

BASIC EXAME – 2006

VISUAL TESTING LEVEL III METHOD

PART – A: FUNDAMENTAL AND PRINCIBLES :

1. Which of the following is not considered to involve dimensional metrology for the visual examination:
 - a. Bolt circle spacing
 - b. Selection of lubrication for given bearing allowance.
 - c. Tolerance required for a shaft in a bearing.
 - d. Hole depth.
2. Which of the following describes parallax error:
 - a. It is another name for observational error.
 - b. It is the apparent shifting of an object when the position of the observer is changed.
 - c. It is error caused by the distance between the scale and feature being examined.
 - d. It is difference in measurements that occurs when the object is viewed from the left measured of the right vice versa.
 - e. It is the error focused between apposite faces of parallelogram.
3. Which of the following method is the best way to eliminate parallax error?
 - a. Close one eye when taking measurements.
 - b. Tile the rule so that the scale along being read is against the feature being examined.
 - c. Center the scale along the feature examined.
 - d. Take the measurements first from one side , then from the other side and then average them.
 - e. Use the scale with finer discrimination than is required for the measurements being made.
4. Why are measurements with an inside caliper considered to be



more reliable than those taken with outside caliper?

- a. Because you cannot get an outside caliper into a recess.
- b. Because inside measurements are smaller than outside measurements.
- c. Because the concave surfaces help center the caliper.
- d. Inside surface are usually machined better than outside surface.
- e. To obtain less chance for parallax error.

Part B - MATERIAL FABRICATION & PRODUCT TECHNOLOGY

5. Alloy steel can be defined as:

- a. Ordinary carbon steel to which has been added elements such as chromium, nickel, etc.
- b. Steel which does not contain significant amount of alloying elements other than carbon.
- c. Steel whose constituents remain in solution with each other at room temperature, nonmagnetic and corrosion resistant.
- d. An alloy containing tin, lead or antimony, a matter of 77% cu obtained from the something of sulfide copper ores.

6. Austenitic steel can be defined as:

- a. Ordinary carbon steel to which has been added elements such as chromium, nickel, etc.
- b. Steel which does not contain significant amount of alloying elements other than carbon.
- c. Steel whose constituents remain in solution with each other at room temperature, nonmagnetic and corrosion resistant.
- d. An alloy containing tin, lead or antimony, a matter of 77% cu obtained from the something of sulfide copper ores.

7. Carbon steel can be defined as:



- a. Ordinary carbon steel to which has been added elements such as chromium, nickel, etc.
 - b. Steel which does not contain significant amount of alloying elements other than carbon.
 - c. Steel whose constituents remain in solution with each other at room temperature, nonmagnetic and corrosion resistant.
 - d. An alloy containing tin, lead or antimony, a matter of 77% cu obtained from the something of sulfide copper ores.
8. Changes in properties of a metal or alloy that generally occur slowly at room temperatures and more rapidly at elevated temperature is known as:
- a. Microscopic.
 - b. Alloy.
 - c. Aging.
 - d. anisotropy.
 - e. activation.
9. A substance having metallic properties and being composed of two or more chemical elements of which at least one is an elemental metal is :
- a. An alloy.
 - b. A chemical.
 - c. A steel
 - d. A composite.
 - e. An element.
10. The term used to denote that a structure is visible at magnification from one to ten diameters is:
- a. Microscopic.
 - b. Submicroscopic.
 - c. Macroscopic.
 - d. Molecular.
 - e. Seeable.
11. In foundry practice, metal supports for buckling cores in place within sand moulds are known as:



- a. Closed mould.
 - b. Chills.
 - c. Blind risers.
 - d. Chaplets.
12. Forming or forging dies designed to makes the flow of metal laterally to the cavity within the die set are known as:
- a. Open dies.
 - b. Chaplets.
 - c. Closed dies.
 - d. Hammer forge.
13. Deviation from the main composition at a particular location in solidified cast metal is referred to as :
- a. Pipe.
 - b. Inclusion.
 - c. Segregation.
 - d. Hardness.
14. The losses of carbon from the surface of a ferretic alloy as a result of heating in a medium that reacts with the carbon at the surface is:
- a. Carborizing.
 - b. Decarborizing.
 - c. Burning.
 - d. Deep etching.
15. Conditioning a metallic surface for examination at a magnification of 10 diameters or less to reveals group features such as segregation, cracks, porosity or grain flow , is drive by:
- a. Grinding.
 - b. Deep etching.
 - c. Carborizing.
 - d. Decarborizing.
16. The forming of processed part by forming – the plastic flow of metal in dies and the reduction of tubing by pulling through a die is known as:



