



# Myfuture CBC Revision

## metalwork - Grade 10

### Question Paper

1. Which describes the process of hardening steel?

- A. Heating steel then letting it cool very slowly to soften it
- B. Heating the steel and cooling it quickly to increase hardness
- C. Polishing the steel to make it shiny
- D. Coating steel with paint to protect it

2. When is it acceptable for a student under 18 to operate heavy or high-risk metalworking machinery in a school workshop?

- A. Whenever friends are watching so you feel confident
- B. If you read a manual once and feel ready
- C. Only on weekends when there are fewer people
- D. Only with direct supervision from a qualified instructor and after proper training

3. Which method produces a permanent, strong joint by melting the parent metal and filler?

- A. Welding
- B. Nailing
- C. Taping
- D. Clipping

4. Which tool gives very accurate measurements of small external dimensions to 0.01 mm?

- A. Marker pen
- B. Micrometer
- C. Measuring tape
- D. Carpenter's square

5. Which joining method uses a consumable metal wire and an electric arc to fuse sheet metal together, commonly used in vehicle body repairs?

- A. MIG welding using a wire and electric arc
- B. Riveting with solid rivets
- C. Adhesive bonding with epoxy
- D. Soldering with a soldering iron

6. For a lightweight school project where the joint must be reversible without damaging the sheet metal, which method is best?

- A. Adhesive bonding
- B. Bolting with nuts and washers
- C. Brazing
- D. Pop riveting

7. Which joining method would you choose for thin sheet metal in electrical applications where low heat input is essential to avoid damaging components?

- A. High-heat oxy-acetylene welding
- B. Heavy duty arc welding without shielding
- C. Large rivet hammering
- D. Soldering with a controlled soldering iron

8. What is the purpose of tempering after hardening steel?

- A. To colour the steel without changing its properties
- B. To make the steel rust faster
- C. To make the steel melt at a lower temperature
- D. To reduce brittleness while keeping some hardness

9. What is the correct general sequence when finishing a metal surface for painting?

- A. Apply topcoat, then clean, then prime
- B. Prime, then clean, then paint
- C. Smooth, paint, then clean
- D. Clean the surface, smooth (file/grind), apply primer, then topcoat

10. Which measuring tool gives the highest typical precision among these for workshop use?

- A. Micrometer
- B. Carpenter's folding rule
- C. Tape measure
- D. Marking gauge

11. Which joining technique would be least suitable for joining two stainless steel thin sheets if cleanliness and corrosion resistance are required?

- A. TIG welding with inert gas shielding
- B. Adhesive bonding with compatible adhesive
- C. Using stainless steel rivets with proper sealant
- D. Arc welding without removing surface contaminants or shielding

12. What safety measure should be taken when cutting metal with a hacksaw?

- A. Secure the workpiece in a vice and wear safety glasses
- B. Hold the metal loosely in one hand and cut quickly
- C. Use only one finger to steady the blade
- D. Stand on top of the bench while sawing

13. Why is ventilation important when working with metal cutting fluids or paints?

- A. Ventilation is unnecessary
- B. To remove harmful fumes and provide fresh air for safety
- C. To make machines run faster
- D. To cool the room for comfort only

14. Which factor most affects the choice between welding and adhesive bonding for joining sheet metal in a classroom project?

- A. Required joint strength, heat sensitivity, and equipment available
- B. Time of day the work is done
- C. Colour of the metal
- D. Availability of protective gloves only

15. What is the purpose of annealing a piece of metal during a project?

- A. To instantly harden it permanently
- B. To soften it so it can be shaped more easily
- C. To paint it using heat
- D. To cool it down for storage

16. What should you do if you are unsure how to operate a new workshop machine?

- A. Use it only during break time without telling anyone
- B. Ask a teacher or trained instructor for instruction and supervision
- C. Read someone else's class notes silently and then start
- D. Try to figure it out while the machine is running

