

JEWELLERY 2

1. GENERAL COMMENTS

The standard of the paper this year is comparable to the previous years. The items were a good reflection of the teaching syllabus for jewellery.

However, the performance of the candidates was average.

2. SUMMARY OF CANDIDATES' STRENGTHS

The Chief examiner identified these strengths in candidates' responses:

- (i) Most candidates were able to explain and give characteristics of gemstones;
- (ii) Candidates were able to give the characteristics and uses of some jewellery items;
- (iii) The candidates were able to explain factors to consider when setting up a bead making enterprise in Ghana.

3. SUMMARY OF CANDIDATES' WEAKNESSES

The following weaknesses were noted:

- (i) Majority of the candidates could not describe and draw a kiln.
- (ii) Most candidates were unable to describe the steps involved in preparing and building a portfolio.
- (iii) Candidates were not able to describe the steps involved in soldering a broken copper bracelet.

4. SUGGESTED REMEDIES

- (i) Candidates should be encouraged to use the technical language of the subject.
- (ii) Candidates should read wide and search online to be more abreast with current trends in Jewellery.
- (iii) Teachers should do more practical lessons to help students answer practical oriented questions.

5. DETAILED COMMENTS

Question 1

(a) Explain the term gemstone.

(b) State three characteristics each of the following gemstones:

- (i) **Diamond;**
- (ii) **Emerald;**
- (iii) **Pearl;**
- (iv) **Agate.**

Candidates who attempted question 1 provided adequate definitions of gemstone for 1 (a) and highlighted the characteristics demanded by question 1 (b).

However, few of them demonstrated their weaknesses in providing correct characteristics of some of the gemstones. Candidate's wrong characteristics given include:

- Diamond is malleable, opaque
- Pearl is translucent, transparent
- Agate is ductile, fusible

The expected answers include:

- Gemstone is a precious or semi-precious mineral which is cut, polished and used to make jewellery or other adornments. Examples include diamonds, emerald, etc.
- Gemstone or gems (also called precious or semi-precious stones, fine gems or jewels) are pieces of minerals, which in cut and polished form, are used to make jewellery or other adornments. For example: diamond, pearl, emerald, ruby, sapphire, etc.

(b) Characteristics of the following gemstones:

i. Diamond

- Hardness of diamond is 10 on the Moh's scale.
- It is the hardest of the minerals and used for cutting glass/louvres.
- It resists all kinds of acid because it is composed of pure carbon.
- It is an excellent conductor of heat. It is cold when touched.
- It has high dispersion; therefore, it has a beautiful fire.
- It has a specific gravity of 3.52.

ii. Emerald

- They are bright and needs great care in setting.
- The hardness of emerald is 7.5 to 8 on the moh's scale.
- The colour of emerald is vivid green to yellow-green.

- It contains amount of chromium (Cr) and sometimes vanadium(V).
- Emerald signifies birthstone of spring or May.
- It is a bright green beryl mineral.

iii. Pearl

- Pearls are easily affected by moisture.
- It's lustre/shining.
- It is an organic gemstone.
- The ideal pearl is perfectly round.
- The hardness of pearl is 2.5-4.5 on the Moh's scale.

iv. Agate

- It is translucent to opaque gemstone
- Agate has visible inclusion
- It has layered patterns in various colours like white, gray, pink, yellow, orange, red and black.
- It has waxy to dull lustre

Question 2

(a) Describe a kiln.

(b) Draw the traditional glass bead kiln and label five parts.

(c) State the functions of the five parts labelled in 2 (b).

Question 2 expected candidates to describe a kiln for section (a), draw a traditional glass bead kiln for section (b) and state the functions of the parts for section (c), however assessment of candidates' knowledge on kilns, their parts, and functions revealed disappointing results.

