

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  
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88 E I, II

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

නිර්මාණකරණය හා ඉදිකිරීම් තාක්ෂණවේදය I, II  
 வடிவமைப்பும் நிருமாணத் தொழினுட்பவியலும் I, II  
 Design and Construction Technology I, II

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.

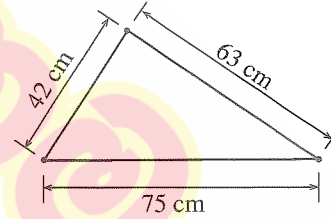
### Design and Construction Technology I

#### Note :

- Answer all questions.
- In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which is correct or most appropriate.
- Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.
- Further instructions are given on the back of the answer sheet. Follow them carefully.

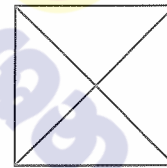
1. When the sides of the triangle shown in the figure are unfolded to form a straight line, the total length of it is

- 105cm.
- 117cm.
- 138cm.
- 180cm.



2. The diagonals of the shown square are joined. The number of right angled triangles formed is

- 2.
- 4.
- 6.
- 8.



3. "The locus of a point travelling at a uniform distance to a centre point is a circle." The most appropriate example to demonstrate this is

- A tyre revolving due to push.
- the revolving axis of a motor.
- The path of a bull tied to a sekku.
- The bucket and rope connected to a pulley of a well.

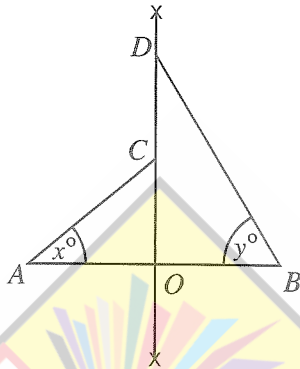
4. The internal angle of a regular polygon is  $108^\circ$ . What is the name of this polygon?

- Regular Pentagon
- Regular Hexagon
- Regular Heptagon
- Regular Octagon

5. A thick A4 paper was folded to join the two wide ends **without** any additional activity. It will then form

- (1) a part of A5 size.
- (2) an irregular solid.
- (3) a hollow cylinder.
- (4) a hollow pyramid.

6. Figure shows the sketch drawn by following geometric methods in order to construct any regular polygon when base is given.



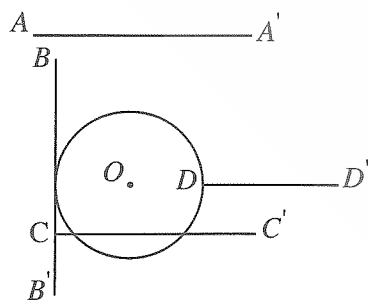
The values of angles  $x^\circ$  and  $y^\circ$  respectively are

- (1)  $30^\circ$  and  $60^\circ$ .
- (2)  $30^\circ$  and  $45^\circ$ .
- (3)  $45^\circ$  and  $60^\circ$ .
- (4)  $45^\circ$  and  $75^\circ$ .

7. Several square frames were made of bamboo slats for a Vesak lantern. Due to weakness in tying up the corners, the shape of squares changed. The geometrical shape thus formed could be a

- (1) Rhombus.
- (2) Rhomboid.
- (3) Rectangle.
- (4) Trapezium.

8. What is the line tangent to circle with centre 'O' ?



- (1) A - A'.
- (2) B - B'.
- (3) C - C'.
- (4) D - D'.

9. What should be the property of mortar used for brickwork?

- (1) Plasticity
- (2) Elasticity
- (3) Brittleness
- (4) Hardness

10. Slump cone is used to test

- (1) the workability of a concrete mix.
- (2) the Texture and quality of soil in a construction site.
- (3) whether the bricks are of correct volume.
- (4) the shape of coarse aggregates in concrete mix.

11. What is the tool used to remove fine cavities on a surface being plastered?

- (1) Masons Trowel
- (2) Moulding Trowel
- (3) Float
- (4) Point Trowel

12. Solvent cement is

- (1) a material used to paste PVC accessories.
- (2) a material used to fill groves in floor tiles and wall tiles.
- (3) a material used to paste cracks in plastic water tanks.
- (4) a material mixed with cement for water proofing.

[see page three

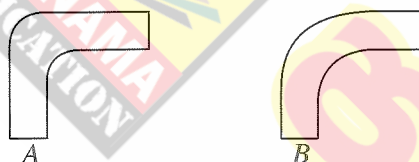
13. Some construction tools are shown under A, B, C and D and their uses are given under P, Q, R and S in the table below.

