



EXAMINATIONS COUNCIL OF ZAMBIA

JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) - 2014

DESIGN AND TECHNOLOGY 608/2

PAPER 2 (SPECIMEN)

(INTERNAL AND EXTERNAL CANDIDATES)

TIME: 2 hours 30 Minutes

MARKS: 100

Name of Candidate _____

Examination Number _____

School/Centre/Name _____

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INSTRUCTIONS TO CANDIDATES

1. Write your Name, Examination Number, School/Centre name and Code at the top of this page.
2. There are **three (3)** sections in this question paper, Section **A**, **B** and **C**.
3. Answer all questions from Section **A** and Section **B**, and choose any **two (2)** questions from Section **C**.
4. In Section **A** answer all questions on the answer sheet provided. Choose the best answer from A, B, C or D. Mark the letter of the answer that you have chosen with a cross (X)
5. In Section **B**, write your answers on the spaces provided in the question paper.
6. In Section **C**, write all your answers on the blank pages 14 and 15 provided at the end of the question paper.

INFORMATION FOR CANDIDATES

Cell phones are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

Section A

Answer all questions in this section. Choose the best answer from A, B, C or D.
Mark the letter of the answer that you have chosen with a cross (X)

1				2				3				4			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
5				6				7				8			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
9				10				11				12			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
13				14				15				16			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
17				18				19				20			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
21				22				23				24			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
25				26				27				28			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
29				30											
A	B	C	D	A	B	C	D								

Section A**Multiple choice questions**

Answer all questions from this section. Write all your answers in the Answer Booklet provided. Cross out the best answer from the four (4) choices that are given A, B, C, and D with the letter X.

- 1 Some conductors are covered with plastic materials, in this case the plastic acts as ...
 - A an insulator.
 - B a conductor.
 - C a decoration.
 - D a resistor.
- 2 The safe way to give a chisel to a friend is by letting your friend receive it with ...
 - A handle first.
 - B blade first.
 - C both hands.
 - D head first.
- 3 To treat a dirty bleeding cut, you must ...
 - A wipe off the blood, apply cream and cover with plaster.
 - B wipe off the blood, apply vaseline and cover with plaster.
 - C wash with running water, wipe dry and cover with plaster.
 - D wash with hot water, wipe dry, apply vaseline and cover.
- 4 When applying paint on an artefact, it is advisable that it must be done in a well ventilated environment. Why is this practice advised?
 - A To show everybody the beauty of your work.
 - B To clean the work place easily when you finish.
 - C To avoid suffocation while working.
 - D To control the amount of paint used.
- 5 Which material below is not environmental friendly?
 - A Metals
 - B Wood
 - C Plastics
 - D Paper
- 6 A trapezium has ... sides.
 - A 3
 - B 4
 - C 5
 - D 6

- 7 Plastics can be categorised into two groups, namely ...
- A ferrous and non-ferrous.
 - B thermo setting and a petroleum jelly.
 - C petroleum and thermoplastics.
 - D thermo plastics and thermo-setting.
- 8 Which tool below cuts materials by shearing?
- A Pair of scissors
 - B Chisel
 - C Scraper
 - D Panel saw
- 9 Which of the following shows the correct method of using a glasspaper?

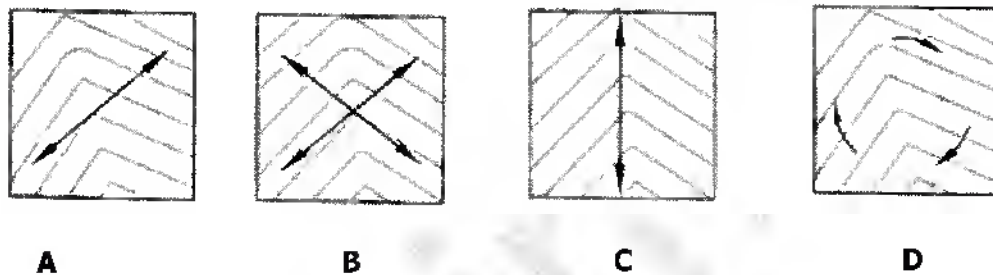


FIGURE 1

- 10 Which of the labelled parts represents a chord?

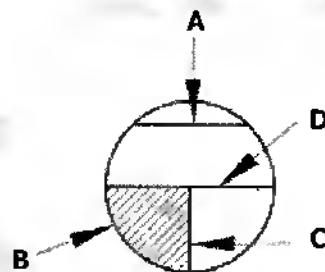


FIGURE 2

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- 11** The diagram below is showing two materials. One is made of wood and the other of acrylic plastic.

