



INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
भारतीय प्रौद्योगिकी संस्थान तिरुपति

Yerpedu – Venkatagiri Road, Yerpedu Post, Tirupati District, A.P – 517619



Examination for Non-Teaching Positions
Adv. No. IITT/STAFFREC/01/2024 dated 12.03.2024

Junior Technician – Central Workshop

Maximum Marks: 40

Time: 45 Minutes

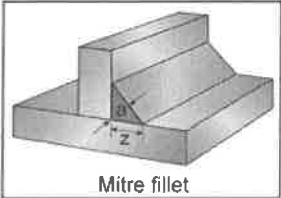
Candidate Name	
Post Serial Number	
Signature of Invigilator	

General Instructions:

Please read the following instructions carefully:

1. This test booklet contains 40 questions. Each Question carries 1 mark. Each question comprises four answers. You will select the answers which you want to mark on the answer sheet.
2. You have to mark only one answer otherwise it will be counted as wrong answer.
3. Use blue/black ink ball point pen for darkening the circles on the OMR answer sheet only. Do not use Pencil.
4. Folding, wrinkling or putting any unwanted mark or damaging the OMR answer sheet is prohibited. The candidate will be responsible for invalidation of the OMR answer sheet by doing such deeds.
5. Any kind of electronic devices, including smart watches, mobiles, calculators, and/or any paper chits, letters or printouts are not allowed inside the examination hall.
6. You have to hand-over the answered OMR sheet and the test booklet to the invigilator after the examination.

1. A line drawn with a long section, short dash, and another long section is a
 - (a) Hidden feature
 - (b) Centre of a circle
 - (c) Axis of a cylinder
 - (d) Center of a cylinder
2. Which of the following orthographic views shows the height dimension?
 - (a) Left side and front views
 - (b) Top and front views
 - (c) Top and rear views
 - (d) Bottom and right-side views
3. Hatching lines are used at _____ degree to the reference line
 - (a) 25
 - (b) 45
 - (c) 65
 - (d) 90
4. What type of curve is created by the intersection of a plane parallel to the side of cone?
 - (a) Parabola
 - (b) Hyperbola
 - (c) Ellipse
 - (d) Roulette
5. When a line is inclined to VP and parallel to HP, the front view will be to xy.
 - (a) Parallel
 - (b) Perpendicular
 - (c) Inclined at angle ϕ
 - (d) None of the above
6. Which of the following fuel gas has maximum flame temperature while burning in oxygen?
 - (a) Hydrogen
 - (b) Butane
 - (c) Acetylene
 - (d) Propane
7. Which of the following oxy-fuel gas flame is preferred to weld copper base alloys
 - (a) Oxidizing flame
 - (b) Reducing flame
 - (c) Neutral flame
 - (d) None of the above
8. The preferred voltage-current characteristics for SMAW process is
 - (a) Constant current characteristics
 - (b) Constant voltage characteristics
 - (c) AC characteristics
 - (d) Both (a) and (b)
9. Which of the following statements related to SMAW process are false.
 - (a) Flux coating protects the molten pool from atmospheric contamination
 - (b) Flux coating helps in stabilizing the arc
 - (c) Flux coating helps in increasing the weld penetration
 - (d) Flux coating helps in alloying the molten metal
10. Which of the below processes don't use inert shielding gas
 - (a) GTAW
 - (b) GMAW
 - (c) FCAW
 - (d) PAW
11. For a given set of process parameters, which shielding gas provide deeper penetration
 - (a) Ar
 - (b) He
 - (c) CO₂
 - (d) Ar + He mixture
12. The preferred mode of the welding current in SMAW and GMAW processes is
 - (a) DCEP
 - (b) DCEN
 - (c) AC
 - (d) None of the above
13. While joining a sheet metal, which welding process gives higher distortion
 - (a) GMAW
 - (b) Gas welding
 - (c) PAW
 - (d) FCAW
14. Please name the terminology of the fillet weld bead marked as 'a' and 'z' in the below pic

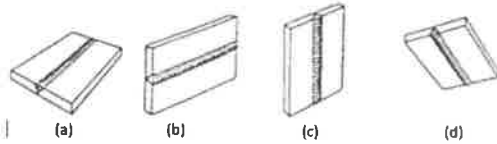


Mitre fillet

 - (a) a – fillet diagonal thickness; z – fillet length
 - (b) a – leg length; z – root land
 - (c) a – fillet bead thickness; z – nominal throat thickness
 - (d) a – nominal throat thickness; z – leg length
15. It is not preferred to have
 - (a) Wider heat affected zone in a weldment
 - (b) Higher weld penetration to width
 - (c) Narrow heat affected zone in a weldment
 - (d) Both (a) and (b)

16. Distortions in the welding can be reduced using
 (a) Welding clamps
 (b) Tack welding
 (c) Shot peening of the base plate before welding
 (d) None of the above

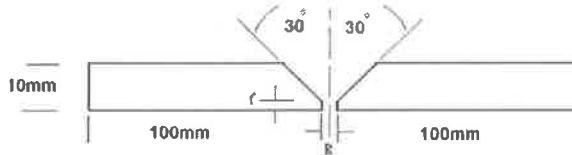
17. Which of the following list of welding position is correct?



