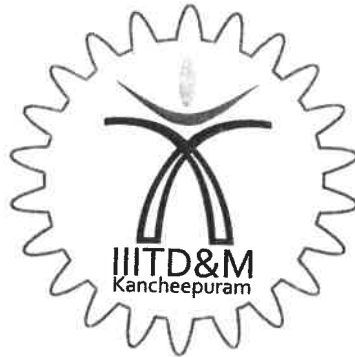




INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, DESIGN AND MANUFACTURING, KANCHEEPURAM

Question Paper for Written Test (Level-1)

Post : Junior Technician (Mechanical)

Instructions to the Candidates:

- The test booklet contains 100 objective MCQ type questions which needs to be answered in the OMR sheet given separately.
- Each correct answers will carry 1 mark and wrong answers will have 0.25 negative mark.
- No sheet will be given separately for rough work and candidates are requested to do all rough works in this booklet only.
- Return the OMR sheet and question booklet after the exam is over.
- Duration of the exam is 120 Minutes.

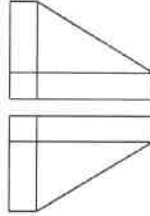
Level-1 :: Question Paper

- 1) Which of the following curves has zero eccentricity ()
 - a) Circle
 - b) Parabola
 - c) Hyperbola
 - d) Ellipse
- 2) Which of the following pairs of orthographic views both show the height dimension? ()
 - a) Left side and front
 - b) Top and front
 - c) Top and rear
 - d) Bottom and right side
- 3) The symbol for indicating the angle of projection shows two views of the frustum of a ()
 - a) Square pyramid
 - b) Triangle pyramid
 - c) Cone
 - d) Any of these
- 4) Sectional area is shown by hatching lines which are generally inclined at ()
 - a) 45°
 - b) 30°
 - c) 60°
 - d) 75°
- 5) In inclined lettering, the stem is inclined _____ to the left ()
 - a) 15°
 - b) 35°
 - c) 45°
 - d) 75°
- 6) In an isometric sketch of a cube ()
 - a) The receding axes are at 45° to the horizontal
 - b) The frontal face appears in its true shape
 - c) Only the depth distances must be reduced
 - d) All faces are equally distorted
- 7) When (1) visible outlines (2) hidden outlines (3) projection lines and (4) centre lines overlap, the recommended sequence of priority is ()
 - a) 1-2-3-4
 - b) 1-2-4-3
 - c) 2-1-3-4
 - d) 2-1-4-3
- 8) The solid having a polygon for the base and triangular lateral faces intersecting at a vertex is ()
 - a) Pyramid
 - b) Prism
 - c) Cone
 - d) Torus

- 9) The curve generated by a point on the circumference of a circle, which rolls without slipping along outside of another circle is known as ()
a) Hypocycloid
b) Epicycloid
c) Cycloid
d) Trochoid
- 10) In orthographic projections, the rays are assumed to ()
a) Diverge from station point
b) Converge from station point
c) Be parallel
d) None of these
- 11) Which of the following object gives a circular section, when it is cut completely by a section plane (irrespective of the angle of the section plane) ()
a) Cylinder
b) Sphere
c) Cone
d) Circular lamina
- 12) Dimension lines should not be _____ to each other ()
a) Parallel
b) Cross
c) Perpendicular
d) Inclined
- 13) Projection of an object shown by three views is known as ()
a) Perspective
b) Isometric
c) Oblique
d) Orthographic
- 14) The primary unit of measurement for engineering drawings and design in the mechanical industries is the ()
a) Millimetre
b) Centimetre
c) Meter
d) Kilometre
- 15) The included of a regular pentagon is ()
a) 120°
b) 60°
c) 108°
d) 72°
- 16) When a line is parallel to a plane; it's projection on plane is equal to its ()
a) True length
b) True shape
c) True size
d) None of the above

- 17) The form of drawing similar to the view of objects as perceived by human eye is ()
- a) Perspective
 - b) Oblique
 - c) Axonometric
 - d) Isometric

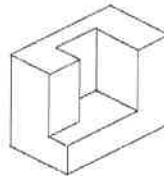
- 18) Select the correct isometric view corresponding to the orthographic views shown below: ()



- a)
- b)
- c)
- d)

- 19) A sphere in isometric projection appears as a circle of diameter ()
- a) Equal to the diameter of the sphere
 - b) 0.816 times the diameter of the sphere
 - c) Less than 0.816 diameter of the sphere
 - d) Greater than the diameter of the sphere