Most candidates did not attempt this question, and few of them who answered this drew gas cooker instead of traditional glass bead kiln. Again, most candidates failed to label the parts correctly. For instance, some parts mentioned by candidates were:

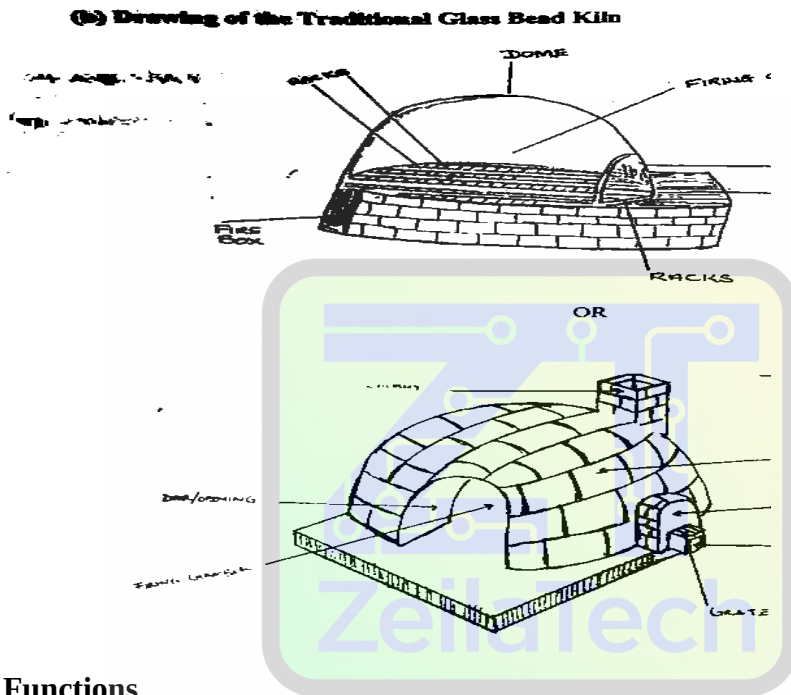
- Exhaust for smoke vent or chimney
- Bread plate instead of racks
- Smoke entrance instead of firing chamber.

The expected responses for question 2 include:

- A kiln is a device/furnace/oven for firing items to make them accomplished, durable, functional and usable. Examples of kilns include gas kiln, electric kiln, firewood kiln, coal kiln, etc. It can also be made with clay or metal.

- A kiln is a thermally insulating chamber, a type of oven that produces temperature (heat), sufficient to complete processes such as hardening, drying or chemical changes.

An illustration of Traditional Glass Bead Kiln



Functions

(i) Firebox

- It is a space where firewood is packed and enlightened to supply/generate heat into the chamber for firing the glass beads
- Packed firewood/coal is lit to burn and provide intense heat/temperature into the chamber

(ii) Dome

- It helps/facilitates the even circulation of heat in the kiln
- It serves as the roof of the traditional glass bead kiln
- It creates enough space for the beads to be packed into the chamber
- It aids ventilation
- It enhances circulation of temperature (heat) in the kiln to fuse the glass powder at the same time

(iii) Firing chamber

- This is a room created in the kiln where the glass beads moulds carrying the collet/pulverized glass are packed and fired.
- It is the inner space for firing glass powder into glass beads.
- It provides space/vacuum for serving heat for firing glass beads until they fuse

(iv) Racks

- They are metal devices on which the bead moulds are arranged for firing
- Is a flat metal arrangement in the traditional kiln/oven for supporting the bead moulds for firing and fusing.

(v) Platform/Table

- Moulds drawn from the kiln are placed on the platform.
- It is a cooling place for drawn moulds keeping the beads
- It is a support for the glass bead moulds keeping the collet to be warm before packing the kiln
- It prevents sharp contraction of beads drawn from the kiln

(vi) Door/ Opening

- It is used to load and unload wares into the kiln
- It allows adjustments of temperature and atmosphere
- It serves as a visibility into the firing chamber for monitoring progress of wares

(vii) Ash Pit

- It is locked under the grits on the firebox. It allows ash to be collected to prevent the choking of the firebox during firing

(viii) Chimney

- It is a tall structure behind the kiln which allows smoke and used heat to escape

(ix) Kiln Body/Wall

- It is the main structure housing the firing chamber

(x) Grate

- It is a structure that allows air to circulate around the beads promoting even heating

Question 3

- (a) What is an artist portfolio?**
- (b) List three types of portfolios.**
- (c) In five basic steps, describe how to prepare and build a portfolio for a jeweller to win a contract.**

Majority of the candidates who answered question 3 were able to satisfy the demands of 3 (a) and (b) by explaining artist portfolio and listing the types of portfolios correctly but few of them grouped the types into two broad headings (soft and hard copy), making it difficult for them to come up with the third type.