17. Before applying the topcoat of paint to a metal surface, what should you do first to ensure good adhesion?

- A. Paint directly without preparation
- B. Sprinkle water on the metal
- C. Apply a primer
- D. Wipe it with oily cloth

18. If you need to mark a circle of 120 mm diameter on a plate, which tool would you choose?

- A. Marking gauge set to 120 mm
- B. Compass or trammel set to 60 mm radius
- C. Micrometer
- D. Vernier caliper

19. When using a metal file, which stroke should be used to remove material effectively?

- A. Use the forward (cutting) stroke and lift on the return stroke
- B. File only on the return stroke while pushing down
- C. Rub the file back and forth with equal pressure both ways
- D. Use short sideways strokes without lifting

20. Why should you never use compressed air to clean dust from your clothing or skin in the workshop?

- A. Compressed air can force particles into the skin or eyes and cause injury
- B. It wastes electricity
- C. It is noisy and disturbs others
- D. It will make the room too cold

21. Which line convention is used to show hidden edges on technical pictorials and drawings?

- A. Wavy lines
- B. Dotted and dashed alternating long lines
- C. Thick solid lines
- D. Short dashed lines

22. What is the best immediate first aid for a small thermal burn from a hot metal piece?

- A. Cover the burn with cotton wool and leave it
- B. Break any blisters quickly to let out the fluid
- C. Cool the burn with running clean water for 10–20 minutes and seek help
- D. Rub oil or butter into the burn to soothe it

23. Which material property is most important to check before choosing spot welding for sheet metal joining?

- A. Electrical resistivity and thickness of the sheets
- B. Whether the metal has holes already
- C. Colour of paint on the metal
- D. Type of adhesive previously applied

24. During assembly, why is it important to clamp parts securely before final joining?

- A. To make the metal harder
- B. To stop all heat from reaching the joint
- C. To make the clamps part of the final product
- D. To maintain alignment and prevent movement that could spoil the joint

25. Which personal protective equipment is essential when welding?

- A. Light dust mask
- B. Cotton cap only
- C. Welding helmet with appropriate shade
- D. Ordinary sunglasses

26. What is the correct order of steps to prepare an old rusty iron part for painting?

- A. Remove rust (wire brush/grind), apply primer, then paint
- B. Paint directly over rust, then sand after
- C. Heat the part until rust falls off, then paint
- D. Apply oil, then paint

27. What is the correct action before marking out measurements on a metal surface?

- A. Clamp the marking tools to the bench
- B. Heat the metal so marks are darker
- C. Clean and degrease the surface for visible and accurate marks
- D. Paint the surface immediately to protect it

28. Which tool is most suitable for cutting sheet metal by hand?

- A. Serrated bread knife
- B. Pipe cutter
- C. Handsaw for wood
- D. Tin snips (aviation snips)

29. Which property describes a metal's ability to be drawn into wire?

- A. Malleability
- B. Density
- C. Hardness
- D. Ductility

30. Which preparation step is important before welding or brazing sheet metal to ensure a clean, strong joint?

- A. Leaving paint and oil on the surfaces
- B. Cleaning off grease, oil, and rust from the joint area
- C. Welding through dirt for better adhesion
- D. Adding water to the joint to cool it rapidly

31. Why should you clamp metal parts securely before drilling or welding in a project?

- A. To make the metal harder
- B. To make the job look more professional only
- C. To cover up measurement errors
- D. To prevent parts from moving and ensure accurate, safe work

32. Which statement about pop (blind) rivets is true for sheet metal work in classrooms?

- A. Pop rivets are only used for very thick steel plates
- B. Pop rivets require welding equipment to install
- C. Pop rivets produce a metallurgical fusion like brazing
- D. Pop rivets can be set from one side and are quick to install