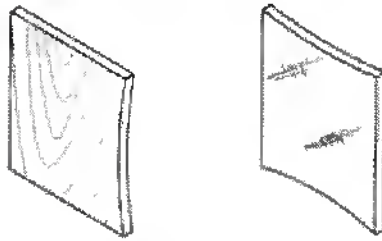
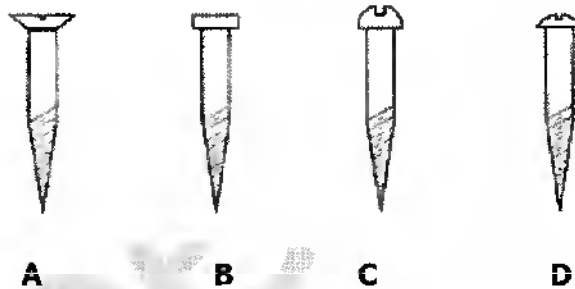


Figure 3

Name one type of glue that would be used to laminate them

- A** Polyvinyl Acetate (PVA)
 - B** Animal glue
 - C** Varnish
 - D** Contact glue
- 12** Which of the following is a round head screw. ...



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- 13** The boxes below show some symbols used in electrical circuits.



Pick the symbol that represents a light bulb.

- A** 1
- B** 2
- C** 3
- D** 4

14 Which of the blocks below is represented by the orthographic presentation shown?

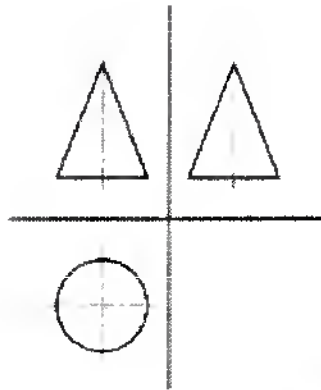
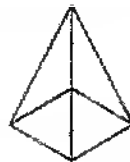


Figure 6



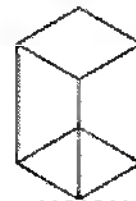
A



B



C



D

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Use the Figure 7 below to answer question 15, 16 and 17.



Figure 7

- 15** Name the tool above.
- A** Vernier callipers
 - B** Wing callipers
 - C** Old leg callipers
 - D** Outside callipers
- 16** State the use for the tool above.
- A** Testing outside diameters
 - B** Testing thickness of metal plates
 - C** Lifting small pins from corners of boxes
 - D** Checking for errors inside a work piece.
- 17** Name the parts labelled (A) in the diagram above.
- A** Arms
 - B** Frames
 - C** Legs
 - D** Wings
- 18** The sketch below shows a ...

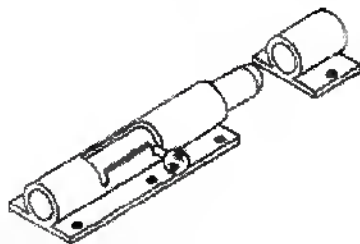
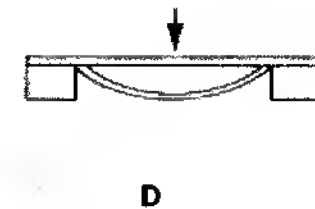
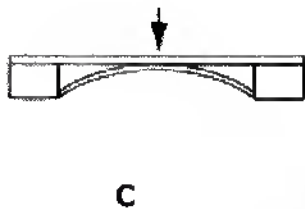
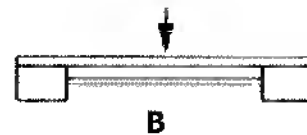
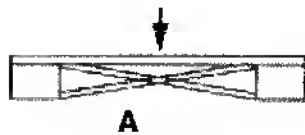


Figure 8

- A** hasp and staple.
 - B** cupboard lock.
 - C** barrel bolt.
 - D** butt hinge.
- 19** At what stage in the design process, do you estimate the cost of the product?
- A** Design brief
 - B** Specifications
 - C** Possible solutions
 - D** Evaluation
- 20** Which of the following has potential energy?
- A** Spring
 - B** Radio
 - C** Kettle

- D** Spade
- 21** Marketing of a product means that you are ...
- A** presenting facts about your product to the buyers.
 - B** presenting the advantages of your products to the buyers.
 - C** indicating the weaknesses of your product for your product.
 - D** looking at the needs of your buyers for your product.
- 22** Which of the following is the most rigid structure?



- 23** The name given to the line OX in the diagram below is called www.eczpastpapers.com

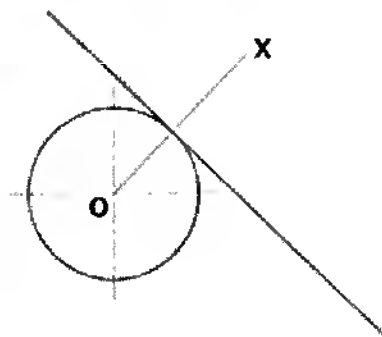


Figure 10

- A** radius.
- B** tangent.
- C** normal.
- D** chord.

- 24 The figure below shows a coffee table top. The arrangement of lines forms a ...

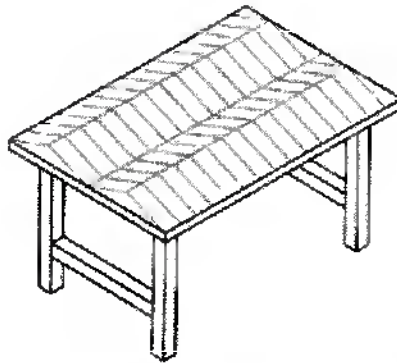


Figure 11

- A pattern.
B design.
C fashion.
D series.
- 25 What is the best finish to apply on artefact that is made of mild steel which will be used outdoor?
A Oil
B Varnish
C Gloss paint
D Water paint
- 26 Which of the following heat treatments increases the hardness and brittleness of a tool?
A Tempering
B Forging
C Hardening
D Annealing

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- 27 The figure below shows gear movement. The arrow in gear A shows its direction of movement. Which direction will gear C move?