The expected response include:

- It is a set of pictures or other pieces of work that an artist, photographer, etc. have done (hard and soft copies), which is an edited collection of his/her best artworks intended to showcase the style or method of work
- It is a collection of works needed or required for employment, further education, occupational training or business promotion as evidence of education qualification, creative ability, achievement, technical proficiency etc.

Types of portfolios

- | | |
|----------------------------|-------------------|
| i. Drawings | ix. Slides |
| ii. Painting | x. Transparencies |
| iii. Photographs | xi. DVDs |
| iv. Digital Media | xii. VCDs |
| v. Web Design | xiii. EVDs |
| vi. Three-Dimensional Work | xiv. Files |
| vii. Animation | xv. Folders |
| viii. Albums | xvi. Pen drive |

Few of the candidates were able to accurately describe steps involved in preparing and building a portfolio to gain a contract as required by question 3(c). Some of the candidates however, focused on creating physical containers. Examples of candidates' response:

- Gathering tools and materials
- Measuring and cutting paper
- Applying adhesives
- Saving documents

The answers provided for question 3(c) by some of the candidates revealed that they lack clear understanding of the basic steps involved in preparing and building a portfolio to win a contract. The subject teachers should differentiate between the steps in the construction of a portfolio and the steps to prepare and build a portfolio tailoring to a particular contract

The expected responses:

- i. **Select your best work:** Choose pieces that showcase your skills and style and that are most relevant to the contract you are aiming for.
- ii. **Organize thoughtfully:** Arrange your work in a coherent order. Typically start with strong pieces that grab attention and ends with notable works to live a lasting impression.
- iii. **Include context:** Provide brief description for each piece including the medium dimensions and any relevant background information. This helps potential clients understand your work better.
- iv. **Professional presentation:** Ensure your portfolio is well organized and visually appealing whether it is a physical work or digital portfolio. For digital portfolio, ensure your website or document is easy to navigate and to load quickly.
- v. **Tailor to the contract:** Customize your portfolio to align with specific needs and preferences of the client or project. Highlight works that demonstrate your ability to meet your requirements.
- vi. **Showcase a range:** Display a variety of works that showcase your versatility and ability to tackle different styles or mediums if applicable.
- vii. **Include testimonials:** If possible, include recommendations and testimonials from previous clients or collaborators to add credibility.
- viii. **Professional biography:** Add a brief artistic statement or biography that outlines your background, artist's vision and career highlights.
- ix. **Update regularly:** Keep your portfolio current with your latest and best works.
- x. **Proofread:** Check for any type of errors in your description and biography to ensure a polished presentation.

OR

Smart Learning Tools

- i. **Create Your Content/Define the purpose of the portfolio:** Gather high-quality images of your Jewellery pieces, including: finished pieces, sketches and designs, work-in-progress shots, certificates of authenticity and appraisal and testimonials from clients.
- ii. **Organize Your Work/Select the Work:** Categorize pieces by: collection/theme, material (gold, silver, gemstones), technique (casting, forging, enameling), style (modern, vintage, minimalist).
- iii. **Choose a Platform:** Select a platform for your portfolio: website (Wax, Squarespace), online portfolio platforms (Balance, Format), physical portfolio (printed and bound).
- iv. **Design and Layout:** Create a visually appealing design: Use consistent typography and layout. Include descriptions and technical details. High-quality image resolution (300 DPI).
- v. **Edit and Refine:** Review and refine your portfolio. Seek feedback from peers and mentors. Update regularly with new work and ensure consistency and quality throughout.

Question 4

(a) Explain soldering in jewellery.

(b) Describe the steps involved in soldering a broken copper bracelet.

(c) State two ways of finishing the bracelet in 4 (b) to prevent tarnishing.