33. Which tool is best for marking straight lines on metal before cutting?

- A. Hammer
- B. Hacksaw
- C. Chisel
- D. Scriber

34. Which tool is used to cut external threads on a round rod by hand?

- A. Tap
- B. Cold chisel
- C. Die
- D. Centre punch

35. Why are pictorial drawings taught in metalwork classes?

- A. To replace the need for any measurements in fabrication
- B. To help students and clients visualise the finished metal product in three dimensions
- C. Because they are faster to machine
- D. So students can avoid making orthographic drawings

36. Why do metalworkers say 'measure twice, cut once' when preparing materials for a project?

- A. To impress the teacher
- B. Because cutting twice is easier
- C. To make the job take longer
- D. To avoid wasting material and making mistakes

37. Which tool is most appropriate for smoothing a weld bead after joining two pieces?

- A. Screwdriver
- B. Angle grinder with a grinding disc
- C. Punch
- D. Cold chisel

38. What should you do if you smell gas or strong chemical fumes in the workshop?

- A. Breathe deeply to get used to it
- B. Spray water into the air to mask the smell
- C. Inform the teacher, evacuate the area if instructed, and ventilate if safe to do so
- D. Light a match to see where it comes from

39. When using an angle grinder, which is the correct practice to reduce risk of kickback and injury?

- A. Use it without a guard for better visibility
- B. Hold the grinder firmly with both hands and use the correct guard and disc for the job
- C. Hold the grinder with one hand and reach across the work
- D. Use a worn disc because it cuts faster

40. If a tool such as a chisel or screwdriver has a loose handle or a mushroomed head, what should you do?

- A. Soak it in oil to hide the defect
- B. File the handle quickly while holding it
- C. Tag it out and have it repaired or replaced before further use
- D. Sharpen it and keep using immediately

41. What does a Material Safety Data Sheet (MSDS) provide for chemicals used in the metalwork workshop?

- A. How to make new chemicals at home
- B. Information on hazards, safe handling, storage and first aid measures
- C. The supplier's phone number only
- D. A list of students who used the chemical

42. Which personal protective equipment (PPE) is essential for protecting your eyes when grinding metal in a school metalwork workshop?

- A. A baseball cap
- B. A paper dust mask
- C. Regular prescription glasses without side protection
- D. Safety goggles that fit snugly and have side protection

43. Which joining method actually melts the base metals so they fuse together?

- A. Riveting
- B. Bolting
- C. Brazing
- D. Welding

44. What should you do if you smell gas (from a gas cylinder or torch) in the workshop?

- A. Spray water around to cover the smell
- B. Turn off the gas source if safe, ventilate the area, evacuate and notify the instructor
- C. Light a match to find the leak
- D. Ignore it because it will go away

45. Which method would you choose to join sheet metal where electrical conductivity of the joint must be maintained (for example in a circuit chassis)?

- A. Using non-metallic clinch tools
- B. Adhesive bonding with insulating glue
- C. Soldering
- D. Pop riveting with plastic rivets

46. Which material is most suitable for making a strong, low-cost garden gate frame?

- A. Pure copper sheet
- B. Solid rubber
- C. Mild steel (MS) square tubing
- D. Glass panels

47. What is the main function of a centre punch in metalwork?

- A. To measure the length of a bar
- B. To smooth a painted surface
- C. To make a small dimple that guides a drill bit
- D. To cut threads into a bolt

48. Which of the following is a nonferrous metal?

- A. Cast iron
- B. Mild steel
- C. Tool steel
- D. Aluminium

49. When estimating project cost, which item is important to include besides material prices?

- A. Only the price of fuel for going to school
- B. The cost of unrelated items like groceries
- C. No other items — materials are all that matter
- D. Labour time, tools consumables (like welding rods, grinding discs), and waste allowance

50. How should flammable liquids like petrol or solvent be stored in the school workshop?

- A. Mixed together in an open tray
- B. In empty drink bottles for convenience
- C. In labelled, sealed containers in a well-ventilated, designated flammable storage area
- D. In glass jars on the windowsill