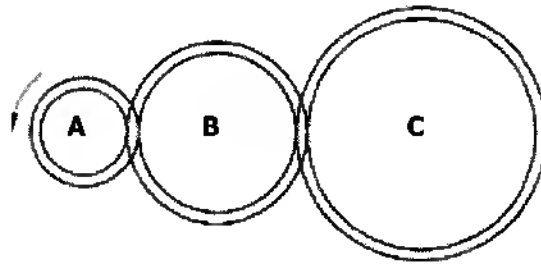


Figure 12

- A Clockwise
 - B Reverse
 - C Oscillating
 - D Anticlockwise
- 28 What is the importance of the main circuit breaker (MCB) in the electrical installation of a house?
- A It produces circuits for house devices.
 - B It cuts off power in case of an over load.
 - C It helps maintain power in case of load shedding.
 - D It is a monitoring device

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Study the symbol below.



Figure 13

- 29 What does the symbol above represent?
- A Children crossing the road ahead.
 - B Clinic is near the road.
 - C Dancing arena is nearby.
 - D Bus stop ahead.

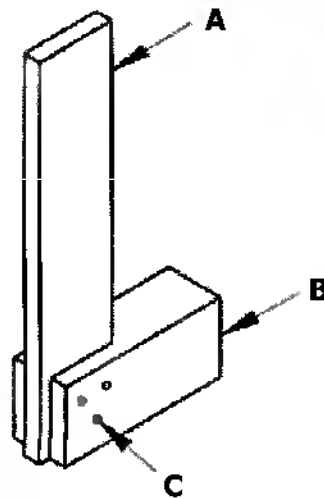
- 30 Only one tool below is used on wood, which one is it?
- A Hacksaw
 - B Centre punch
 - C Engineer's square
 - D Tenon saw

[Total 30 marks]

Section B**Attempt all questions**

Write your answers on the spaces provided.

- 31 (a) The diagram in Figure 14 shows a marking tool that is used both in woodwork and metal work.

**Figure 14**

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- (i) Name the tool _____ [1]
- (ii) Name the parts: **A** _____ [1]
B _____ [1]
C _____ [1]
- (iii) What material is used for making: [1]
a. the blade _____ [1]
b. if this tool is meant to be used in metalwork what special name is it given? _____ [1]
c. the tool is used for _____ [1]
_____ [1]

- (b) (i) Ferrous metals contain _____ while a metal made by combining two or more metallic elements is called _____ [1]
- (ii) If a cross section of a tree is likened to a bicycle wheel what part will the spokes represent? _____ [1]
- (iii) A purposeful collection of student work that shows his/her efforts progress and achievements in Design process is called _____ [1]
- (iv) A means of representing a three dimensional object in two dimensions is known as _____ [1]
- (v) A chisel with two ferrules is called _____ [1]
- (c) (i) The three methods of nailing are:
- a. _____ [1]
- b. _____ [1]
- c. _____ [1]
- (ii) Another name for mild steel is _____ [1]
- (iii) Name four types of hammers
- a. _____ [1]
- b. _____ [1]
- c. _____ [1]
- d. _____ [1]

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Section C

Answer question 32 as a compulsory question and any other one from questions 33, 34 and 35. All questions in this section will be answered on the blank pages 14 and 15 provided at the end of the question paper.

- 32** (a) In free hand, draw an isometric pictorial sketch of a pop riveting gun. [4]
 (b) Label two parts on your sketch. [2]
 (c) Explain how it is used /operated. [6]
 (d) Name four other solid rivets. [4]
 (e) Name and draw one tool that is used when fixing solid rivets. [2]
 (f) Label two parts of the tool you have drawn for question 32 (e). [2]
- 33** You have been asked to design a pen/pencil holder which can hold 6 pens/pencils.
 (a) Sketch two design solutions for this holder. [8]
 (b) Give four (4) factors which would influence your design with reference to the selection of your materials. [4]
 (c) State two important reasons for the selection of your size. [2]
 (d) What safety features are provided for in your design. [6]
- 34** (a) By means of a free hand sketch, draw the air-seasoning of timber. [3]
 (b) Label five major parts of this structure. [5]
 (c) Give four factors that would influence selection of this site. [4]
 (d) State four advantages and four disadvantages of this method. [8]
- 35** Plastic are non-metal materials that are fast superseding metal and wood in the manufacture of household and other items.
 (a) Mention two items in a home situation that could be made of plastics. [1]
 (b) Write two materials used to make plastics. [1]
 (c) Write five advantages of using plastic as compared to metal. [5]
 (d) Write five disadvantages of using plastic as compared to metal. [5]
 (e) Explain briefly how you can make any plastic toy of your choice. Outline the four major stages with sketches and tools used. [8]