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Submission Deadline : 15/7/2022 12:30

TA202P: End Semester Examination -Set A

Q.1 Which one is correctly matched between groups 1 and 2 below

Group 1:

P. G09

Q. G41

R. G09

S. G03

Group 2:

Linear Interpolation
Retardation
Circular Interpolation
Cutter radius Compensation

R-3, P-1, S-4, Q-2
S-4, P-1, R-3, Q-2
R-3, S-4, P-1, Q-2
Q-2, S-4, P-1, R-3

Max. score: 1; Neg. score: 0.5

- b
- a
- d
- c

Q.2 A DC servo motor is directly driving an NC table. The pitch of the lead screw of the table is 5mm. The motor rotates at 100 rpm for an applied voltage of 10V. If the voltage speed characteristic of the motor is linear, the applied voltage for a table to move at 3m/min is equal to:

Max. score: 1; Neg. score: 0.5

- 60
- 30
- 50
- 33

Q.3 Circular arc on a part profile in being machined on a vertical CNC milling machine. The CNC part program using metric units with absolute dimensions is listed below:

N60G01X30Y55Z5F50N70

G02X50Y35R20N80G01Z5

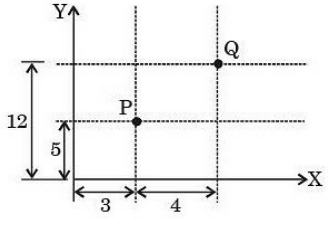
The coordinates of the centre of the circular arc are:

Max. score: 1; Neg. score: 0.5

- (50,55)
- (30,55)
- (30,35)
- (50,35)

Q.4

A drill is positioned at point "P" and it has to proceed to point "Q". The coordinates of point "Q" in the incremental system of defining position of a point in CNC part program will be the following:



Max. score: 1; Neg. score: 0.5

- [ ] (5,7)
- [ ] (3,12)
- [x] (4,7)
- [ ] (7,12)

Q.5 For machining a rectangular island represented by coordinates P(0,0), Q (100, 0), R(100,50) and S(0,50) on a casting using CNC milling machine, an end mill with a diameter of 16 mm is used. The trajectory of the cutter centre to machine the island PQRS is

Max. score: 1; Neg. score: 0.5

- [ ]

(8,8), (94,0), (94,44), (8,44), (8,8)

- [x] (-8,-8), (108,-8), (108, 58), (-8,58), (-8,-8)
- [ ] (0,0), (100,0), (100,50), (50,0), (0,0)
- [ ] (-8,8), (94,0), (94,44), (8,44), (-8,8)

Q.6 Which of the following condition is suitable for machining of complex shapes on CNC machines?

Max. score: 1; Neg. score: 0.5

- [ ] Simultaneous control of x and y axes.
- [x] Simultaneous control of x, y and z axes.
- [ ] Independent control of x, y and z axes.
- [ ] Independent control of x and y axes.

Q.7 In the Electric discharge machining (EDM) process, which type of dielectric flow as mentioned below is desirable?

Max. score: 1; Neg. score: 0.5

- [x] Steady Flow
- [ ] Unsteady Flow
- [ ] None of these
- [ ] Unstable Flow

Q.8 In electric discharge machining (EDM) process if the thermal conductivity of the tool is high and the specific heat of workpiece is low, the tool wear and the material removal rate are expected to be

Max. score: 1; Neg. score: 0.5

- [ ] Low and low
- [ ] High and high
- [x] Low and high
- [ ] High and low

Q.9 Match the following non-traditional machining processes with the corresponding material removal rate mechanisms:

Machining process
(P) Chemical Machining
(Q) Electrochemical Machining
(R) Electro discharge machining
(S) Ultrasonic machining

Mechanism of material removal
(1) Erosion
(2) Corrosive reaction
(3) Ion displacement
(4) Fusion and vaporization

Max. score: 1; Neg. score: 0.5

- [ ] P-2, Q-4, R-3, S-1

- [ ] P-2, Q-3, R-4, S-1
- [ ] P-2, Q-3, R-1, S-4
- [ ] P-3, Q-2, R-4, S-1

Q.10 Which of the following EDM machine is used for cutting shapes out of flat sheet or plate of metal ?

Max. score: 1; Neg. score: 0.5

- [ ] Sinker EDM
- [x] Wire EDM
- [ ] None of the mentioned
- [ ] Wire and sinker EDM both

Q.11 For maximum power delivery using resistance- capacitance relaxation circuit in EDM, discharge voltage should be ____% of supply voltage.

