

Shivaji University, Kolhapur
Question Bank For Final Year Students Examination 2019-20
Branch : Mechanical Engineering

Class Backlog T.E. Mechanical Engineering

Name of Subject: **Manufacturing Engg**

- 1) The tool life is affected by
 - (A) Depth of cut
 - (B) Cutting speed
 - (C) Feed
 - (D) All of these

- 2) The tool having one cutting edge is known as.....
 - a)Single point cutting tool
 - b)Multi point cutting tool

- 3)When cutting face of tool is 90° to the line of action of tool then it is known as.....
 - a)Oblique cutting
 - b)Orthogonal cutting

- 4)Tool signature consists of.....elements
 - a)2
 - b)4
 - c)5
 - d)7

- 5) Cutting fluids mostly used for machining steel is.....
 - a)Water
 - b)Soluble oil
 - c)Dry
 - d)Heavy oil

- 6) Cutting fluids are used to
 - a)Cool the tool
 - b)Improve surface finish
 - c)Cool the workpiece
 - d)All of these

- 7) The tool made of cemented carbide wear out faster at
 - a)Slow speeds
 - b)Fast speeds

- c)medium speeds
- d)very fast speeds

8)Work done in metal cutting is depends on.....

- a)Cutting force & cutting speed
- b)Cutting speed & heat generated
- c)Depth of cut & cutting speed

9)To reduce the wear of tool on harder material it should be machined at.....

- a)Lower cutting speed & smaller feed
- b)Lower cutting speed & higher feed
- c)Higher cutting speed & lower feed

10)If chip thickness increases tool wear is

- a)Less
- b)Moderate
- c)More rapid

11)..... Gives best finish.

- a)Lower cutting speed & higher feed
- b)Higher cutting speed & higher feed
- c)Higher cutting speed & fine feed

12)Lowest portion of side cutting edges isof single point cutting tool.

- a)Heel
- b)Flank
- c)Rake

13).....are most commonly used for measuring force in metal cutting.

- a)Mechanical & strain gauge dynamometer
- b)Calorimeter
- c)Wattmeter

14)In oblique cutting chips are in form of.....

- a)Long curl
- b)Flat spiral
- c)Discontinuous
- d)Short & thick

15) In order to achieve a specific surface finish in single point turning, the most important factor to be controlled is

- (A) Depth of cut
- (B) Cutting speed

- (C) Feed
- (D) Tool rake angle

16) . The relation between the tool life (T) in minutes and cutting speed (V) in m/min is (where $n =$ An exponent, which depends upon the tool and workpiece, and $C =$ A constant)

- (A) $V^n T = C$
- (B) $VT^n = C$
- (C) $V^n/T = C$
- (D) $V/T^n = C$

17. The angle made by the face of the tool and the plane parallel to the base of cutting tool is called

- (A) Rake angle
- (B) Cutting angle
- (C) Clearance angle
- (D) Lip angle

18)The rake angle in a drill

- A)increases from centre to periphery
- B)decreases from centre to periphery
- C)remains constant
- D)is irrelevant to the drilling operation

19) Tool life of 10 hours is obtained when cutting with a single point tool at 63 m/min. If Taylor's constant $C = 257.35$, tool life on doubling the velocity will be

- A)5 hours
- B)25.7 min
- C)38.3 min
- D)unchanged

20) Which of the following tool materials have cobalt as a constituent element?

1. Tungsten carbide 2. CBN 3. Stellite 4. UCON

Select the correct answer using the codes given below

- A)1 and 2
- B)1 and 3
- C)1 and 4
- D)2 and 3

21) Consider the following cutting tool materials used for metal - cutting operation at high speed

1. Tungsten carbide
2. Cemented titanium carbide
3. High - speed steel
4. Cermet

The correct sequence in increasing order of the range of cutting speeds for optimum use of these materials is

- A)3, 1, 4, 2
- B)1, 3, 2, 4
- C)3, 1, 2, 4
- D)1, 3, 4, 2

22) Cubic boron nitride

- A)has a very high hardness which is comparable to that of diamond
- B)has a hardness which is slightly more than that of HSS
- C)is used for making cylinder blocks of aircraft engines
- D)is used for making optical glasses

23) The main alloying elements in high speed steel in order of increasing proportion are

- A)Vanadium, chromium, tungsten
- B)Tungsten, titanium, Vanadium
- C)Chromium, titanium, vanadium
- D)Tungsten, chromium, titanium

24) Only negative rake angles are used with the following tool materials

- A)HSS
- B)carbon tool steels
- C)carbides
- D)diamonds

25) Which one of the following is the hardest cutting tool material next only to diamond?