- 20) For the object shown below select the front view ()



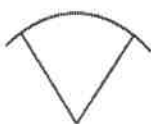
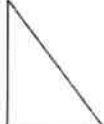
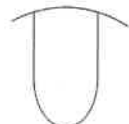
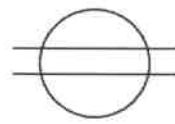
- a)
- b)
- c)
- d)

- 21) Babbitt metal is _____ base alloy ()
- a) Tin
 - b) Copper
 - c) Lead
 - d) Tungsten

- 22) In 18-4-1 HSS (High speed steel) the percentage of Chromium is ()
a) 1%
b) 4%
c) 18%
d) 20%
- 23) Hardness of cementite is of the order of ____ BHN ()
a) 200
b) 500
c) 1400
d) 1100
- 24) Under microscope, ferrite appears ____ ()
a) White
b) Light
c) Dark
d) None of these
- 25) Foundry crucible is made of ()
a) Graphite
b) Lead
c) Cast iron
d) Mild steel
- 26) Dies, drills, and taps contain ____ carbon ()
a) Below 0.2%
b) Below 0.4%
c) Above 0.8%
d) Above 1.0%
- 27) ____ can be easily drawn into wire ()
a) Cast iron
b) Zinc
c) Tin
d) Copper
- 28) ____ structure is obtained by austempering process of heat treatment ()
a) Sorbite
b) Bainite
c) Martensite
d) Troosite
- 29) Corundum contains more than 95% ()
a) MgO
b) SiO₂
c) Al₂O₃
d) Steel
- 30) Preheating is essential in welding which of the following materials? ()
a) High speed steel
b) Cast iron
c) All non-ferrous materials
d) None of these

- 31) The pipes used for making bicycle frames are made of _____ steel ()
a) Cast iron
b) Hot rolled
c) Carbon chrome
d) Dead mild
- 32) _____ cast iron has the maximum tensile strength ()
a) White
b) Grey
c) Nodular
d) Pig
- 33) As percentage of Carbon increases in steel its _____ decreases ()
a) Corrosion resistance
b) Ultimate strength
c) Hardness
d) Ductility
- 34) Austenite is a solid solution of carbon in _____ iron ()
a) Alpha
b) Beta
c) Gamma
d) Delta
- 35) _____ process needs no quenching ()
a) Case hardening
b) Flame hardening
c) Induction hardening
d) Nitriding
- 36) _____ is commonly used for making household utensils ()
a) Duralumin
b) Hindalium
c) γ -alloy
d) Magnalium
- 37) Ceramic curing tools are made of _____ ()
a) Tungsten carbide
b) Silicon oxide
c) Mixture of oxides of aluminium
d) None of the above
- 38) Ball bearings are generally made of ()
a) Carbon steel
b) Carbon chrome steel
c) Stainless steel
d) Grey cast iron
- 39) _____ has high tendency to get work hardened ()
a) Lead
b) Aluminium
c) Brass
d) Silver

- 40) In blast furnace, _____ is used as a fuel ()
- a) Producer gas
 - b) Coal
 - c) Coke
 - d) Diesel

- 41) The symbol used for seam welding is _____ ()
- a)  b)  c)  d) 

- 42) The purpose of chaplets is ()
- a) to ensure directional solidification
 - b) to provide efficient venting
 - c) to support the cores
 - d) to join lower and upper parts of the moulding box

- 43) The chief advantage of die casting is ()
- a) possibility of incorporating thick sections in small castings
 - b) casting of inserts is possible
 - c) wide tolerances are possible
 - d) high production rates are possible

- 44) Uniform sand hardness is obtained throughout the mould by which of the following moulding machines? ()
- a) Diaphragm moulding
 - b) Stripper plate
 - c) Sand slinger
 - d) Squeezing

- 45) In sand moulding, the bottommost part of the flask is called ()
- a) Cope
 - b) Cheek
 - c) Drag
 - d) Flask bottom

- 46) Non-uniform ramming of moulding sand may lead to the following casting defect ()
- a) Scabs
 - b) Swells
 - c) Blow holes
 - d) Bends

- 47) An important factor to be taken into account while designing a core print is ()
- a) Pouring temperature
 - b) Pattern material
 - c) Type of mould
 - d) Moulding sand characteristics

- 48) A casting defect which results in general enlargement of a casting is known as ()
- a) Swell
 - b) Shift
 - c) Sand wash
 - d) Blow hole

