THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

783 **BUILDING CONSTRUCTION**

Time: 3 Hour. **ANSWERS** **Year: 2011**

Instructions

1. This paper consists of sections **five (5)** questions.
2. Answer all questions.
3. Each question carries **twenty (20)** marks.
4. Non-programmable calculators may be used.
5. Communication devices and any unauthorized materials are **not** allowed in the examination room
6. Write your **Examination Number** on every page of your answer booklet.

1. (a) State three functions of floor finishes in a residential building.

Floor finishes serve to **protect the structural floor surface** from wear, moisture, and chemical damage, thereby extending its lifespan.

They provide a **smooth and comfortable walking surface**, enhancing safety and usability within the rooms.

Floor finishes also contribute to the **aesthetic appeal of the interior**, influencing the style, mood, and design of the space.

(b) **Durability** is an important factor. The finish must withstand foot traffic, abrasion, and impact, especially in areas like living rooms and kitchens.

Ease of cleaning and maintenance is another factor. Materials such as tiles or vinyl are preferred in households for their resistance to stains and ease of upkeep.

Cost and availability also influence the selection. Locally available and affordable materials are often favored to reduce overall construction expenses.

(c) Poor installation can lead to **uneven surfaces**, which may become tripping hazards and reduce the quality of finishes.

Cracking or delamination may occur if the finish is not properly bonded to the substrate or if subfloor movement is not accounted for.

Moisture penetration beneath poorly sealed finishes may cause swelling, warping, or mold growth, especially in wooden or laminate materials.

2. (a) Describe the purpose of a building specification in construction projects.

A building specification is a **written description of materials, workmanship, standards, and procedures** to be followed during construction.

Its purpose is to ensure **clarity and consistency in construction quality**, providing a reference that guides contractors and workers.

It also helps in **contract management and cost control**, as it defines expectations, reduces misunderstandings, and supports accurate pricing and payments.

(b) **Descriptive specifications** explain in detail the materials and workmanship required without naming specific brands or products.

Performance specifications focus on the expected outcome or behavior of the product, giving contractors flexibility in choosing materials.

Proprietary specifications specify particular brands or products to be used, usually to ensure compatibility or quality.

(c) Following specifications ensures that **the structure meets design and safety standards**, avoiding structural or functional failures.

It helps in **maintaining client satisfaction**, as the final output aligns with expectations and contractual agreements.

Specifications also ensure **legal compliance**, preventing disputes, penalties, or rework due to deviation from regulatory or agreed standards.

3. (a) Define the term "moisture movement" and explain its effect on building materials.

Moisture movement refers to the **migration of water vapor or liquid water through building materials** due to capillary action, diffusion, or pressure differences.

It affects building materials by causing **expansion, shrinkage, or decay**, especially in materials like timber, concrete, and plaster, which can weaken or deform.

(b) One method of control is the installation of **damp-proof courses (DPCs)** and membranes to prevent ground moisture from rising into walls and floors.

Using **water-resistant materials and coatings**, such as waterproof cement or sealants, protects surfaces from absorbing moisture.

Ensuring proper **drainage systems and site grading** prevents water accumulation around foundations and other vulnerable areas.

(c) **Timber** is easily affected, as it swells, rots, or hosts termites when exposed to prolonged moisture.

Walls, especially those made from brick or blockwork, may develop damp patches or efflorescence due to moisture absorption.

Floors, particularly in wet areas, can suffer from lifting tiles, mold, or decay when moisture seeps through poorly sealed joints.

4. (a) Explain the term "preliminary work" as used in building construction.

Preliminary work refers to the **initial site preparation activities** done before the main construction begins. These tasks establish conditions necessary for safe and efficient building work.

It includes tasks such as site clearance, layout setting, access provision, and temporary services installation.

(b) **Site clearing and leveling** removes trees, debris, and unwanted structures to prepare the land for construction.

Setting out involves marking the boundaries, foundation lines, and structural grids using pegs and strings.

Temporary fencing and hoarding secure the site against unauthorized access and provide safety for workers and the public.

Provision of temporary utilities, such as water supply and electricity, is essential to support ongoing site operations.

(c) Omitting or rushing preliminary works may lead to **foundation errors**, such as incorrect building orientation or misaligned structures.

It can cause **delays during the main work**, especially if basic facilities or services are not in place when needed.

Lack of proper preparation increases the risk of **accidents, equipment damage, or rework**, affecting cost and overall efficiency.

5. (a) Define the term “construction contract” and state its purpose in a building project.

A construction contract is a **legally binding agreement** between the client and contractor outlining the scope of work, terms, responsibilities, and conditions for a construction project.

Its purpose is to **protect both parties** by defining expectations, payments, timelines, and dispute resolution procedures.

(b) A valid contract must have a **clear scope of work**, detailing what is to be built and delivered.

Agreed terms and conditions, including timelines, payment schedules, and penalties for delay, must be specified.

There must be **mutual consent and legal capacity** of the parties involved to enter into the contract.

Signatures of both parties make the agreement enforceable and official under legal jurisdiction.

(c) Working without a signed contract may lead to **disputes over scope, quality, and payment**, since verbal agreements lack clarity and legal standing.

There is increased risk of **non-payment or delayed payment**, as there's no documented commitment from the client.

The contractor may also face **legal exposure and lack of protection**, making it hard to claim damages or enforce obligations in case of conflicts.