- A)cemented carbide

- B)ceramics
- C)sialones
- D)cubic boron nitride

26) In reaming process

- A) metal removal rate is high
- B)high surface finish is obtained
- C)high form accuracy is obtained
- D)high dimensional accuracy

27) Reamers have even number of flutes mainly to

- A)have accurate measurements of its diameter
- B)align the reamer axis
- C)balance the cutting force
- D)standardize by convention

28) Reamers have usually, even number of teeth so that the cutting forces on teeth are properly balanced.

- A)True
- B)False
- C)Sometimes true
- D)Can't say

29) To have good surface finish on a turned job, one should use a tool with afeed and..... Speed of rotation of the job.

- A)Low / Large
- B)Large / Low
- C)Low / Low
- D)Large / Large

30) Two cutting tools are being tried for an operation, Taylor's tool life equations for them are as

follows: HSS tool, $VT^{0.1} = 200$, carbide tool $VT^{0.35} = 500$. At a cutting speed of 50 m/min which tool is Economical

- A)HSS
- B)carbide
- C)both
- D)none

31) Which one of the following operations is NOT automatic on single –spindle auto lathe ?

- a) Bar loading b) Bar feeding c) Coolant Circulation d) Collet Opening & Closing

32) The carrier of a multi-spindle automatic lathe, which is being operated by an indexing mechanism, accommodates the spindle. The number of spindles that can be accommodated are:

- a) 3, 4, 5 b) 3, 6, 9 c) 4, 6, 7 d) 4, 6, 8

33) Automatic lathes are capable of performing a preset cycle of operations. The number of components produced per cycle of operations depends upon:

- a) The number of toolings b) The number of spindles on the machine c) The range of speeds & feeds
d) The design of the cams controlling the slide movements

34) The following type of Lathe is operated through Cams and Cam plate.

- a) Precision Lathe c) Screw Cutting Lathe
b) Crankshaft lathe d) Duplicating Lathe

35) A drill bit of 20mm diameter rotating at 500 rpm with a feed rate of 0.2 mm/revolution is used to drill a through hole in Mild Steel plate of 20mm thickness. The depth of cut in this drilling operation is

(A) 100 mm

(B) 20 mm

(C) 10 mm

(D) 0.2 mm

36) In how many groups, cutting tools can be divided?

a) 2

b) 3

c) 4

d) none of the mentioned

37) The cutting speed of High speed steels is ____ times faster than Carbon steel

(A) 2

(B) 4

(C) 6

(D) 8

38) The cutting velocity in m/sec, for turning a work piece of diameter 100 mm at the spindle speed of 480 rpm is

(A) 1.26

(B) 2.51

(C) 48

(D) 151

39) Material having highest cutting speed is

A. cast iron

B. aluminium

C. bronze

D. high speed steel

40) Material having lowest cutting speed is

- A. cast iron
- B. bronze
- C. aluminium
- D. high speed steel

41) Angle on which strength of the tool depends is

- A. lip angle
- B. rake angle
- C. cutting angle
- D. clearance angle

42) Cutting speed generally express in_____

- a) meter
- b) meter/minute
- c) meter*minute
- d) none of the mentioned

43) Formula for cutting speed is_____

d=diameter of drill in mm, n=rpm of drill.

- a) $(d*n)/1000$
- b) $(3.14*d*n)/1000$
- c) $3.14*d*n$
- d) none of the mentioned

44) The feed may be expressed in_____

- a) mm/revolution
- b) mm*revolution
- c) mm
- d) none of the mentioned

45)_____ is equal to half the diameter of the drill used.