Tools		Uses	
A	Plumb bob	P	Levelling Plaster
B	Straight edge	Q	Check horizontality
C	Gauge Rod	R	Check verticality
D	Engineering Level	S	Check height of brick course

What is the option that denotes the match of using A, B, C and D tools with their uses?

- (1) P, Q, R, S      (2) P, R, Q, S      (3) R, P, S, Q      (4) R, S, P, Q
14. To test the quality of cement, a sample of cement dissolved in water was filled into a glass bottle and kept sealed for 14 days. If the glass bottle was cracked on inspection after 14 days, it means
- (1) the cement is of good quality.  
 (2) the cement has started to set due to exposure to air.  
 (3) Clinker used for manufacture of cement is well ground.  
 (4) there are impurities in clinker used for manufacture of cement.

15. Figures A and B show two pipe fittings used to change direction of a pipe line by 90°.



The correct statement about the two fittings is

- (1) both A and B provide a smooth flow.  
 (2) fitting A provides a smooth flow while fitting B causes water hammer.  
 (3) fitting A causes water hammer while fitting B gives a smooth flow.  
 (4) fitting A is used for above ground installations and fitting B for underground installations.
16. Pieces of roots and twigs were seen in clay mixed for brick making. The bricks moulded and burnt out of the clay
- (1) will show improved physical properties of bricks.  
 (2) will be well burnt.  
 (3) will be unburnt bricks.  
 (4) will have cavities in bricks.
17. What is the most important aspect that a technician should often consider in performing a work?
- (1) Care of materials      (2) Complete the task early  
 (3) Use best quality materials      (4) Personal safety
18. Cement mouldings made by pouring cement mortar into moulds are used in brick decoration work. What is the best method of fixing such mouldings to a plastered wall?
- (1) use a cement, lime, sand mix      (2) use cement, sand mix  
 (3) use hydrated cement      (4) use cement slurry
19. The brick bond which shows alternate stretchers and headers at the front view on the same course is.
- (1) English Bond.      (2) Header Bond.  
 (3) Stretcher Bond.      (4) Flemish Bond

[see page four

20. In concreting a construction structure the concrete is laid in pre prepared form work where reinforcement is already placed. Concreting in this method is called  
 (1) depositing. (2) compacting. (3) curing. (4) filling.

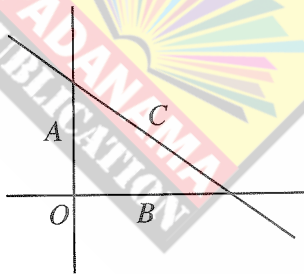
21. In the production of concrete two types of aggregates are used in addition to the binding material. What are the two types of aggregates?

- (1) graded aggregates and coarse aggregates  
 (2) graded aggregates and fine aggregates  
 (3) fine aggregates and coarse aggregates  
 (4) fine aggregates and irregular aggregates

22. What is the pipe fitting required for obtaining a 20mm branch supply to a intermediate point from diameter of 32mm PVC pipe?

- (1) Socket (2) Reducing T  
 (3) Reducing bend (4) Bend

23. Figure shows centre line setting out drawn to form a right angle corner in construction buildings.



$A : B : C$  are proportional to

- (1) 1 : 2 : 3. (2) 3 : 4 : 5. (3) 3 : 2 : 1. (4) 5 : 4 : 3.

24. 'Rubble' is used for

- (1) construction of stretcher bond walls. (2) construction of Random rubble work.  
 (3) Reinforced concrete. (4) Plain concrete.

25. The load on a building imposed by roof and ceiling etc. is called

- (1) Live load. (2) Dead load.  
 (3) Environmental load. (4) Timber load.

26. In fitting a door sash, if a long bar cramp is not available it could be performed by

- (1) Moulding. (2) Rebating.  
 (3) Grooving. (4) Dowelling.

27. What is the timber that require most effort for timber sawing?

- (1) Satin (2) Sandal  
 (3) Iron wood (Na) (4) Milla

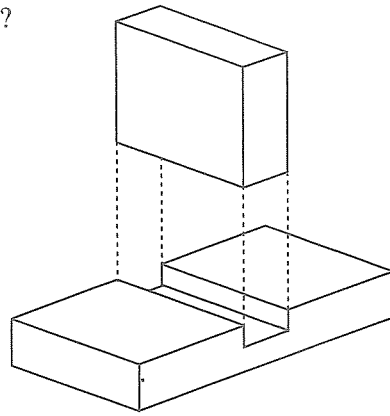
28. The property considered in classification of tools and equipment is,

- (1) Use (2) Production quality  
 (3) Efficiency (4) Brand name

[see page five

29. What is the name of the timber Joint shown in the figure?

- (1) Closed housing Joint.
- (2) Stopped housing Joint.
- (3) Through housing Joint.
- (4) Dovetail housing Joint.