- a. Piercing.
 - b. Drawing.
 - c. Extrusion.
 - d. Forging.
17. The maximum stresses to which a material may be subjected without any permanent strain remaining upon complete release of stress is:
- a. Ultimate Yield.
 - b. Elastic limit.
 - c. Ultimate tensile.
 - d. Fatigue life.
18. The conversion of billets into lengths of uniform cross section by forcing the plastic metal through a die orifice of the desired cross-sectional outline is :
- a. Forging
 - b. Drawing.
 - c. An Extrusion.
 - d. A casting.
 - e. Cold working.
19. Heating to and holding at a suitable temperature and then cooling at suitable rate for such purposes as reducing hardness, improving machinability, or obtaining desired mechanical physical or other properties is termed as:
- a. Preheating.
 - b. Annealing.
 - c. Stress relieving.
 - d. Age hardening.
 - e. Quenching.
20. The swerving of an electric arc from his normal path because of residual magnetism is called :
- a. Arcing.
 - b. Eccentricity.



- c. Arc short.
- d. Arc blow.
- e. Distortion.

21. A large forging has been repaired by welding, magnetic particle inspection of the repair weld deposit reveals an irregular indication running parallel with the weld process , it is located near the center of the bead and starts and ends by changing slightly from the axial direction , this kind of discontinuities is most likely a:

- a. Lap.
- b. Cracks.**
- c. Slag inclusion.
- d. Lack of fusion
- e. Crater.

22. Porosity, misrun, cold shut, hot tears and inclusion are examples of the discontinuities found in:

- a. Forging.
- b. Casting.**
- c. Slag inclusion.
- d. Ingots.
- e. Heat treated parts.

23. The temperature of magnetic transformation below which a metal or alloy is magnetic and above it is non magnetic , is called :

- a. Melting temperature.
- b. Curie point.**
- c. Ambient temperature.
- d. Unstable temperature.
- e. Residual temperature.

24. A zone or area of minute discontinuities in casting during solidification are called:

- a. Bursts.
- b. Hot tear.
- c. Flakes.



- d. Fatigue cracks.
- e. Shrinkage.

25. Which of the following best describes the causes of metal fatigue:

- a. Loading beyond the Yield strength of the material.
- b. Impact loading
- c. Cyclic loading
- d. Alternating compression loading.
- e. Constantly increasing static loading.

26. Which of the following discontinuities is not associated with welding process?

- a. Porosity.
- b. Lack of fusion.
- c. Lack of penetration.
- d. Bursts.
- e. Crater crack.

27. Which of the following discontinuities is not associated with casting process?

- a. Hot tear.
- b. Cold shut.
- c. Porosity.
- d. Lamination.
- e. Microshrinkage.

28. Sever grinding cracks appears as:

- a. Wave like pattern.
- b. Widely spaced cracks.
- c. Lattice work pattern.
- d. Star like pattern.
- e. Wide crack.



29. Which of the following discontinuities usually appears in the form of a star with small crack emanating from a central point?

- a. Bursts.
- b. Crater crack.**
- c. Grinding crack.
- d. Heat treated crack.
- e. Machine tear.

30. Which of the items listed below is a discontinuity found in ingots:

- a. Lamination.
- b. Bursts.
- c. Non metallic inclusion.**
- d. Unfused chaplets.
- e. Spatter.

31. Which of the following is the most important item to be considered in the prevention of fatigue cracks?

- a. Favor rotating to minimize stress concentration.
- b. Design to minimize stress concentration.**
- c. Avoid shot penning.
- d. Polish all metal surfaces.

32. Excessive stress concentration do not usually occur :

- a. At notches.
- b. Where variable residual stress are present.
- c. If loading applied is different than designed loading.
- d. When changes in cross section are gradual.**

33. An alloy may become hardened with the Of a constituent from a super saturated solid solution.



- a. Solidification.
- b. Precipitation.
- c. Post heating.
- d. Substitution.

34. The base metal which has not been melted , but whose mechanical properties or microstructure have been affected by the heat of welding is known as :

- a. Heat affected zone.
- b. Fusion zone.
- c. Homogenization zone.
- d. Transformation zone.

35. The base metal material during welding as determined on the cross section of a weld is the :

- a. Fusion zone.
- b. Precipitation.
- c. Homogenization zone.
- d. Metal formation zone.

36. A metal rupture formed at the surface during solidification of casting becomes of uneven cooling at an area of transmission between surfaces of varying thickness is called:

- a. Bursts.
- b. Shrink.
- c. Cold shut.
- d. Hot tear
- e. Fatigue cracks.

