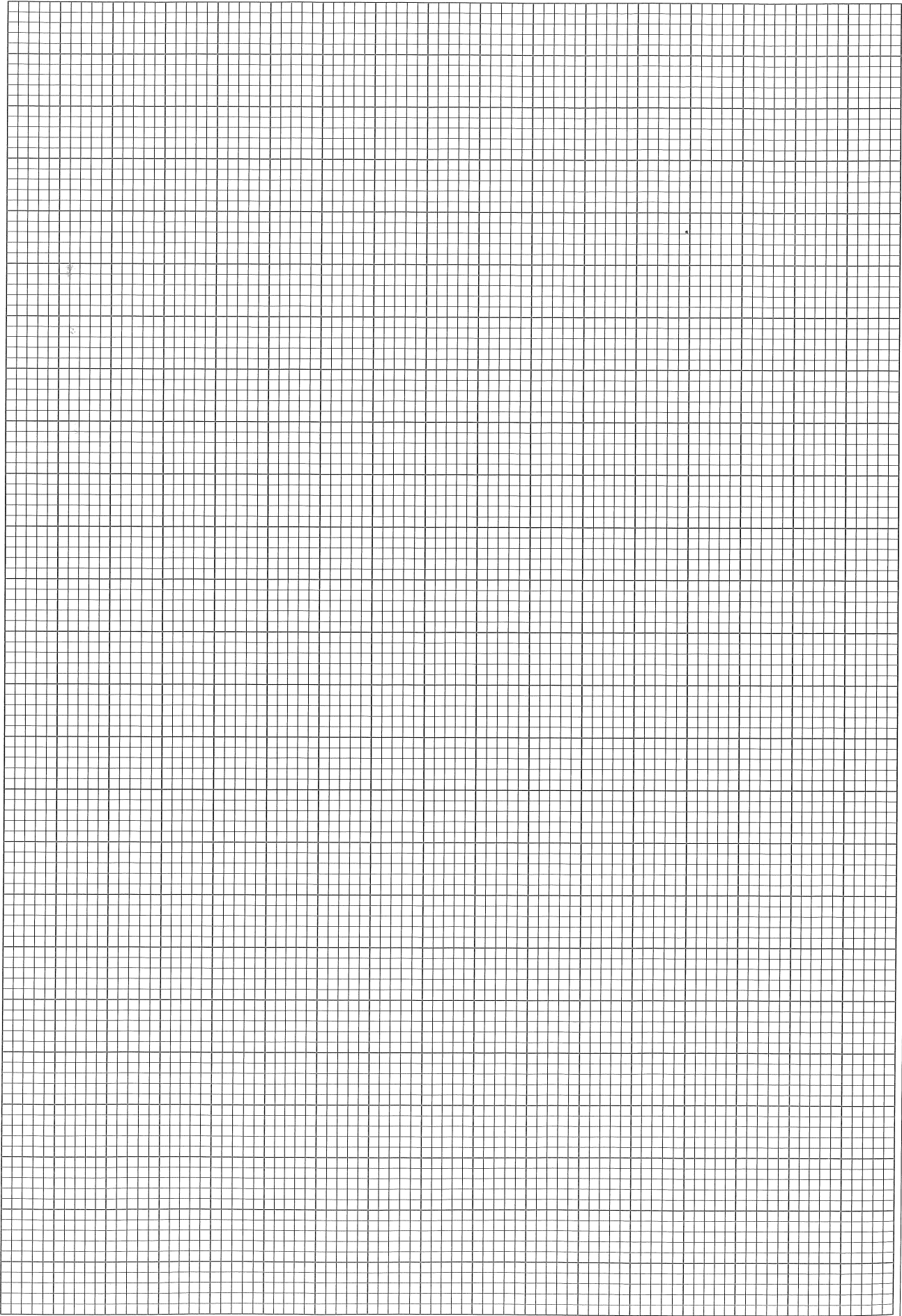
1. The diagram shows an isometric view of a bracket made of light steel. The bracket is symmetric along the vertical plane passing through X-X. Assuming any missing dimensions draw the following views to a suitable scale using first angle projection principles. Show all relevant dimensions in the sketches. 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







Do not write in this column

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.

.....

.....

.....

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

.....

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

.....

.....

.....

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

.....

.....

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

.....

.....

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

.....

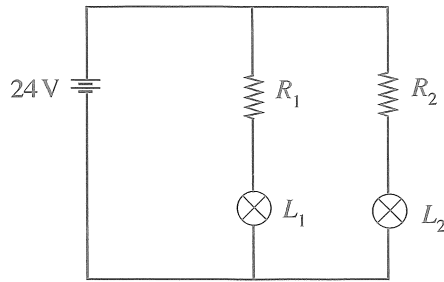
.....

.....



Do not write in this column

4. Following circuit is prepared by a teacher for demonstrating measurements during a laboratory session.



Resistances of R_1 and R_2 are $100\text{ k}\Omega$ and $1\text{ k}\Omega$ respectively. Resistance across L_1 and L_2 lamps are measured as $12\ \Omega$ and $10\ \Omega$ respectively.

(a) State measuring equipment and appropriate range for measuring following.

measurement	equipment	range
(i) voltage across R_1
(ii) voltage across R_2
(iii) current across R_1
(iv) current across R_2

(b) Draw the circuit in space below and indicate how each measuring equipment mentioned in (a) can be connected.

Do not
write
in this
column

(c) Following components are given to a group of students in a school.

- 230 V to 30 V stepdown transformer
- 230 V to 12 V stepdown transformer
- one BJT transistor
- eight diodes
- one operational amplifier K
- 1000 μ F capacitor

(i) List items required to develop a full bridge rectifier circuit for supplying 24 V DC from 230 V AC instead of 24 V DC source in the circuit.

.....

.....

.....

.....

.....

.....

.....

(ii) Draw the circuit diagram of the rectifier circuit.

* *