- 49) Which of the following material is added to base sand to impart bonding strength ()
a) Sea coal
b) Silica
c) Bentonite
d) Wood flour
- 50) The process of making hollow castings of desired thickness by permanent mould without the use of cores is known as ()
a) Die casting
b) Slush casting
c) Pressed casting
d) Centrifugal casting
- 51) In helium arc welding, the electrode is made of ()
a) Copper
b) Carbon
c) Mild steel
d) Tungsten
- 52) In resistance welding, the pressure is released ()
a) Just at the time of passing the current
b) After completion of current
c) After the weld cools
d) During heating period
- 53) The transformer used for AC welding sets is ()
a) Booster type
b) Step up type
c) Step down type
d) Equal turn ratio type
- 54) Oxygen to acetylene ratio in case of neutral flame is ()
a) 0.8:1.0
b) 1:1
c) 1.2: 1
d) 2:1
- 55) Which of the following is an example of semi-automatic welding process? ()
a) TIG welding
b) MIG welding
c) Submerged arc welding (SAW)
d) Resistance welding
- 56) The soldering iron is heated in a gas flame until ()
a) The bit is the red hot
b) The coating of Borax on the bit turns black
c) The gas flame appears orange in the colour
d) The gas flame appears green in the colour
- 57) In thermit welding, Aluminium and iron oxide are mixed in the proportion of ()
a) 1:3
b) 1:2
c) 1:1
d) 2:1

- 58) In arc welding temperature generated is of the order of ()
 a) 8000°C
 b) 1000°C
 c) 3500°C
 d) 5500°C
- 59) The commonly used flux for Brazing is ()
 a) Slag
 b) Borax
 c) Lead
 d) Calcium chloride
- 60) Electrode used in TIG is ()
 a) Copper
 b) Tungsten
 c) Aluminium
 d) Cast iron
- 61) Reaming is the operation of ()
 a) Enlarging the end of a hole cylindrically
 b) Cone shaped enlargement of the end of a hole
 c) Smoothing and squaring the surface around a hole
 d) Sizing and finishing a hole
- 62) A universal dividing head is used to perform a milling operation by ()
 a) Plain indexing
 b) Direct indexing
 c) Differential indexing
 d) Compound indexing
- 63) In grinding operation, for grinding harder material ()
 a) Coarser grain size is used
 b) Fine grain is used
 c) Medium grain size is used
 d) Any grain size may be used
- 64) In which of the following operations on lathe, will the spindle speed be minimum? ()
 a) Knurling
 b) Fine finishing
 c) Taper turning
 d) Thread cutting
- 65) Size of shaper is specified by ()
 a) Length of stroke
 b) Size of table
 c) Maximum size of tool
 d) Ratio of forward to return stroke
- 66) In a taper turning operation, maximum and minimum diameters of the job are D and d respectively. What is the taper angle, if the job length is L? ()
 a) $2 \tan^{-1} \left(\frac{D - d}{2L} \right)$
 b) $\tan^{-1} \left(\frac{D - d}{L} \right)$

- c) $\tan^{-1}(D - d)$
- d) $2 \tan^{-1}\left(\frac{D - d}{L}\right)$

- 67) Railway rails are generally made of ()
- a) Medium carbon steel
 - b) High carbon steel
 - c) Alloy steel containing 0.8-0.9% C
 - d) Mild steel
- 68) The angle between the face and the flank of the single point cutting tool is known as ()
- a) Rake angle
 - b) Clearance angle
 - c) Lip angle
 - d) Side angle
- 69) Automobile gears are generally manufactured by ()
- a) Hobbing
 - b) Stamping
 - c) Extrusion
 - d) Rolling
- 70) Which of the following milling operations results in a better surface finish? ()
- a) Climb
 - b) Down
 - c) Conventional
 - d) Face
- 71) The binding material used in cemented carbide tools is ()
- a) Nickel
 - b) Cobalt
 - c) Chromium
 - d) Carbon
- 72) The Taylor's correlation between the cutting speed (V) and the tool life (T) is given by ()
- a) $\frac{V^n}{T} = \text{constant}$
 - b) $VT^n = \text{constant}$
 - c) $\frac{V}{T^n} = \text{constant}$
 - d) $V^n T = \text{constant}$
- 73) Which one of the following manufacturing processes requires the provision of 'flash gutter' ()
- a) Closed die forging
 - b) Centrifugal casting
 - c) Investment casting
 - d) Impacting extrusion
- 74) Hot working of metal is carried out: ()
- a) Above the recrystallisation temperature
 - b) At the recrystallisation temperature
 - c) Working temperature depends upon physical conditions of workpiece
 - d) Below the recrystallisation temperature

