



MATERIAL TECHNOLOGY AND WORKSHOP PROCESSES 1
5130

JUNE XXXX

INTERMEDIATE LEVEL

Centre No. & Name	
Candidate No.	
Candidate Name	

Mobile phones are **NOT** allowed in the examination room.

5130 MATERIAL TECHNOLOGY AND WORKSHOP PROCESSES 1: MULTIPLE CHOICE QUESTION PAPER

1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed “**Intermediate Level – 5130 WORKSHOP PROCESSES AND MATERIALS 1.**”
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided on the answer sheet using your HB pencil:

Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number.

Take care that you do not erase or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination:

6. Answer **ALL** the **50** questions in this Examination. All questions carry equal marks.
7. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
For example, if **C** is your correct answer, mark **C** as shown below:

[A] [B] [**C**] [D]
8. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
9. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
10. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
11. **You must not take this booklet and the answer sheet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination.**

Turn Over

1. Which of the following is not a suitable instrument for controlling the temperature of a furnace

A	Mercury thermometer
B	Electric resistance thermometers
C	Thermo-electric pyrometers
D	Segar cones

2. A device used for cutting a screw thread in an internal hole in a nut or other piece of metal is:

A	A knife
B	A tap
C	A dice
D	A saw

3. Cylinder heads are preferably made from

A	Alloy steels
B	Copper alloys
C	Aluminium alloys
D	Wrought iron

4. Identify the type of screw thread in FIGURE 1 below:

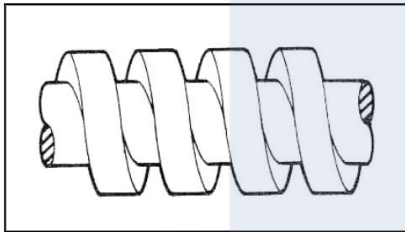


fig.1 screw

thread

A	v-screw thread
B	Square screw thread
C	Acme screw thread
D	ISO Metric screw thread

5. The ingredient in a steel-making furnace that combines with impurities and forms slag is

A	Iron ore
B	Pig iron
C	Lime stone
D	Basic oxygen

6. Which of the following materials is best in electrical conduction?

A	copper
B	aluminium
C	Steel
D	Nickel

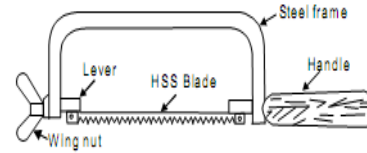
7. The cupola furnace is use to melt

A	Steel
B	Copper
C	Cast iron
D	Aluminium

8. Which of the following is not a major objective of heat treatment?

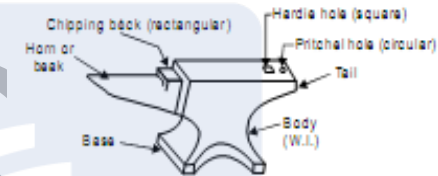
A	Relieves internal stresses induced during hot or cold working
B	Changes or refines grain size
C	Increases the shape and size.
D	Increases resistance to heat and corrosion.

9. Identify the type of saw shown below



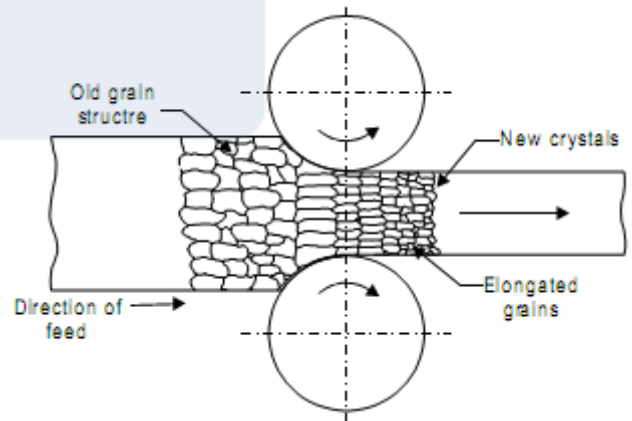
A	Key hole saw
B	Compass saw
C	Hack saw
D	Dovetail saw

10. Identify the tool shown below



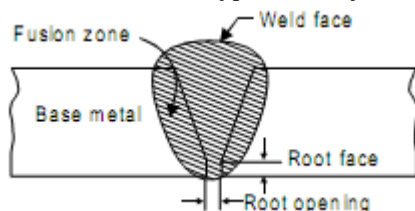
A	Vice
B	Cast block
C	Anvil
D	Hot chisel

11. Select the process shown below



A	Forging
B	Hot rolling
C	Extrusion
D	crystalisation

12. Give the name of the type of weld joint shown below



A	Fillet joint
B	Spot joint
C	Single v-butt joint
D	Single u-butt joint

13. Which of the following sections offer the highest resistance to torsion?

A	Flat
B	Channel
C	Tubular
D	box

14. When two or more metals are mixed together to improve their properties, they are said to be

A	Annealed
B	Forged
C	Hardened
D	Alloyed

15. Bronze is an alloy consisting of copper and

A	Tin
B	Zinc
C	Aluminium
D	Duralumin

16. In mechanical engineering, castable materials are those which can be

A	heated in to different shapes
B	used to obtain cast iron
C	milted and poured into moulds to obtain different shapes
D	beaten in to shapes when heated

17. The process of forging depends upon it's

A	elasticity
B	toughness
C	plasticity
D	conductivity

18. The heat to change ice to water is called

A	Sensible heat
B	Latent heat
C	Fusion heat
D	Thermal heat

3

- 19.