30. Which of the following is an environmental load?

- (1) Wall plates of roof
- (2) People living in the house
- (3) Corrosion
- (4) Snowing

31. Select the choice which has only wood finishing tools/equipments.

- (1) Smoothing plane, rasp, scraper, sand paper
- (2) Trying plane, half round file, scraper, sand paper
- (3) Spoke shave, rasp, half round file, scraper
- (4) Rebate plane, scraper, sand paper, rasp

32. The first thing that a technician getting ready to make a timber item should do is

- (1) providing necessary timber.
- (2) sharpening necessary tools.
- (3) deciding selling price.
- (4) preparing technical drawing.

33. What is the timber defect caused by effect of blowing wind?

- (1) Cup shake
- (2) Twist
- (3) Knots
- (4) Star shake

34. What is the most suitable timber joint used for making a window sash?

- (1) Dovetail Joint
- (2) Rebate Joint
- (3) Mortice and tenon Joint with rebate
- (4) Half lap Joint

35. What is the main difference between a rip saw and a cross cut saw?

- (1) shape of the saw handle
- (2) shape of saw teeth
- (3) Number of teeth per inch
- (4) length of the saw blade

36. The main factor which decide the shape of a roof is

- (1) location of the building.
- (2) number of slopes. (sides)
- (3) roofing material.
- (4) material used for walls.

37. Sequential order of planeing a plank is planeing the

- (1) edge, surface, width, thickness.
- (2) surface, width, edge, thickness.
- (3) width, thickness, surface, edge.
- (4) surface, edge, thickness, width.

38. What is the filling agent out of the following?

- (1) Varnish
- (2) Sanding sealer
- (3) Enamel paint
- (4) Wood Finish

39. In setting out an alligator Jaw scarf Joint its Length is decided as

- (1) three times the width of beam.
- (2) three times the height of beam.
- (3) length of joining members.
- (4) location of the joint.

40. What is the first plane used for planeing timber?

- (1) Smoothing Plane
- (2) Jack Plane
- (3) Rebate Plane
- (4) Trying plane

[see page six

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

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව  
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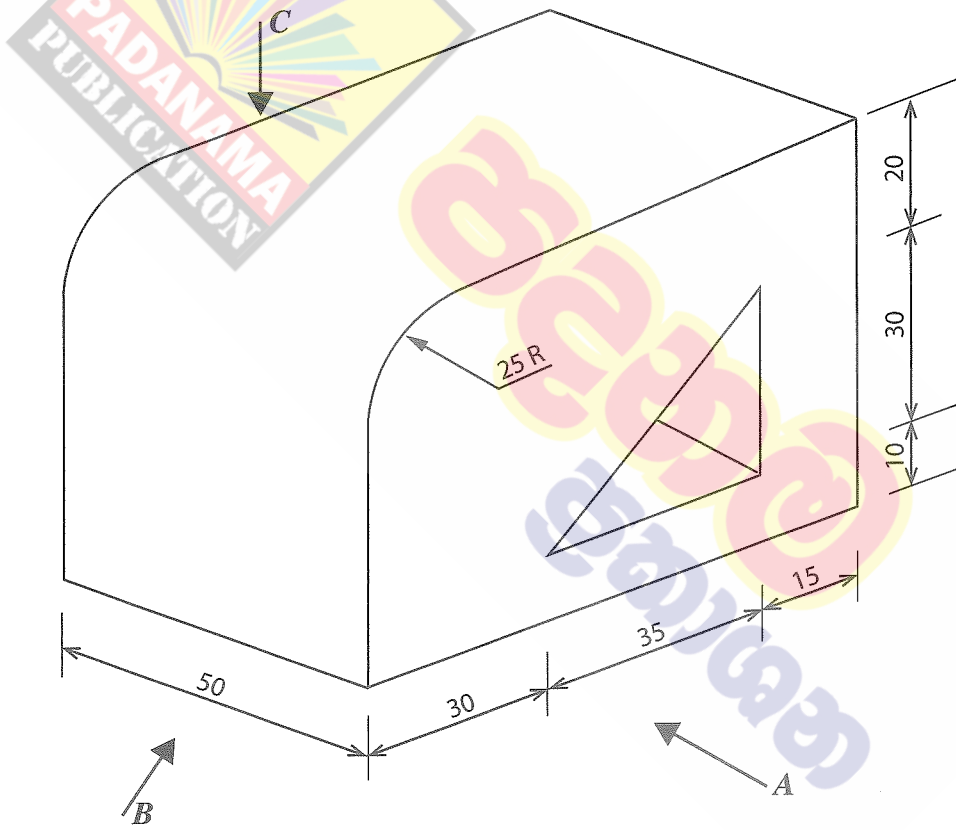
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வடிவமைப்பும் நிருமாணத் தொழினுட்பவியலும்	I, II
Design and Construction Technology	I, II