- (a) a - 1G; b - 3G; c - 5G; d - 6G
 (b) a - 1G; b - 6G; c - 2G; d - 4G
 (c) a - 1G; b - 2G; c - 3G; d - 4G
 (d) a - 2G; b - 3G; c - 4G; d - 6G

18. Welding porosity is formed due to
 (a) Improper cleaning of the workpiece
 (b) Improper selection of the process parameters
 (c) Improper selection of the shielding gas
 (d) All of the above

19. Please name the terminology of the butt weld joint marked as 'R' and 'f' in the below pic



- (a) a – fillet diagonal thickness; z – fillet length
 (b) a – leg length; z – root land
 (c) a – fillet bead thickness; z – nominal throat thickness
 (d) a – nominal throat thickness; z – leg length

20. In soldering _____
 (a) Only base metal melts
 (b) Only filler metal melts
 (c) Both base and filler metal melts
 (d) None of the above

21. Is slag chipping needed between the passes in a multi-pass welding joint deposited using SMAW process
 (a) Slag chipping is needed and sufficient
 (b) Slag chipping is not needed
 (c) Partial slag chipping is needed
 (d) Slag chipping and cleaning with methanol is a normal practice

22. Melt through while performing arc welding can be avoided predominantly by
 (a) Selecting suitable welding current
 (b) Selecting suitable welding voltage

- (c) Selecting suitable welding speed
 (d) Selecting suitable welding electrode angle

23. Preferred welding process to join Al material
 (a) FCAW with suitable fluxes
 (b) GMAW with Ar sheilding
 (c) SAW process with suitable fluxes
 (d) Electro gas welding

24. Slag inclusions can be avoided by
 (a) Decreasing the weld pool cooling rates
 (b) Preheating the workpiece
 (c) Post heat treatment
 (d) None of the above

25. The preferred welding process to join thick plates in flat position is
 (a) Electro slag welding process
 (b) GMAW process
 (c) FCAW process
 (d) SAW process

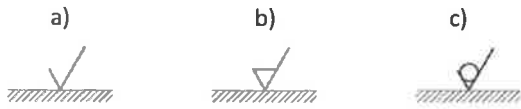
26. One of the following non-destructive techniques can do the subsurface defect detection
 (a) Die penetrant testing
 (b) Magnetic particle testing
 (c) Ultrasonic inspection testing
 (d) None of the above

27. The technique to reduce the residual stresses in a thick plates welding _____
 (a) Preheating the plates before welding
 (b) Short peening before welding
 (c) Subzero cooling of the base plates before welding
 (d) None of the above

28. A metric thread of pitch 2 mm and thread angle 60° is inspected for its pitch diameter using the 3-wire method. The diameter of the best-size wire in mm is
 (a) 1.51
 (b) 1.15
 (c) 2.15
 (d) 2.51

29. Hole size $\varnothing 20^{+0.014}_0$ mm. Shaft size $\varnothing 20^{+0.011}_{-0.003}$ mm. The resulting assembly
 (a) Loose running fit
 (b) Close running fit
 (c) Transition fit
 (d) Interference fit

30. Over a component broaching operation was performed and to represent the surface roughness the symbol used is



- (a) a) or b)
- (b) a) or c)
- (c) b) or c)
- (d) Can't say

31. The following is an internationally recognized and accepted unit system

- (a) MKS
- (b) FPS
- (c) SI
- (d) All of the above

32. Value of minimum clearance is given by

- (a) Size of smallest hole – size of biggest shaft
- (b) Size of smallest hole + size of biggest hole
- (c) Size of smallest shaft – size of biggest shaft
- (d) None of the mentioned

33. What is the first thing you should do if an evacuation occurs?

- (a) Ask everyone around you, "Is this just a drill"
- (b) Get your car keys from your work area
- (c) Exit the nearest exit door
- (d) Scream and run over anyone in your way

34. Arrange the first aid sequence in a correct manner

1. Restore breathing
2. Stop severe bleeding
3. Treat shock
4. Call advanced medical help immediately

- (a) 2, 4, 3, 1
- (b) 1, 2, 3, 4
- (c) 4, 3, 2, 1
- (d) 4, 2, 1, 3

35. Who should be included in the list of emergency contacts in an Emergency Action Plan

- (a) Only senior management
- (b) Only employees
- (c) Emergency services, medical facilities, and designated personnel
- (d) Friends and family members

36. Nitriding process is a

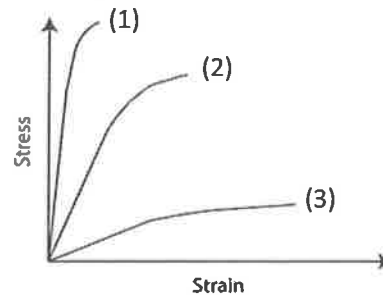
- (a) Volumetric heat treatment process
- (b) Surface heat treatment process
- (c) Both of the above
- (d) None of the above

37. The percentage elongation of a metal is measured using

- (a) Toughness testing
- (b) Tensile testing

- (c) Fatigue testing
- (d) Corrosion testing

38. Name the materials related to the stress-strain graphs 1, 2, and 3



- (a) (1) – metals; (2) – ceramics; (3) – polymers
- (b) (1) – ceramics; (2) – metals; (3) – polymers
- (c) (1) – polymers; (2) – ceramics; (3) – metals
- (d) (1) – metals; (2) – polymers; (3) – ceramics

39. Ferrous alloys with > 2 wt% carbon is called as

- (a) Low carbon steel
- (b) Medium carbon steel
- (c) High carbon steel
- (d) Cast Iron

40. Quenching heat treatment increases

- (a) Brittleness
- (b) Ductile
- (c) Both (a) and (b)
- (d) None of the above