- a) feed
- b) depth of cut
- c) machining time
- d) none of the mentioned

46) Depth of cut can be expressed in _____

- a) mm
- b) mm/revolution
- c) mm/minute
- d) none of the mentioned

47) The formula for depth of cut is _____

d=diameter of the drill.

- a) $d/4$
- b) $d/2$
- c) d
- d) $2d$

48) If s_2 =feed per revolution, s_1 =feed per minute, n =rpm.

Which of the following is mathematically right?

- a) $s_1 = s_2 * n$
- b) $s_2 = s_1 * n$
- c) $s_1 * s_2 = n$
- d) none of the mentioned

49) Metal removal rate can be given as _____

- a) $(\text{mm} * \text{mm} * \text{mm}) / \text{min}$
- b) $(\text{mm} * \text{mm} * \text{m}) / \text{revolution}$
- c) mm/revolution
- d) mm/minute

50)-Jigs and Fixtures are used for

- (A) Mass production
- (B) Identical parts production
- (C) Both 'A' and 'B'
- (D) None of the above

51) 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 the above

52) The following is (are) the function(s) of a jig

- (A) Holding
- (B) Locating
- (C) Guiding
- (D) All of the above

53) A fixture does not

- (A) Holds the workpiece
- (B) Locate the workpiece
- (C) Guide the tool
- (D) All of the above

54) Jigs are not used in

- (A) Drilling
- (B) Reaming
- (C) Tapping
- (D) Milling

55) Fixtures are used in

- (A) Milling
- (B) Shaping
- (C) Turning
- (D) All of the above

56) 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

57) The following holds the workpiece securely in a jig or fixture against the cutting forces

- (A) Locating device
- (B) Clamping device
- (C) Guiding device
- (D) Indexing device

58) The following is a quick acting clamp

- (A) Hinged clamp
- (B) Cam operated clamp
- (C) Bridge clamp
- (D) Edge clamp

59) 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) Die steel

60) The following type of jig is used for machining in more than one plane

- (A) Template jig
- (B) Plate type jig
- (C) Open type jig
- (D) Box type jig

61) 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

62) 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

63) This type of jig is employed on multi-spindle machines

- (A) Index jig
- (B) Universal jig
- (C) Open type jig
- (D) Multi-station jig

64) 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

65) The jigs and fixtures can be constructed through

(A) Casting

(B) Fabrication

(C) Welding

(D) All of the above

66) Jigs And fixture are used to provide interchangeability.

a) True

b) False

67) Number of degree of freedom of a workpiece in space is equal to

a) 10

b) 12

c) 14

d) 16

68

In blanking operation the clearance provided is

A 50% on punch and 50% on die

B on die

C on punch

D on die or punch depending upon designer's choice

69

Which of the following parts is used for holding the metal sheet during blanking operation?

- A** Spherical steel ball
- B** Roller
- C** Pressure pad
- D** Magnet

70

In blanking operation the clearance provided is

- A** 50% on punch and 50% on die
- B** on die
- C** on punch
- D** on die or punch depending upon designer's choice

71

Which of the following dies is not the type of cutting dies in the metal cutting operations?

- A** Squeezing dies
- B** Blanking dies
- C** Piercing dies
- D** Notching dies

72

In sheet metal blanking, shear is provided on punches and dies so that

- A Press load is reduced
- B Good cut edge is obtained
- C Warping of sheet is minimized
- D Cut blanks is straight

73 The scrap layout is decided by considering the following factors?

- A Kind of material type and thickness of scrap strip
- B Minimum clearance need on the blanking
- C Effect of unbalanced force parallel to the press working force
- D All of the above

74 Types of strip layout?

- A Straight layout
- B Staggered layout
- C Angular layout
- D All of the above

75 The function of stripper is?

- A To strip of the material from the punch
- B Remove material from the punch
- C fixed the strip and punch
- D None of the above

76 The operation of cutting of a flat sheet to the desired shape is called

- A Shearing
- B Piercing

- C Punching
- D Blanking

77 Piercing is an operation of cutting

- A a cylindrical hole in a sheet of metal by the punch and the die
- B a hole (other than cylindrical) in a sheet of metal by the punch and the die
- C a flat sheet to the desired shape
- D a number of holes evenly spaced in a regular pattern on a sheet of metal