Most of the candidates could not accurately define soldering as demanded by question 4 (b). A lot of them defined soldering as: ‘an *electric device that is used to remove, shape, write and design a Jewellery object for beautification.*’

Below is the expected answer for question 4 (a):

- Soldering is a process of joining two pieces of metal by using an alloy called solder which is heated to flow into the spaces of the expanded metal.
- Soldering is the method of joining two or more metals together by means of a molten solder and flux e.g. borax which aids the molten solder to flow and bond the ends of the metals by capillary action.

Most candidates provided inaccurate answers for the ‘b’ part where they were to describe the steps involved in soldering a broken copper bracelet. Instead, they were providing instructions on using a soldering iron and lead to mend a broken metal, which is not the proper application of soldering in Jewellery. Examples of candidate’s responses;

- Plug soldering iron to the electricity for it to be heated
- Use the heated soldering iron on the lead till it joins the broken copper bracelet.

The expected responses include:

Tools

Blowtorch, tweezer, clips, brass scratch brush, workbench, file, emery cloth, charcoal board/insulating block, etc.

Materials

Pickling solution, broken copper bracelet, solder, borax flux, clay slip, water, mop

Process

- i. Pickle to clean the metal surfaces of the broken copper bracelet to be joined to remove grease, oil, dust, etc.
- ii. Rinse in clean water by brush scratching and mop off water
- iii. Align the two pieces properly on the charcoal board and smear or coat already soldered joint with clay slip
- iv. Cut solder into smaller pieces-pellets

- v. Apply flux on both the broken joint and the pieces of cut solders
- vi. Place solder in contact with metal and apply heat at the right temperature
- vii. Allow the soldered work to cool
- viii. Clean work in pickling solution
- ix. Remove any excess solder around work/joint by filing
- x. Re-pickle and rinse in clean water and mop off water
- xi. Buff and polish the copper bracelet
- xii. Package the copper bracelet in Jewellery box

Candidates' response was enormous in terms of providing answers to question 4(c) by stating correct ways of finishing the bracelet in 4(b), to prevent tarnishing. The expected responses include: lacquering, electroplating, the use of amalgamation method, by the use of patination method, using painting and spraying, gilding the copper bracelet, anodizing the copper bracelet,

Question 5

- (a) Explain the term Jewellery.**
- (b) Tabulate two main characteristics and one use of the following jewellery:**
 - (i) Brooch;**
 - (ii) Choker;**
 - (iii) Epaulette;**
 - (iv) Tiara.**

Question 5 attracted most of the candidates and the performance was quite impressive.

The candidates who attempted this question provided accurate and comprehensive responses. They demonstrated a clear understanding of Jewellery related concepts.

The expected responses include:

- Jewellery refers to decorative items or ornamental pieces worn for personal adornment such as brooches, rings, necklaces, earrings, pendants, bracelets, cuff links, etc. which may or may not be precious (such as gold, silver, glass and plastic) that are often set with genuine or imitation gems.
- Jewellery is a collective term for ornaments such as earrings, necklaces, brooches and rings purposely made to adorn the body and usually made of valuable metals and other materials that may be natural or man-made.

The part (b) tested candidates on the characteristics of some jeweler items. Majority of the candidates were able to supply appropriate answers related to those captured in the table below:

ITEMS	CHARACTERISTICS	USES
Brooch	• It has a main body thus shape • A fastener is fixed to the brooch • Brooch may have pictures or illustrations and inscriptions • It may have decorations • It may have a lustre or shine or matt surface • It may be lacquered/electroplated depending upon the material used • It maybe costume Jewellery or precious Jewellery, etc.	• For decorating victors • For fastening belts to dresses • For celebrations • As a body adornment • For identification/to show status • For keeping information • For remembering events • For communication, etc.
Choker	• It has a close-fitting necklace • It can be produced from natural or man-made materials e.g. velvet, latex, plastic, beads, leather, metal etc. • It may be secured with a fastener • It may either be flexible or stiff etc.	• Worn as body adornments • Could be used to check growth • May be used for protection • May be sed to accentuate necklines • May be used to create a focal point etc.
Epaulette	• It is a type of ornamental shoulder piece • Cords/fabrics are used to make them • It has a rectangular/conical shape • It is secured with buttons or down to the garment etc.	• For beautifying security garments • For showing hierarchy or ranks in armed forces • For fashion • For identification etc.
Tiara	• It is semi-circular in shape • It varies in size • It can be tapered from the middle as well as the ends • It may be of metal, plastic, beads etc.	• It may be used for weddings • For identification • As a costume in drama • To honor a victor • For showing wealth and power/status/royalty etc.

