



BRAINWARE UNIVERSITY
Term End Examination 2020 - 21
Programme – Diploma in Mechanical Engineering
Course Name – Manufacturing Processes
Course Code - DME304

Semester / Year - Semester III

Time allotted : 75 Minutes

Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 60=60

1. (Answer any Sixty)

(i) Which of the following component gives the necessary plasticity to sand?

- | | |
|-----------|-----------------|
| a) silica | b) moisture |
| c) clay | d) all of these |

(ii) Which of the following provide cohesion among the sand particles?

- | | |
|------------------------|--------------------|
| a) clay and moisture | b) clay and silica |
| c) moisture and silica | d) none of these |

(iii) Which of the following is not included in forming and shaping process?

- | | |
|------------|------------------|
| a) rolling | b) sheet forming |
| c) forging | d) broaching |

(iv) Which of the following is included in machining process?

- | | |
|--------------|-------------|
| a) extrusion | b) drilling |
| c) soldering | d) coating |

(v) In ____type of manufacturing process, material is wasted. It is in the form of chips

- | | |
|----------------------|-----------------|
| a) machining process | b) casting |
| c) joining process | d) all of these |

(vi) Which of the following is not matched correctly with respect to the manufacturing process and their condition of matter subtraction/addition?

- a) Casting Constant material volume retained
- b) Machining Material removal process
- c) Forming Material addition process
- d) None of these

(vii) The property of a material by which it can be beaten or rolled into thin sheets is called:

- a) Elasticity
- b) Ductility
- c) Malleability
- d) Plasticity

(viii) The pattern used for mass production is,

- a) match plate pattern
- b) split pattern
- c) skeleton pattern
- d) single plate pattern

(ix) Projection welding is,

- a) Multi-spot welding process
- b) Continuous spot welding process
- c) Used to form mesh
- d) None of these

(x) TIG welding is best suited for welding,

- a) Mild welding
- b) Aluminium
- c) Carbon steel
- d) all of these

(xi) The electroslag welding is,

- a) A process which uses a mixture of iron oxide and granular aluminium
- b) Accomplished by maintaining a hot molten metal pool between plates
- c) A process in which arc is maintained under a blanket of flux
- d) There is nothing called electroslag

(xii) The most commonly used flame in gas welding is,

- a) Neutral
- b) Oxidising

c) Carburising

d) all of these

(xiii) In inter gas arc welding following is used for welding magnesium

a) No-combustible electrode in combination with helium and d.c. current

b) Combustible electrodes and argon in combination with a.c. current

c) Straight polarity d.c. current

d) all of these

(xiv) Distortion in welding occurs due to,

a) Use of excessive current

b) Improper clamping methods

c) Use of wrong electrodes

d) Improper composition of parent material

(xv) Manufacturing is a process of converting raw material of

a) Low value to high value

b) No value change

c) High value to low value

d) all of these

(xvi) Hardening during sheet metal forming of carbon steel primarily occurs due to,

a) Work hardening

b) Solid solution strengthening

c) Precipitate hardening

d) Transformation hardening

(xvii) The process generally preferred for manufacturing of wheels and pulleys is,

a) Extrusion

b) Rolling

c) Machining

d) None of these

(xviii) Solidification temperature range is shown by,

a) Pure metals

b) Eutectic Alloys

c) Other than Eutectic alloys

d) all of these

(xix) Manual intervention in the machine system is minimum for,

a) Semi-automatic machine

b) Conventional machine

c) Fully automatic machine

d) All of these

(xx) Parameters primarily considered for selection of a manufacturing process for a given product Are

a) Product features and operational cost

b) Roughness and tolerance

c) Flatness and accuracy

d) All of these

(xxi) Primary shape of large size components like Girth gear, large diameter shaft etc. is realized through,

a) Forming

b) Casting

c) Machining

d) Joining

(xxii) Arrange the following steps in correct sequence with respect to the step of casting process I. Solidification II. Melting III. Ejection IV. Cleaning V. Pouring

a) I,III,II,V,IV

b) II,V,I,IV,III

c) II,V,I,III,IV

d) II,I,V,III,IV

(xxiii) Chills are primarily used in mould to,

a) Achieve directional solidification

b) Reduce possibility of blow holes

c) Reduce the solidification time

d) Smoothen the metal by reducing spatter

(xxiv) Component used to support the core in the mould cavity is,

a) Chills

b) Core

c) Riser

d) Chaplet

(xxv) The part of gating system which regulates the rate of pouring of molten metal in the mould is,

a) Runner

b) Pouring basin

c) Choke

d) Riser

(xxvi) Increase in moisture content in the moulding sand will leads to the,

- a) First increase in flowability then decrease
- b) Increase in strength continuously
- c) First increase in permeability then decrease
- d) First decrease in permeability then increase

(xxvii) Friability and crumbling property provides the core,

- a) Ability to withstand high temperature
- b) Easy breaking
- c) High strength
- d) Cohesiveness

(xxviii) Riser is designed to ensure that molten metal in riser

- a) Freezes before the casting
- b) Freezes after the casting
- c) Freezes at the same time as the casting
- d) All of these

(xxix) A sand casting mould assembly is shown in the given figure. The elements marked A and B are respectively,

- a) Sprue and riser
- b) In gate and riser
- c) Drag and riser
- d) Riser and runner