### Design and Construction Technology II

- \* Answer five questions selecting the first question and four others.
- \* Question No.1 carries 20 marks and each of the other questions carry 10 marks each.

1. (i) Isometric view of an object is shown in the figure.



(All dimensions are in millimetres.)

According to the isometric figure given above, draw

Front, elevation seen through direction of arrow *A*,

Side, elevation seen through direction of arrow *B*,

Plan, seen through direction of arrow *C*,

using third angle orthographic projection principles to a scale of 1:1 as per the dimensions.

(ii) Draw a circle of radius 30 mm and divide the circumference into five equal parts. Construction lines should be clearly shown.

[see page seven

2. Brick walls are widely used in the construction industry.
- Mention the standard dimensions of a brick according to Sri Lanka Standards.
  - Briefly describe **two** characteristic features that could be observed in the front elevation of Stretcher Bond.
  - Draw the front elevation of a wall built in English Bond and name the following parts.
    - Over lap
    - Horizontal joints
    - Plumb joints
3. Plumbing can be performed efficiently and accurately as various accessories for PVC pipes are easily available.
- Mention the accessory fixed to lower end of suction pipe in pumping water from a well.
  - Mention **four** advantages of using PVC pipes over Galvanized Iron (G.I.) pipes.
  - Write one occasion each for the usage of following plumbing accessories in laying pipes.
    - Socket
    - Reducing Socket
    - Faucet Socket
    - T Socket
    - Bend
4. Various types of Joints are used to connect timber parts together. The timber joints are classified according to their use.
- Name **two** types of lengthening joints.
  - Name **two** types of dovetailed joints and mention **two** common characteristics of them.
  - Name a type of widening joint which is used to increase the width and draw its sketch.
5. Aluminium fabrication can be identified as a developmental change in construction industry.
- Mention **two** advantages of aluminium over timber.
  - Describe briefly **two** assembling methods in aluminium fabrication.
  - Mention **three** tools or equipment used in aluminium fabrication and briefly describe one function each of them separately.
6. Proper finishing to a timber product gives it good appearance as well as preservation.
- Mention **two** laminates used for plywood and Mild density fibre (M.D.F) board.
  - Mention **four** colouring agents used to colour timber.
  - Describe briefly the sequential steps followed in finishing a timber product.
7. A brick wall 4 m long, 2 m high and one brick thick bond is to be built in English Bond. Calculate the expenditure for bricks to build the above wall including wastage and transport of bricks using following information.
- 120 bricks are required to build one square metre of one brick thick wall.
  - Wastage in transport and usage of bricks is 5%.
  - Cost of 1000 bricks (including loading, unloading and transport) is Rs. 2500.00.

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# 10 සහ 11 ශ්‍රේණි සඳහා ග්‍රන්ථ නාමාවලිය

## (අ.පො.ස) සාමාන්‍ය පෙළ 11 ශ්‍රේණිය - කෙටි සටහන්

### සිංහල මාධ්‍ය

- 10-11 සිංහල ව්‍යාකරණ
- 10-11 සිංහල සාහිත්‍යය රසාස්වාදය
- බුද්ධ ධර්මය
- කතෝලික ධර්මය
- සිංහල භාෂාව හා සාහිත්‍යය
- සිංහල සාහිත්‍යය සංග්‍රහය
- English Language
- ගණිතය - 1
- ගණිතය - 2
- ජීව විද්‍යාව
- භෞතික විද්‍යාව
- රසායන විද්‍යාව
- ඉතිහාසය
- ව්‍යාපාර හා ගිණුම්කරණ අධ්‍යයනය
- භූගෝල විද්‍යාව
- පුරවැසි අධ්‍යාපනය
- පෙරදිග සංගීතය
- නර්තනය
- නාට්‍ය හා රංග කලාව
- චිත්‍ර කලාව
- තොරතුරු හා සන්නිවේදන තාක්ෂණය
- සන්නිවේදනය හා මාධ්‍ය අධ්‍යයනය
- සෞඛ්‍යය හා ශාරීරික අධ්‍යාපනය
- කෘෂි හා ආහාර තාක්ෂණය
- ගෘහ ආර්ථික විද්‍යාව

