AKENTEN APPIAH-MENKA UNIVERSITY OF SKILLS TRAINING AND ENTREPRENEURIAL DEVELOPMENT

FACULTY OF TECHNICAL EDUCATION
DEPARTMENT OF MECHANICAL AND AUTOMOTIVE TECHNOLOGY EDUCATION

END OF SECOND SEMESTER EXAMINATION 2020/2021

INDEX NUMBER:.....

PAPER CODE	**MET 123**
PAPER TITLE	**ENGINEERING TECHNOLOGY**
DURATION	**2 HOURS**
LECTURER	**DR. K. OFFEH GYIMAH**
INSTRUCTIONS	**Answer all questions in Section A by circling the right answer on the question paper. Answer four (2) questions from section B in the answer booklet; Question 1 (Q1) is compulsory**

SECTION A: Circle the correct answer. **[25 marks]**

1. Choose the correct action if you have an accident in the workshop.

A. Report all injuries when they occur no matter how minor. Even if it doesn't seem serious it could get infected later.
B. If it was your own fault, there's nothing the teacher can do about it.
C. If there is no blood, there is no need to worry about it.
D. Don't tell anyone. You will get in trouble for failing to follow workshop rules.

2. What is the best way to avoid tripping at the workplace?

A. Make sure the floor is uneven.
B. Have the floor cleaned extra often.
C. Make sure the workplace is tidy.
D. Wear safety shoes always.

3. The temperature at which the new grains are formed in the metal is called

A. lower critical temperature
B. upper critical temperature
C. eutectic temperature
D. recrystallization temperature

4. The fullers are used

A. for finishing flat surfaces
B. for necking down a piece of work
C. for punching a hole
D. to finish the punched hole

5. Metal patterns are used for

A. small castings
B. large castings
C. complicated castings
D. large scale production of castings

6. The purpose of a riser is to

A. deliver molten metal into the mould cavity
B. act as a reservoir for the molten metal
C. feed the molten metal to the casting in order to compensate for the shrinkage
D. deliver the molten metal from pouring basin to gate

7. In a die casting method, the molten metal is forced into mould under high pressure.

A. Correct
B. Incorrect

8. When a pattern is made in three parts, the bottom part is known as a cope.

A.True
B.False

9. Carburising flame is used to weld

A. Low carbon steel
B. brass and bronze
C. High carbon steel
D. all of these

10. The cold working of metals is carried out

A. at the recrystallization temperature
B. below the recrystallization temperature
C. above the recrystallization temperature
D. at any temperature

11. An oxidising flame is obtained when equal volumes of oxygen and acetylene are supplied.

A.True
B.False

12. A neutral flame is obtained by supplying

A. equal volumes of oxygen and acetylene
B. more volume of oxygen and less volume of acetylene
C. more volume of acetylene and less volume of oxygen
D. none of the above

13. The operation of straightening a curved sheet metal, is known as

A. drawing
B. squeezing
C. coining
D. Planishing

14. A mortise gauge is a

A.striking tool
B.planing tool
C.boring tool
D.marking tool

15. A sand employed on the faces of the pattern before moulding, is called

A. green sand
B. dry sand
C. loam sand
D. parting sand

16. The oxygen cylinder is usually painted with

A. black colour
B. white colour
C. maroon colour
D.yellow colour

17. A diamond pointed chisel is used for cutting

A.flat surfaces
B.grooves
C.keyways
D.V-shaped grooves

18. The purpose of a gate is to

A. deliver molten metal into the mould cavity
B. act as a reservoir for the molten metal
C. feed the molten metal to the casting in order to compensate for the shrinkage
D. deliver molten metal from pouring basin to gate

19. The operation of cutting of a flat sheet to the desired shape is called

A. shearing
B. piercing
C. punching
D. blanking

20. The process of decreasing the cross-section of a bar and increasing its length, is called

A. drawing down
B. upsetting
C. spinning
D. peening

21. The temperature of the inner luminous cone of neutral flame is about

A. 1000° C
B. 1250° C
C. 2100° C
D. 3200° C

22. A pattern is used to make the mould cavity for pouring the molten metal for casting.

A. Yes
B. No

23. The oxidising flame is similar to neutral flame but the inner cone is less luminous and shorter.

A.Yes
B.No

24. A hacksaw blade is specified by its

A.length
B.material
C.width
D.number of teeth

25. When the file is moved to and fro over the work, it is known as

A.cross filing
B.draw filing
C.pull and push filing
D.none of these

SECTION B

Instruction: Answer two (2) questions in this section; Q1 and any other one

1. (Compulsory) **[20 marks]**

a) Draw the following hand tools and state their main use:
   i. *Flat file*
   ii. *File card*
   iii. *Hacksaw*
   iv. *Ball pein hammer*

b) How is a flat file different from a hand file?

c) Why is a carburising flame not suitable for welding low carbon steels

d) What is the main difference between sand casting and die casting techniques?

e) Draw and label a copula furnace

2. **[15 marks]**

a) With the aid of diagrams, illustrate three types of joints used in sheet metalwork.

b) Draw and label the following tools:
   i. *Hollowing hammer*
   ii. *Wooden block*
   iii. *Bossing mallet*

c) Draw and label an anvil.

3. **[15 marks]**

a) Give three differences between oxygen cylinder and acetylene cylinder.

b) Sketch the following tools and show how they are used
   i. *Fuller*
   ii. *Flatter*
   iii. *Swage*

c) Draw and label is welding blowpipe.