Question 6

Question 6 required candidates to explain factors to consider when setting up a bead making enterprise in Ghana. Candidates provided a well-structured and detailed response for this question. They accurately identified and explained the essential factors involved in setting up an enterprise.

A good number of the candidates gave responses similar to these expected answers below:

- **Availability of raw materials**
The workshop should be sited where the raw materials is readily available or in constant supply.
- **Nearness to the market/availability of market**
The workshop/bead making enterprise should be sited such that the product can easily be sold.
- **Availability and cost of labour**
The enterprise should be sited that both skilled and unskilled labour is accessible and cost is less expensive.
- **Efficient transport and communication system**
There should be a reliable means of conveying goods and services e.g. good road, transportation by the sea, railway, airways and being in touch with the rest of the world-networking.
- **Acquisition of land/availability of land**
It should be easy to acquire land and secure the needed documentation to avoid litigation, demolition, etc.
- **Availability of power supply/energy/electricity**
The enterprise or workshop should be sited where there will be constant supply of power/energy/electricity e.g. thermal, gas, solar, etc.
- **Accessibility of capital**
The bead making enterprise will need both startup capital and working capital: startup capital is needed for purchasing tools and materials while working capital is needed for buying new materials to keep the business running to pay for transportation, salaries, each month. Much of the operating cost are paid from the working capital.

JEWELLERY 3

Question 1

Using coconut shell as the main material, design and fabricate a bracelet or bangle.

Embellish the ornament with a motif derived from a geometric shape.

The final work should be well finished.

Measurement/length – 20 cm.

Demands

The final sketch should be translated into the project by using the appropriate tools/equipment, materials and processes as follows:

- (i) Tools/equipment: eg. Jeweller's saw, chisel, knife, file, soldering iron, emery paper, etc.
- (ii) Materials: e.g. coconut shell, cowries, seeds, wire, calabash, leather, beads, sequins, etc.
- (iii) Preparation: cutting, scraping, sanding, cleaning/dusting, etc.
- (iv) Constructing:

BRACELET:

- measuring, cutting, piercing, drilling, carving, scorching, embossing, painting of components.
- assembling components and joining by glueing or sing jump rings.
- attaching accessories e.g. sequins and fixing findings

Or

BANGLE:

- measuring, cutting, piercing, filing,
- attaching accessories,
- polishing the bangle.

Performance

This question was popular because majority of the candidates tackled it. Most candidates were creative and innovative. They were able to cut and prepare coconut shell well to render it smooth and wearable. Assorted accessories were added to make them more attractive. Getting the required measurement was a challenge for some of the candidates.

Question 2

Using any suitable metal, design and produce a pair of costume earrings based on a plant or animal motifs. Make and attach small chains to the motifs to touch the collar bone. Make suitable findings to secure the work.

The work should be packaged in an envelope and well presented.

Demands

The final sketch should be translated into a pair of costume earrings using appropriate tools/equipment, materials and technique as follows:

- (i) Tools/equipment e.g. Jeweller's saw, knife, chisel, spatula, soldering iron, file, blow torch, milling machine, etc.
- (ii) Materials: e.g. copper/aluminium/brass sheet, wire, beads, sequins, etc.
- (iii) Preparation of materials: sorting, cleaning, measuring/cutting/milling/annealing/sanding, pickling, rinsing metal, etc.
- (iv) Fabricating earrings by: arranging and joining component by soldering, chasing, glueing or linking with jump rings, etc.
- (v) Decorating and finishing (engraving, spraying, etching, etc.)
- (vi) Making and fixing findings.

Performance

This question attracted many candidates. They were able to combine metal with a variety of other materials. They were quite innovative and creative and also satisfied all the demands of the question.

However, few of the candidates had challenges with filing, sanding metal and other materials to achieve good finishing. Also, most findings were not skilfully done and fixed, therefore the final article could not function as earrings.