

Candidate's Name: _____ Index No.: _____

0516/104

Candidate's Signature: _____

0501/102

METAL PROCESSING TECHNOLOGY

Date: _____

TRADE THEORY

Oct./Nov. 2011

Time: 2 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

NATIONAL VOCATIONAL CERTIFICATE IN
EDUCATION AND TRAINING

METAL PROCESSING TECHNOLOGY LEVEL I

TRADE THEORY

2 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.

Sign and write the date of the examination in the spaces provided above.

This paper consists of TWO sections: A and B.

Answer ALL the questions from section A by circling the correct answer.

Answer any FOUR questions from section B in the spaces provided.

All questions in each section carry equal marks

Maximum marks for each part of a question in section B are as indicated.

MARKS GRID

QUESTION NO.	MAX MARKS	MARKS AWARDED
1 - 30	30	
31	5	
32	5	
33	5	
34	5	
35	5	
TOTAL	50	

This paper consists of 8 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A

Answer **ALL** the questions in this section by circling the correct answer.

1. Which one of the following is **not** a safety precaution in a workshop.
 - A. use of protective clothing
 - B. long hair
 - C. tidiness
 - D. use of safety goggles
2. The ability of a material to resist elastic deflection is known as
 - A. creep
 - B. hardness
 - C. fatigue
 - D. stiffness
3. Cold working processes are
 - A. drawing
 - B. shearing
 - C. squeezing
 - D. all of these
4. Which one of the following operations can be performed on the drilling machine
 - A. boring
 - B. drilling
 - C. reaming
 - D. all of the above
5. Which of the following cold chisels is the one that is commonly used
 - A. flat chisel
 - B. cross cut chisel
 - C. diamond point chisel
 - D. half round chisel
6. Oxy-acetylene welding mostly employs ____ flame.
 - A. oxydizing
 - B. carburising
 - C. neutral
 - D. all the above

7. A method of producing several holes in a work piece in one stroke of the process is called
- A. lancing
 - B. perforating
 - C. parting
 - D. none of the above
8. The V-shaped groove in the base of the surface gauge is used
- A. to make the base lighter
 - B. to make the base stronger
 - C. so that the gauge can also be used on a round shaft
 - D. so that the gauge appears good
9. Witness marks during marking out are done with the help of
- A. centre punch
 - B. prick punch
 - C. chisel
 - D. scriber
10. Soldering flux is applied to the surfaces being joined in order to
- A. make the solder to melt easily
 - B. clean the surfaces
 - C. make the metal surfaces soft
 - D. corrode the surfaces before soldering
11. The operation of enlarging a drilled hole is known as
- A. reaming
 - B. boring
 - C. spot facing
 - D. counter boring
12. Carbursing flame is normally used to weld
- A. stainless steels
 - B. non-ferrous metals
 - C. copper alloys
 - D. phosphor bronze
13. The forging operation used to reduce the thickness of a bar and increase its length is known as
- A. swaging
 - B. piercing
 - C. drawing down
 - D. upsetting

14. The metric micrometer can be used to measure up to
- A. 1.5 mm
 - B. $1/100$ mm
 - C. $1/10$ mm
 - D. $1/1000$ mm
15. Hardness of steel depends on
- A. amount of carbon it contains
 - B. the amount of alloy it contains
 - C. the quality of ores from which it is made
 - D. method of fabrication
16. Which of the following is a spot welding process
- A. seam welding
 - B. projection welding
 - C. Neither A nor B
 - D. both A and B
17. Ductility of material may be defined as
- A. ability to undergo permanent deformation
 - B. ability to recover its original shape
 - C. ability to undergo permanent deformation in compression
 - D. all of the above
18. Which one of the following cannot cause an accident during drilling
- A. wearing safety goggles while drilling
 - B. talking while drilling
 - C. wiping the drilled work piece with bare hands
 - D. chewing gum while drilling
19. Which one of the following is not a set of marking out tools
- A. scribe, centre punch
 - B. centre punch, tongs
 - C. divider and dot punch
 - D. vernier height gauge, scribing block
20. Which one of the following is not true about reaming
- A. correcting hole size
 - B. correcting hole shape
 - C. improving the surface of the hole
 - D. correcting improperly drilled hole

21. Which of the following areas does not apply to soft soldering
- A. funnels
 - B. Radio and Television circuits
 - C. mop buckets
 - D. steel doors
22. One of the following is not a heat treatment process
- A. hardening
 - B. normalizing
 - C. galvanizing
 - D. annealing
23. Solder is composed of
- A. tin and copper
 - B. tin and lead
 - C. copper and zinc
 - D. zinc and brass
24. The sand used to make cores in sand casting is called
- A. loam sand
 - B. oil sand
 - C. cotton sand
 - D. dry sand
25. One of the following is not a non-ferrous metal
- A. aluminium alloys
 - B. nickel alloys
 - C. zinc
 - D. stainless steel
26. Which one of the following is not a function of the electrode coating?
- A. arc creation
 - B. floating the impurities
 - C. shielding the molten metal
 - D. increasing the volume of the weld
27. One of the following is the correct sand casting process
- A. melting, mould breaking, pouring, felting sand blasting
 - B. melting, pouring, mould breaking, felting sand blasting
 - C. felting, sand blasting melting, pouring
 - D. mould breaking, melting, pouring, felting, sand blasting

28. A combination set consists of
- rule, try square, projector, square head
 - beam, square head, protractor, centre head, spirit level
 - rule, centre head, bevel protractor, square head
 - rule, depth gauge, square head, protractor
29. The following is not a factor to be considered when brazing
- filler metal composition
 - joining technique
 - flux to be used
 - the room temperature
30. Class A fires are extinguished using
- water, foam
 - powder, water, acetylene
 - blanket, hydrogen
 - carbon-dioxide, oxygen

SECTION B

*Attempt any **FOUR** questions from this section in the spaces provided.*

31. With the aid of sketches, show the following processes used in sheet metal work:
- blanking; (2½ marks)

 - piercing. (2½ marks)

32. (a) Using a sketch, show the leftward welding method. (3½ marks)

(b) State three welding positions. (1½ marks)

- (i) _____

- (ii) _____

- (iii) _____

33. (a) Sketch the following cutting tools:

(i) reamer; (1 mark)

(ii) tap; (1 mark)

(iii) counter sink drill bit. (1 mark)

(b) State the reason of using oil while tapping. (2 marks)

34. (a) State two advantages of forgery process. (2 marks)

- (i) _____

- (ii) _____

- (b) With the aid of a sketch show the upsetting operation process in forging. (3 marks)

35. Sketch a drill bit and show the following features:

- (i) point angle;
- (ii) cutting edge;
- (iii) land;
- (iv) flute.