Case hardening the journals of a crankshaft will have the effect of increasing the

A	Flexibility of the shaft
B	Resistance to wear
C	Resistance to torsional stress
D	Beauty of the crankshaft

- 20.

Exhaust and inlet valves are made from

A	Silicon chromium steel
B	Silicon aluminium
C	Silicon copper aluminium
D	Silicon chromium aluminium

- 21.

Which of the following is not a hardness test?

A	Brinell
B	Vickers
C	Rockwell
D	torsional

- 22.

Two of the constituents of case hardened steel are

A	Copper and nickel
B	Nickel chromium and molybdenum
C	Nickel and braze
D	Chromium and copper

- 23.

Which among these is not a measuring instrument

A	centre punch
B	Feeler gauge
C	Dial indicator
D	micrometer

- 24.

BIG cutting angles are used for

A	Soft metal
B	Light metal
C	Hard metal
D	Smooth metal

25. Which of the following additive can improve high strength at high temperature

A	Manganese
B	Magnesium
C	Nickel
D	Silicon

- 26.

The external threads cutting are done using a

A	knife
B	tap
C	disc
D	saw

- 27.

Two methods of attaching the flywheel to the crankshaft are

A	Taper shaft and nut or cold riveting
B	Interference fit or taper shaft, key and nut
C	Bolts and dowels or taper shaft, key and nut
D	Welding or dowels

Turn over

28. Galvanising is a
- | | |
|---|---|
| A | Zinc diffusion process |
| B | Process of coating zinc by hot dipping |
| C | Process used for making thin phosphate coating on steel |
| D | Process of heat treatment |
29. A pattern makers rule considers
- | | |
|---|------------------------------|
| A | All pattern allowances |
| B | Only shrinkage allowance |
| C | All materials to be cast |
| D | All materials of the pattern |
30. The electrodes used in spot welding have a tip of
- | | |
|---|-----------------|
| A | Stainless steel |
| B | Aluminium |
| C | Copper |
| D | Brass |
31. The machining allowance provided on patterns depends upon
- | | |
|---|---------------------------|
| A | Type of casting metal |
| B | Size and shape of casting |
| C | Method of casting used |
| D | Type of metal casted |
32. The instrument which has all the features of try-square ,bevel protractor, rule and scriber, is
- | | |
|---|-------------------------|
| A | Outside micro meter |
| B | Inside micro meter |
| C | Depth gauge micro meter |
| D | Combination set |
33. The engine piston is made preferably from
- | | |
|---|-----------------|
| A | Aluminium alloy |
| B | Pure aluminium |
| C | Steel |
| D | Copper |
34. State the purpose of heat treatment
- | | |
|---|---|
| A | To know the properties of the metal |
| B | To destroy the metal |
| C | To use the metal |
| D | To know how much it weighs and to sell it |
35. Carburizing, Flame hardening, Cyaniding are all types of :
- | | |
|---|----------------|
| A | Case hardening |
| B | Face hardening |
| C | Drilling |
| D | threading |
36. Define specific surface
- | | |
|---|------------------------------|
| A | Surface area per unit volume |
| B | Surface area per unit weight |
| C | Surface weight per unit area |
| D | Surface volume per unit area |
37. The percentage of carbon in low carbon steel is
- | | |
|---|-------|
| A | 0.05% |
| B | 0.15% |
| C | 0.3% |
| D | 0.5% |
38. The phase above eutectoid temperature for carbon steels is known as?
- | | |
|---|-----------|
| A | Cementite |
| B | Ferrite |
| C | Pearlite |
| D | austenite |
39. What are/is the phenomenon involved in phase transformation ?
- | | |
|---|-----------------------|
| A | Nucleation |
| B | Growth |
| C | Fission |
| D | Nucleation and growth |
40. Which of the following ferrous alloys can be casted into intricate shapes
- | | |
|---|--------------------|
| A | Plain carbon steel |
| B | Alloy steels |
| C | Cast iron |
| D | Wrought iron |
41. Warning signs in the workshop should be obeyed
- | | |
|---|-----------------------------|
| A | Sometimes |
| B | Always |
| C | At the teachers instruction |
| D | When working at the bench |
42. What procedure was used for joining sides to the already bended portion of the tool box?
- | | |
|---|-----------------------------------|
| A | Arc welding |
| B | Riveting |
| C | Gas welding |
| D | Resistance welding (spot welding) |
43. The bench vice is used to _____ the metal sheet firmly during shaping operation
- | | |
|---|-------|
| A | Cut |
| B | Bend |
| C | Hold |
| D | Break |

44. Files are used to _____ metal sheet surface

A	Finish
B	Rough
C	Cutting
D	bending

45. Metal cutting _____ are used with steel headed hammers for chipping or cutting materials

A	Hacksaws
B	Chisels
C	Punch
D	files

46. Potentially, the greatest source of accident is

A	Hand driven tools
B	Power driven machines
C	Unclean material
D	Tools with sharp edges

47. The speed of a drill depends upon

A	The size of the work
B	The diameter of the hole
C	The length of the drill being used
D	The shape of the hole required

48. The temperature of oxy-hydrogen flame is..... oxy-acetylene flame

A	Same as
B	Less than
C	More than
D	Depends on

49. The oxy-acetylene gas used in gas welding produce a flame temperature of

A	1800°C
B	2100°C
C	2400°C
D	3200°C

50. The welding process used in joining mild steel shanks to high speed drills is

A	Spot welding
B	Seam welding
C	Flash butt welding
D	Upset butt welding