Max. score: 1; Neg. score: 0.5

- [ ] 23
- [ ] 80
- [x] 72
- [ ] 65

Q.12 The dielectric medium in EDM is used for:

Max. score: 1; Neg. score: 0.5

- [ ] To make the medium conducting
- [x] Flushing away the debris
- [ ] None of the mentioned
- [ ] To decrease the material removal rate

Q.13 Which should be considered when orienting the part on the build plate on the slicing software of an additive manufacturing setup.

Max. score: 1; Neg. score: 0.5

- [x] The footprint of the part should be as small as possible
- [ ] Holes should always be printed horizontally
- [ ] All of these
- [ ] One should minimize the number of overhangs

Q.14 Which of the following does not influence how the 3-D printed part will be?

Max. score: 1; Neg. score: 0.5

- [ ] Using support material
- [ ] Layer thickness
- [x] All the above
- [ ] Part orientation

Q.15 FDM build plates are prepared by:

Max. score: 1; Neg. score: 0.5

- [ ] Putting a layer of painter's tape on it
- [ ] Putting hair spray on it
- [ ] All of the above
- [ ] Putting a glue stick layer on it

Q.16 What material is not used in 3-D printing?

Max. score: 1; Neg. score: 0.5

- [ ] ABS
- [ ] Nylon
- [x] PVC
- [ ] PLA

Q.17 Which of the 3-D printing processes uses a pool of resin to create a solid part?

Max. score: 1; Neg. score: 0.5

- [x] SLA
- [ ] FDM
- [ ] None of the above
- [ ] SNL

Q.18 In additive manufacturing processes which is the most common type of file that is extracted from a CAD software?

Max. score: 1; Neg. score: 0.5

- [ ] JPG
- [ ] SLDRT
- [ ] X3G
- [x] STL

Q.19 Which type of CMM is most suitable for large, heavy workpieces?

Max. score: 1; Neg. score: 0.5

- [ ] Bridge type
- [ ] Cantilever type
- [ ] Floating bridge type
- [x] Horizontal boring mill type

Q.20 Which direction is sensed by a linear measurement transducer in CMM?

Max. score: 1; Neg. score: 0.5

- [ ] Negative direction only
- [ ] Positive direction only
- [ ] Non used in sensing direction
- [x] Both positive and negative direction

Q.21 Which principle is used in the 3-Master guideways and probe location?

Max. score: 1; Neg. score: 0.5

- [ ] Principle of static design
- [ ] Principle of dynamic design
- [ ] Principle of effective design
- [x] Principle of kinematic design

Q.22 What is the cause of translation errors in CMM?

Max. score: 1; Neg. score: 0.5

- [x] Error in straightness
- [ ] Error in scale division
- [ ] Roll error
- [ ] Twisting error

Q.23 How many measurement parameters are considered in measuring axis accuracy of straightness in CMM?

Max. score: 1; Neg. score: 0.5

- [ ] 4
- [ ] 2
- [ ] 8
- [x] 6

Q.24 How many reference gauges are measured for volumetric length measuring accuracy in CMM?

Max. score: 1; Neg. score: 0.5

- [x] 3
- [ ] 2
- [ ] 5
- [ ] 4

Q.25 Ruby LASER is most efficient when

Max. score: 1; Neg. score: 0.5

- [ ] Kept hot
- [x] Kept cold
- [ ] None of the mentioned
- [ ] Kept at normal temperature

Q.26 Time of machining in the laser beam machining process increases with

Max. score: 1; Neg. score: 0.5

- [x] Decrease in laser beam spot diameter
- [ ] Decrease in power supply
- [ ] None of the mentioned.
- [ ] Increase in cutting speed

Q.27 In laser beam machining process as compared to other unconventional processes, the heat affected zone is

Max. score: 1; Neg. score: 0.5

- [x] Smaller
- [ ] Larger
- [ ] None of the mentioned.
- [ ] Not present

Q.28 In laser beam machining process the lens is used to

Max. score: 1; Neg. score: 0.5

- [ ] Divert the beam
- [ ] Deflect the beam
- [ ] Reflect the beam
- [x] Converge the beam

Q.29 Time of cutting in laser beam machining processes increases

Max. score: 1; Neg. score: 0.5

- [ ] With increase in cutting speed
- [x] With decrease in cutting speed
- [ ] None of the above
- [ ] With increase in power

Q.30 LASER stands for

Max. score: 1; Neg. score: 0.5

- [ ] Light amplification by stimulated erosion of reaction
- [x] Light amplification by stimulated emission of radiation
- [ ] Light amplification by stimulated emission of reaction
- [ ] Light amplification by stimulated erosion of radiation

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