## 11 ශ්‍රේණිය - ප්‍රශ්නෝත්තර

### සිංහල මාධ්‍ය

- සිංහල භාෂාව හා සාහිත්‍යය
- බුද්ධ ධර්මය
- ඉතිහාසය
- ව්‍යාපාර හා ගිණුම්කරණ අධ්‍යයනය
- පුරවැසි අධ්‍යාපනය

## Grade 11 - Short Notes

### English Medium

- Buddhism
- Mathematics - 1
- Mathematics - 2
- Biology
- Physics
- Chemistry
- History
- Business & Accounting Studies
- Geography
- Civic Education
- ICT
- Health & Physical Education
- 10-11 English Literary (Poetry)
- 10-11 English Literary (Drama)
- 10-11 English Literary (Short Story)

## Grade 11 - Model Papers

### English Medium

- Civic Education

## 10 ශ්‍රේණිය - කෙටි සටහන්

### සිංහල මාධ්‍ය

- බුද්ධ ධර්මය
- කතෝලික ධර්මය
- සිංහල භාෂාව හා සාහිත්‍යය
- සිංහල සාහිත්‍යය සංග්‍රහය
- සිංහල රචනා අත්වැල
- English Language
- ගණිතය - 1
- ගණිතය - 2
- ජීව විද්‍යාව
- භෞතික විද්‍යාව
- රසායන විද්‍යාව



# Grade 10 - Short Notes

English Medium

- ඉතිහාසය
- ඉතිහාසය රූප සටහන් අශ්‍රිත කෙටි සටහන්
- ව්‍යාපාර හා ගිණුම්කරණ අධ්‍යයනය - 1
- ව්‍යාපාර හා ගිණුම්කරණ අධ්‍යයනය - 2
- භූගෝල විද්‍යාව
- පුරවැසි අධ්‍යාපනය
- පෙරදිග සංගීතය
- නර්තනය
- නාට්‍ය හා රංග කලාව
- චිත්‍ර කලාව
- තොරතුරු හා සන්නිවේදන තාක්ෂණය
- සන්නිවේදනය හා මාධ්‍ය අධ්‍යයනය
- සෞඛ්‍යය හා ශාරීරික අධ්‍යාපනය
- කෘෂි හා ආහාර තාක්ෂණය
- ගෘහ ආර්ථික විද්‍යාව
- ජපන් භාෂාව

- Buddhism
- Mathematics - 1
- Mathematics - 2
- Biology
- Physics
- Chemistry
- History
- Business & Accounting Studies - 1
- Business & Accounting Studies - 2
- Geography
- Civic Education
- ICT
- Health & Physical Education

## 10 ශ්‍රේණිය - ප්‍රශ්නෝත්තර

සිංහල මාධ්‍ය

- සිංහල භාෂාව හා සාහිත්‍යය
- බුද්ධ ධර්මය
- ගණිතය
- විද්‍යාව
- ඉතිහාසය
- පුරවැසි අධ්‍යාපනය
- භූගෝල විද්‍යාව
- පෙරදිග සංගීතය

## Grade 10 - Model Papers

English Medium

- Mathematics
- Science
- Civic Education
- Geography
- English Activity Book
- English Work Book

### අනෙකුත් ග්‍රන්ථ

- හෙළදිව කතිකාවත  
- අරුණශාන්ත අමරසිංහ
- හොල්මන් අවතාර සහ යකඳුරන්  
- අරුණශාන්ත අමරසිංහ
- සිසු-ගුරු අත්පොත නාට්‍ය හා රංග කලාව 10-11 ශ්‍රේණි සඳහා (නව විෂය නිර්දේශය) - තන්දන අල්ගේවත්ත

## පාඩමෙන් පාඩමට මාසික ඇගයීම්

සිංහල මාධ්‍ය

- 10-ශ්‍රේණිය - විද්‍යාව
- 11-ශ්‍රේණිය - විද්‍යාව

සියලු ම ශ්‍රේණි සඳහා කෙටි සටහන්, ප්‍රශ්න පත්‍ර කට්ටල සහ වැඩ පොත් අප සතුව තිබෙන අතර, මෙම ඕනෑම ග්‍රන්ථයක් වට්ටම් සහිත ව ඔබේ නිවසට ම ගෙන්වා ගත හැකි ය.