(xxx) Casting defect caused by poor moulding strength

- a) Blow holes
- b) Pin hole porosity
- c) Swell
- d) Hard spot

(xxxii) Investment casting is preferred for manufacturing of,

- a) Turbine blade
- b) Turbine rotor
- c) Connecting rods
- d) Cast iron pipes

(xxxiii) In wire drawing process, the bright shining surface on the wire is obtained if one,

- a) Not using a lubricant
- b) Low tooling cost
- c) Uses thick paste lubricant
- d) Use thin fluid lubricant

(xxxiii) A type of cracking also known as delayed cracking is,

- a) Solidification cracking
- b) Liquation cracking
- c) Hydrogen-induced cracking
- d) Underbead cracking

(xxxiv) Use of runner, risers and cores are eliminated in,

- a) Centrifuged casting
- b) Die casting
- c) Permanent mould casting
- d) Semi permanent mould casting

(xxxv) Too low welding current in arc welding would result in,

- a) Excessive piling up of weld metal, poor penetration, wasted electrodes
- b) Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
- c) Too small bead, weak weld, and wasted electrodes
- d) None of these

(xxxvi) Too fast welding speed in arc welding would result in,

- a) Excessive piling up of weld metal, poor penetration, wasted electrodes
- b) Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
- c) Too small bead, weak weld, and wasted electrodes
- d) None of these

(xxxvii) Too slow welding speed in arc welding would result in,

- a) Excessive piling up of weld metal, poor penetration, wasted electrodes
- b) Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
- c) Too small bead, weak weld, and wasted electrodes
- d) Excessive pulling up of weld metal, overlapping without penetration of edges, wasted electrodes

(xxxviii) Flash butt welding is

- a) Gas welding
- b) Arc welding with straight polarity
- c) Arc welding with reverse polarity
- d) Resistance welding

(xxxix) The following welding process uses consumable electrodes

- a) TIG
- b) MIG
- c) SMAW
- d) PAW

(xl) The phenomenon of weld decay occurs in

- a) High speed steel
- b) Stainless steel
- c) Cast iron
- d) German silver

(xli) Equipment is used for arc welding a material by carbon electrode

- a) A.C. welding set
- b) D.C. welding set with straight polarity
- c) D.C. welding set with reverse polarity
- d) None of these

(xlii) In arc welding, temperature of the following order may be granted

- a) 1000°C
- b) 1500°C
- c) 5500°C
- d) 8000°C

(xliii) Which of the following carbon steel is most weldable,

- a) 0.15 % carbon steel
- b) 0.30 % carbon steel
- c) None of these
- d) 0.75 % carbon steel

(xliv) The use of jigs and fixtures

- a) Facilitates deployment of less skilled labour for production
- b) Eliminates pre-machining operations like marking, measuring, laying out etc.
- c) reduced manual handling operations
- d) All of these

(xlv) Principle of _____ states that “In order to achieve the maximum accuracy in location the locating points should, therefore, be placed as far apart from one another as it is possible”.

- a) Six point location
- b) Least points
- c) Extreme positions
- d) Mutually perpendicular planes

(xlvi) The following is a quick acting clamp

- a) Hinged clamp
- b) Cam operated clamp
- c) Bridge clamp
- d) Edge clamp

(xlvii) The following material is commonly used for making locating and clamping devices,

- a) High carbon steel
- b) Low carbon steel
- c) High speed steel
- d) None of these

(xlviii) The following type of jig suits best for drilling of holes in hollow cylindrical components, with relatively smaller outside and inside diameters, such as bushes

- a) Solid type jig
- b) Pot type jig
- c) Box type jig
- d) Open type jig

(xlix) The following type of jig is used to drill a series of equidistant hole along a circle,

- a) Index jig
- b) Plate type jig
- c) Open type jig
- d) Pot type jig

(l) The following jig can be used for several different work pieces and operations,

- a) Template jig
- b) Multi-station jig
- c) Index jig
- d) Universal jig

(li) The jigs and fixtures can be constructed through

- a) Casting
- b) Fabrication
- c) Welding
- d) All of these

(lii) For efficiently working in sheet metal one should have thorough knowledge of

- a) development of surfaces
- b) properties of metals
- c) both development of surfaces and
- d) None of these

properties of metals

(liii) Prick punch has an included angle (in degree) of ,

- a) 15
- b) 45
- c) 60
- d) 30

(liv) Following too(s) is (are) used as cutting tools in sheet metal shop

- a) Hollow punch
- b) Bent snip
- c) Chisels
- d) All of these

(lv) Following is a hole punching operation

- a) Piercing
- b) Blanking
- c) Nibbling
- d) Circle cutting

(lvi) Hard solder is an alloy of

- a) copper and zinc
- b) tin and lead
- c) tin and zinc
- d) copper and lead

(lvii) The suitable temperature range for forging steel with carbon content 0.7% is

- a) 800 – 950°C
- b) 1000 – 1150°C
- c) 1100 – 1250°C
- d) 1300 – 1450°C

(lviii) Hot forging of a metal is caused out at

- a) Melting point
- b) Above recrystallization temperature
- c) Below recrystallization temperature
- d) At recrystallization temperature

(lix) Which of the following open die forging operation reduces the height of a forging and increases its diameter?

- a) Cogging
- b) Upsetting
- c) Expanding
- d) Hollow forging

(lx) To remove scale on forging, which of following operations are used?

a) pickling in acid, tumbling, trimming

b) pickling in acid, tumbling, shot peening

c) tumbling, shot peening, trimming

d) pickling in acid, shot peening, trimming