

# CBIP Examination Paper - Magnetic Particle Inspection

## Level 1 General

- 1 The magnetic field is strongest when:
  - A. The item is demagnetised
  - B. The magnetising voltage is reversing
  - C. The magnetising current is not flowing
  - D. The magnetising current is flowing
  
- 2 A Longitudinal magnetic field may be induced into a specimen by which of the following methods?
  - A. Passing a current through the part (head shot)
  - B. By using a Coil
  - C. Central conductor (threader bar)
  - D. All of the above
  
- 3 Magnetic Particle prods are used for:
  - A. Measuring the permeability of the material
  - B. Portable inspection producing a circular field
  - C. Inspection of aluminium parts
  - D. None of the above
  
- 4 Wrapping a cable around a shaft will:
  - A. Produce a circular field in the part
  - B. Produce a 45 degree magnetic field
  - C. Produce a longitudinal field in the part
  - D. Saturate the part irrespective of the amount of current
  
- 5 The distance between the heads on a magnetic particle bench unit will:
  - A. Have no affect on the strength of the magnetic field produced
  - B. Effect the permeability of the part
  - C. Require the current values to be changed to match the distance
  - D. Require the current values to be revised
  
- 6 Which of the following is the most effective method for the detection of sub surface defects?
  - A. AC
  - B. Half Wave DC
  - C. Wet method
  - D. Sub surface defects cannot be detected with MT
  
- 7 When preparing a bath it is important to have the bath strength/concentration at the proper level, as too many particles can result in:
  - A. An increase in sensitivity
  - B. Having to increase the magnetising current
  - C. Masking some of the indications
  - D. None of the above

- 8 When using the wet continuous method, the flow of suspension from the hose should be shut off:
- A. 5 to 10 seconds after stopping the current
  - B. Immediately before applying the current
  - C. While the current is flowing
  - D. 10 seconds before applying the current
- 9 The generally accepted way to magnetise a crankshaft to detect circumferential cracks in the bearing radius is to:
- A. Pass current through it using the head shot
  - B. Magnetise it using a coil
  - C. Use a Central Conductor or Threader Bar
  - D. Use a magnetic hand Yoke
- 10 Magnetic Particle indications of grinding cracks usually appear:
- A. Sharp and distinct, usually in a group
  - B. Wide and sharp
  - C. No indication
  - D. Broad and fuzzy, usually no more than one
- 11 In a DC magnetic particle test, assuming that all of the following are in the same relative position in a small part, which would give the weakest indication?
- A. A surface crack
  - B. A slag inclusion
  - C. A forging lap
  - D. A seam
- 12 Magnetic particle inspection is not a reliable method of detecting:
- A. Laps
  - B. Lack of penetration
  - C. Cracks
  - D. Seams
- 13 A metal that is difficult to magnetise is said to have:
- A. High permeability
  - B. Low permeability
  - C. Low coercive force
  - D. Low Retentivity
- 14 Which statement is true when related to magnetic lines of force?
- A. They never cross
  - B. They are most dense at the poles of a magnet
  - C. They seek the path of least resistance
  - D. All of the above
- 15 A curve is sometimes drawn to show graphically the relation of the magnetising force to the strength of the magnetic field produced in a certain material. This curve is known as the:
- A. Magnetic force curve
  - B. Hysteresis curve
  - C. Saturation curve
  - D. Induction curve

- 31 The flux density of the magnetism induced in a part by a DC electrical yoke can be varied by
- A. Changing the current in the yoke (if available)
  - B. The time that the yoke is energised
  - C. Energising the yoke more than once
  - D. All of the above
- 33 One of the major factors that determines the success of the magnetic particle inspection is:
- A. Using the dry method
  - B. The strength of the leakage field
  - C. The amount of current used for magnetisation
  - D. The magnetisation (Shot) time
- 35 Which of the following could give rise to non relevant indications?
- A. Lint or hair
  - B. Sharp radii
  - C. Finger prints
  - D. None of the above
- 37 The residual technique of magnetic particle testing should be carried out using which of the following?
- A. D.C.
  - B. Permanent magnets
  - C. A.C.
  - D. All of the above
- 39 What is the purpose of the white paint used in the portable visible inspection method?
- A. To supply a contrasting background
  - B. To assist with particle mobility
  - C. To stop the particles contaminating the part
  - D. To assist with the post inspection cleaning