78 Punching a number of holes in a sheet is known as?

- A Perforating
- B Parting
- C Notching
- D Lancing

79 Shearing the sheet into two or more pieces is known as?

- A Perforating
- B Parting
- C Notching
- D Lancing

80 Removing the pieces from the edge in shearing operation is known as?

- A Perforating
- B Parting
- C Notching
- D Lancing

81 Leaving a tab without removing any material is known as?

- A** Perforating
- B** Parting
- C** Notching
- D** Lancing

82 As the thickness of the sheet is increased the clearance needed will also?

- A** Increase
- B** Decrease
- C** No effect
- D** First decreases and then increase

83 The operation of bending a sheet of metal along a curved axis is known as

- A** plunging
- B** notching
- C** slitting
- D** forming

84 The device, fed to the control unit of NC machine tool which sends the position command signals to sideway transmission elements of the machine, is called as

- A** controller
- B** tape
- C** feedback unit
- D** none of the above

85 In NC (Numerical Control) machine tool, the position feedback package is connected between

- A** control unit and programmer
- B** programmer and machine tool
- C** control unit and machine tool
- D** programmer and process planning

86 Which of the following options is correct for the control unit and panel of NC (Numerical Control) and CNC (Computer Numerical Control) machine tools?

- A** The control unit of NC machine tool works in ON-line mode and the control unit of CNC machine tool works in batch processing mode
- B** The control unit of NC machine tool works in batch processing mode and the control unit of CNC machine tool works in ON-line mode
- C** The control units of both NC and CNC machines work in ON-line mode
- D** The control units of both NC and CNC machines work in batch processing mode

87 In CNC machine tool, the part program entered into the computer memory

- A** can be used only once
- B** can be used again and again
- C** can be used again but it has to be modified every time
- D** Cannot say

88 Several machine tools can be controlled by a central computer in

- A** NC (Numerical Control) machine tool
- B** CNC (Computer Numerical Control) machine tool
- C** DNC (Direct Numerical Control) machine tool
- D** CCNC (Central-Computer Numerical Control) machine tool

89

Part-programming mistakes can be avoided in

- A** C (Numerical Control) machine tool
- B** CNC (Computer Numerical Control) machine tool
- C** Both a. and b.
- D** None of the above

90

What kind of controller system is found in CNC machine tools?

- A** A) Personal computer
- B** (B) Hardwired logic
- C** (C) Programmable logic controller
- D** (D) Microprocessor based

91

Which of the following system has feedback system?

- A** (A) Open loop system
- B** (B) Closed loop system
- C** (C) Direct loop system
- D** (D) None of the above

92

On turning lathes the machine zero point is generally at the

- A** (A) Head stock of lathe spindle nose face
- B** (B) Dead center of tail stock
- C** (C) Tool point mounted on tool post
- D** (D) none of the above

93 In NC (Numerical Control) machine tool, the position feedback package is connected between

- A** (A) control unit and programmer
- B** (B) programmer and machine tool
- C** (C) control unit and machine tool
- D** (D) programmer and process planning

94 CNC drilling machine is considered to be a

- A** (A) Point-to-point controlled machine
- B** (B) Straight line controlled machine
- C** (C) Continuous path-controlled machine
- D** (D) Servo-controlled machine

95 The axes of turning machine are

- A** (A) Z and X-axes
- B** (B) X and Y-axes
- C** (C) Z and Y-axes
- D** (D) X, Y and Z-axes

96 The most preferred transmission system in CNC machining center is

- A** (A) Timing belt and pulley
- B** (B) V-belt
- C** (C) Recirculating ball screw
- D** (D) Rack and pinion

97 Which one of the following CNC machines is highly suited for machining on cubical component in a single set up?

- A** (A) HMC

- B** (B) VMC
- C** (C) Horizontal boring machine
- D** (D) Turn mill center

98 The setting of tools to a specific length is called

- A** (A) Tool on setting
- B** (B) Specific setting
- C** (C) Presetting
- D** (D) Post setting