CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)

NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)

FORM FOUR PRE-NATIONAL EXAMINATIONS AUG 2025

WOOD WORK

MARKING SCHEME

SECTION A (16 MARKS)

Answer **all** questions in this section.

1.

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
A	B	B	A	E	A	C	C	B	D

2.

List A	(i)	(ii)	(iii)	(iv)	(v)	(vi)
List B	G	E	F	D	B	A

SECTION B (54 Marks)

Answer **all** questions in this section.

3. i) **Metal fixing that penetrate timber**
   This type of metal used to join timber in different section such as corner joint, lengthening of wooden pieces. Eg. nails, screws and bolts.

   ii) **Metal fixing that allow movement**
   This type of metal used to join timber in different section to allow movement. Eg; Butt hinge, Springe hinge.

iii) **Metal fixing that provide security**.
This type of metal fixed to secure the components. eg. Mortise lock, Union lock **(6 Marks)**

b) What are the standard size (dimensions)of Manufactured boards as used in construction such as chip board, gypsum board, block board, and hardboard. **(2 Marks)**

4. a) What is partition?
are permanent or temporary thin interior walls which are constructed in a building to separate spaces **(2 Marks)**

b) Mention any three (3) requirements that timber partition must meet to suit the user expectation
i) should not allow passage of sound from one room to another
ii) should be able to carry its own weight
iii) should be strong enough to resist the impact-imposed load. eg decorative surface materials
iv) It should be thin and light
v) it should be fire resistance and damp proof **(6 Marks)**

5. Wooden floors parts definition;
i) **Joists**
Are the horizontal structure element that extend into an open space, usually between beams which then transfer the loads to vertical structural element
ii) **Stump**
is a pieces of timber which used to hold up the frame which in turn supports the floor surface
iii) **Girder**
this are horizontal structure members placed to support the load of binder, bridging joist and that of floor topping
iv) **Floor boards**
are pieces of timber which form up a platform or the floor decking and they enable the floor to serve its purpose.

6.

Data given: **All dimension in meters (m)**
Classroom size **Criteria** - ***4 internal surface walls x 3 coats***
length 21m
Width 11m
height 3.7m
Doors & Windows
Windows size 5m x 2.5m =6pc
Doors size 1.2 m x 2.5m =1pc
Spreading 5ltr : 36 sqm **Amount** Tsh6500 : 1 ltr

(i) Area of classroom
Long walls
3.7*21=77.7 sqrm
77.7*2=155.4sqrm
Short walls
3.7*11=40.7sqrm
40.7*2=81.4sqrm
Total internal four surface walls
155.4+81.4=**236.8sqrm**

(ii)Area for doors and windows
Windows
5*2.5=12.5sqrm
12.5*6=75sqrm
Doors
1.2*2.5=3sqrm
(iii)Total door and windows area
3+75=**78sqrm**

(iv)Total area required (Classroom - doors& windows)
236.8-78=**158.8sqrm**

(v)Amount of materials required.
5*158.8/36=**22.0556 liters**

Three coat required
22.0556*3=**66.1668 liters**

(v)Amount required cost
66.1668*6500= **430,084.2Tsh**

(8 Marks)

7. **Terms used in stairs and staircase**

i) **Riser**

is the vertical portion of the step that provides support to the tread

ii) **Run**

is the total length of stairs in a horizontal plane, including landing

iii) **Landing**

is a level platform at the top or bottom of a flight between the floors.

iv) **Hand rail**

is the part of the stair case that people hold onto for support when going up and down of the stairs

(8 Marks)

8. a) **Timbering to trenches.**

is the provision of timber boards and struts to give a temporary support to the sides of the trench due to unstable soil or deep trenches. **(2 marks)**

b) What governs the design of timbering to trenches(mention 3)

i) Nature of the soil to be supported

ii) Surrounding activities near the trench

iii) Depth of the foundation trench

iv) Quantity of timbering material available

(6 Marks)

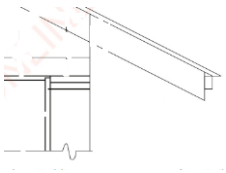
9. a) Eaves.

is a bottom end of the roof where it meets the wall.

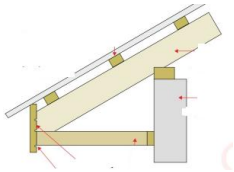
Eaves form an overhang that's throws water of the walls and may be as a decoration of roof finishing. **(2 marks)**

b) **Two types of Eaves**

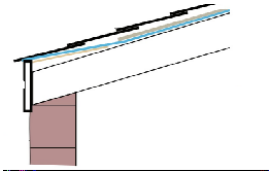
i) Open eves



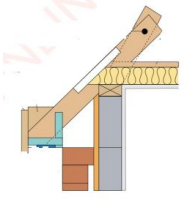
ii) closed eaves



iii) Flash eaves



iv) Spocket eaves



(6 Marks)

SECTION C (30 Marks)

Answer **three (2)** questions from this section.