- 75) The forging of the steel specimen is normally done at a temperature of ()
a) 800°C
b) 1100°C
c) 1500°C
d) 400°C
- 76) In order to get the uniform thickness of the plate by rolling process, one provides ()
a) Camber on the rolls
b) Offset on the rolls
c) Hardening of the rolls
d) Antifriction bearing
- 77) Dies for wire drawing are made of ()
a) Cast steel
b) Cast iron
c) Carbides
d) Wrought iron
- 78) Blanking and piercing operations can be performed simultaneously in ()
a) Simple die
b) Compound die
c) Progressive die
d) Combination die
- 79) A moving mandrel is used in ()
a) Forging
b) Wire drawing
c) Tube drawing
d) Metal casting
- 80) The process used for relieving the internal stress previously set up in the metal for increasing the machinability of the steel is ()
a) Full annealing
b) Normalizing
c) Process annealing
d) Spheroidising
- 81) The hacksaw blade cuts on the ()
a) Return stroke
b) Forward stroke
c) Cutting depends upon the direction of force
d) Both forward and return strokes
- 82) A ring gauge is used to ()
a) Check the clearance between two meeting surfaces
b) Test the accuracy of holes
c) Check the diameter of shafts or studs
d) All of the above
- 83) Which of the following belongs to the category of fusion welding ()
a) Gas welding
b) Forge welding
c) Thermit welding with pressure
d) Electrical resistance welding

- 84) With high speed steel tools, the maximum permissible operating temperature is close to ()
a) 250°C
b) 540°C
c) 780°C
d) 950°C
- 85) The purpose of riser is to ()
a) Act as a reservoir for the molten metal
b) Deliver molten metal from pouring basin to gate
c) Deliver the molten metal from pouring basin to gate
d) Feed the molten metal to the casting in order to compensate for the shrinkage
- 86) The taper provided on the pattern for its easy and clean withdrawal from the mould is known as ()
a) Draft allowance
b) Machining allowance
c) Distortion allowance
d) Shrinkage allowance
- 87) Which one of the following materials will require the largest riser for the same size of casting ()
a) Cast iron
b) Steel
c) Copper
d) Aluminium
- 88) For turning small taper on long workpieces, the suitable method is ()
a) Swivelling the compound rest
b) Offsetting the tail stock
c) Form tool
d) Taper turning attachment
- 89) The cross section of chisel is usually ()
a) Square
b) Octagonal
c) Hexagonal
d) Rectangular
- 90) The teeth of hacksaw blade are bent ()
a) Towards left
b) May be bent in any direction
c) Towards right
d) Alternately towards right and left and every third or fourth left straight
- 91) Metals come under which class of fire hazard? ()
a) Class B
b) Class C
c) Class D
d) Class A
- 92) What are the colours used on signs used for fire extinguisher equipment? ()
a) Pictogram in white on a red background
b) Pictogram in white on a green background
c) Pictogram in white on black background
d) Pictogram in yellow on black background

- 93) An oily workshop floor can be cleaned by using ()
a) Water
b) Cotton waste
c) Wooden dust and sand
d) Spraying carbon dioxide
- 94) ABC of first-aid stands for ()
a) Airway, bandage, and call medical emergencies
b) Airway, breathing, and circulation
c) Ambulance, bandage, and circulation
d) Airway, breathing, and call medical emergencies
- 95) Which of the following materials is toxic and can cause for lung cancer? ()
a) Fibre
b) Wood
c) Graphite
d) Asbestos
- 96) Which enables us to send the same letter to different people? ()
a) Macros
b) Template
c) Mail merge
d) None of the above
- 97) Name the feature that commands the word processor to align all the text to fit within the defined margins ()
a) Auto correct
b) Auto text
c) Auto format
d) Word wrap
- 98) Microsoft Word is an example of ()
a) Application software
b) Compiler
c) Operating system
d) System software
- 99) _____ feature of MS word helps to create a list in a document ()
a) Word art
b) Scaling
c) Bullets and numbering
d) Word wrap
- 100) Where do you select the paper size for a document? ()
a) Design > Size
b) File > Page Setup
c) Page layout > Size
d) Page layout > Margins