

University of Mumbai

Examination 2022

Examinations Commencing from May 2022 to June 2022

Program: Mechanical Engineering

Curriculum Scheme: Rev 2016

Examination: SE Semester IV

Course Code: MEC404 and Course Name: Production process-II

Time: 2 hour 30 minutes

Max. Marks: 80

R16_SE_IV_MEC404_QP1

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Tool life is measured by the
Option A:	Number of pieces machined between tool sharpening
Option B:	Time the tool is in contact with the job
Option C:	Volume of material removed between tool sharpening
Option D:	All of the above
2.	A diamond locating pin is used in jigs and fixtures because
Option A:	Diamond is very hard and wear resistant
Option B:	It occupies very little space
Option C:	It helps in assembly with tolerance on centre distance
Option D:	It has a long life
3.	Relief angles on high speed steel tools usually vary from
Option A:	0° to 3°
Option B:	3° to 10°
Option C:	10° to 20°
Option D:	20° to 30°
4.	Which one of the process is subtractive prototyping?
Option A:	5 axis CNC Milling
Option B:	Fused Deposition Modeling
Option C:	Multi-Jet Modeling
Option D:	Stereo lithography Apparatus
5.	Jigs are used
Option A:	For holding and guiding the tool in drilling, reaming or tapping operations
Option B:	For holding the work in milling, grinding, planing or turning operations
Option C:	To check the accuracy of workpiece

Option D:	None of the above
6.	For machining a cast iron workpiece by a high speed steel tool, the average cutting speed is
Option A:	10 m/min
Option B:	15 m/min
Option C:	22 m/min
Option D:	30 m/min
7.	In blanking operation the clearance is provided on
Option A:	The die
Option B:	The punch
Option C:	Both die and punch equally
Option D:	Neither Die or punch
8.	Cutting tools are provided with large positive rake angle mainly for
Option A:	Increasing the strength of cutting tool
Option B:	Avoiding rubbing action with finished surfaces
Option C:	Reducing the magnitude of cutting force
Option D:	Better heat dissipation
9.	The cutting force in punching and blanking operations mainly depends on
Option A:	The modulus of elasticity of metal
Option B:	The shear strength of metal
Option C:	The bulk modulus of metal
Option D:	The yield strength of metal
10.	In ECM, the material removal is due to
Option A:	Corrosion
Option B:	Erosion
Option C:	Fusion
Option D:	Ion displacement

Q2	Solve any Four out of Six (5 marks each)
A	Describe one RP process with a neat sketch
B	Prove that in metal cutting, chip-flow velocity = cutting velocity x chip thickness coefficient
C	Distinguish between additive Manufacturing (AM) and CNC machining
D	Differentiate how compound and combination die differ from each other
E	What is meant by dressing, truing and balancing of grinding wheel?
F	Compare orthogonal and oblique cutting

Q3.	Solve any Two Questions out of (Three 10 marks each)
A	What is meant by a cutting tool signature? How do you express it in ORS and NRS system? Draw a neat labeled sketch to show it in the two systems along with the nomenclature.
B	What are the factors determining the material removal rate in Electric Discharge

	Machining Process. Elaborate on them.
C	What are the parameters governing Photo-polymerization process?

Q4.	Solve any Two Questions out of Three (10 marks each)
A	Give the classification of nontraditional machining processes and explain water jet machining in detail
B	Describe the mechanism of chip formation in detail.
C	Define tool life and explain factors affecting tool life.