10. a) State the functions of the following roofing terminologies and make a neat labeled sketch.

i) **Common rafter**

Are long wooden boards used for the frame of the roof that extend from the ridge to the wall plate.

ii) Pitch

is a ratio of total rise to span

iii) Eaves

is the lower edge of the inclined roof surface.

iv) Span

This is the clear distance between the supports of a roof truss. normally called a building width.

v) Rise

This is the vertical distance between the top of a ridge and the wall plate.

b) Five forms of a pitched roof.

i)Learn-to-roof
ii) Mono pitched
iii) Hip roof
iv) Gable roof
v) Mansard roof
vi) Gambrel roof
viii) Deck roof

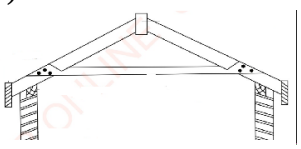
c) Five (5) functional requirements of roofs.

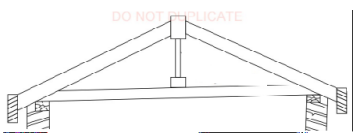
i)Weather resistance
ii) Strength and stability
iii) Thermal insulation
iv) Sound insulation
v) Fire resistance and durability.

11. a) With the aid of a well labeled diagram, describe the parts of the combination of king and queen post truss roof.

b) With the aid of sketches, describe four types of single roof trusses.

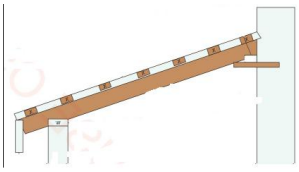
i) Collar beam roof ii) Couple closed roof



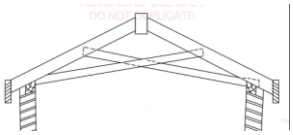


iii) Couple roof

iv) learn-to-roof



iv) collar and scissor roof



c) Explain three types of roof coverings as used in roofing.

i) Thatch - is the cheapest roofing material mostly found in villages and it is combustible, unstable against high winds, absorb moisture etc.

ii) Tiles roofing – are manufactured from locally available earth in Tanzania. such tiles are: Plain, Curved, Italian, interlocking and spanish

iii) Wood shingles roofing - are light weight material, not fire, and termite resistant, sound resistant and obtained from well-seasoned timber

iv) Light weight roofing – this are desirable to reduce the weight of the roof so that structural framing can be economical

v) Fibre roofing – is the plastic glass cement fiber sheet of particular length and width and thickness

vi) Concrete roofing – is a solid slab of concrete capping the top of the house

vii) Slate roofing – is the premium roof system made primarily out of natural slate tiles and other slates roofing material.

viii) Asphalt shingles roofing – This are roof coverings consist of individual overlapping elements

12. a) **"Cutting list"**

is an item which indicate the task to be performed, number of components and their sizes for a particular timber work.

b) **The importance of cutting list** five (5) points

To ensure the piece of work is executed in an orderly manner without omission or duplication of components parts.

c) Prepare a cutting list for 5 window frames

Item	Members	Qty	Total Qty required	Dimension in cm			Centimeter run per member's
				Thick	Width	length	
Roof truss	Kingpost	1pc	5	5	8	300	1,500
	Struts	2pc	10	5	8	180	1,800
	Queen post	2pc	10	5	8	150	1,500
	Rafters	2pc	10	5	8	500	5,000
	Tie beam	1pc	5	5	8	400	2,000
	Total centimeter run						**11,800**
	Change of centimeter run(cm run) to run meter(rm)						**118**

d) Tshs. 5,000/= per run,
-Labor charged at 30% of material cost, and
-Profit margin set at 12% of material and labor cost;
-Calculate the cost of the five window frames.

Summary answer.

change of metric	Total rm	Charged 5,000tsh/rm of material costs	labor 30% (material cost)	Total (labor + material	Profit margin 12% (material and labor)	Total cost	Five windows
	(i)	(ii)	(iii)		(iv)	(v)	(iv)
cm run	11,800						
rm	118	590,000	177,000	767,000	92,040	859,040	4,295,200

i. **Detailed solution**
Change 11,800 Centimeter run meter to ***running meter***

1rm=100cm run
x =11800cm run

$$= \frac{11{,}800\text{cm run} \times 1\text{ rm}}{100\text{cm run}}$$

= **118 running meter (rm)**

ii. ***Material cost*** if charged 5,000 Tsh per rm

1rm = 5,000 /=
118rm= x

= 118rm x 5,000/=

= 590,000/=

iii. ***Labor cos***t if it is 30% of material cost

30% x 590,000/=

= **177,000/=**

iv. ***Profit margin*** is 12% (material and labor cost)

12% x (590,000/= + 177,000/=)

= 12% x (767,000/=)

= **92,040/=**

v. ***Total cost of ONE truss*** construction

= material costs + labor costs + profit costs

= 590,000/= + 177,000/= + 92,040/=

= **859,040/=**

vi. ***Five windows costs***

= Total cost required x number of windows

= 859,000/= x 5 windows

= **4,295,200/=**