BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, _5th_ Semester,

End-Sem. Examination

SET - A

Course Code: SMS 1501 **Time: 2 Hours**

Course Name: Production Management **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Work Study can be applied in
   (i) Automotive industry (ii) Hospital (iii) Tourism
   (iv) Every where
2. Application of Ergonomics are in
   (i) Aerospace (ii) Product design (iii) Health care
   (iv) All three
3. In Method Study, Transport is represented by
   (i) O (ii) Arrow (iii) Square (iv) Inverted Triangle
4. In Production System, inputs are
   (i) Materials (ii) Road (iii) Transport (iv) None of the above
5. Direct Cost in a Manufacturing Industry includes:
   (i) Only direct labour cost (ii) Only direct material cost (iii) Summation of direct material and labour cost
6. Prime Cost in a Manufacturing Industry includes:
   (i)All direct cost (ii) Factory overhead cost (iii) Summation of direct and factory overhead cost
7. Under M-T-M, the motion REACH is represented by
   (i) M (ii) T&P (iii) P (iv) R
8. Under M-T-M, the motion POSITION is represented by
   (ii) M (ii) T&P (iii) P (iv) R
9. In Method Study, Storage is represented by
   (ii) O (ii) Arrow (iii) Square (iv) Inverted Triangle
10. In Method Study, Operation is represented by
    (iii) O (ii) Arrow (iii) Square (iv) Inverted Triangle

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Section – B

04X04 = 16 Marks

11. Yesterday, the price of envelops was $3 a box and Ram was willing to by 10 boxes. Today, the price has gone up to $3.75 a box and Ram is now willing to buy 8 boxes. Is Ram's demand for elastic or inelastic. What is Ram's elasticity of demand?
12. What do you mean by EOD? Write down various types of elasticity of demand?
13. Discuss various factors influencing demand of Mobile Phone?
14. A department store has found that in a four-month period, the best forecast is derived by using 40% of the actual sales for the most recent month, 30% of the two months ago, 20% of three months ago and 10% of four months ago. Find out the forecast for the 5th month, if the actual sales for the 4 month is:

Month	1	2	3	4	5
Sales in nos.	100	90	105	95	----

Section – C

04X06 = 24 Marks

15. Describe the steps for doing a method study of job process. Illustrate one of the recording techniques used in the method improvement with a case example.
16. A medium scale industry incurs the following costs for their products annually. The production volume on an average is 12000 a year.
    a. Raw material cost including losses due to scrap and wastage (due to rejection) = Rs.50000
    b. Tool cost = Rs.4000
    c. Wages to skilled hands engaged on production = Rs.20000
    d. Wages to foremen, other supervisory staff = Rs.40000
    e. Expenses of office staff (salary, bonus etc.) = Rs.12000
    f. Expenses on sales and distribution agencies = Rs.8000
    g. Expenses on insurance, lighting etc. = Rs.4000

    Find direct cost as percentage of total cost.
17. Write down the steps for Time Study?
18. What are benefits of breaking the operations into small elements?

Answers Key

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, _5th_ Semester,

End-Sem. Examination

SET - A

Course Code: SMS 1501 **Time: 2 Hours**

Course Name: Production Management **Max. Marks: 50**

Instruction: Use of Calculator is Allowed

Section – A

10X01 = 10 Marks

1. Work Study can be applied in
   (i) Automotive industry (ii) Hospital (iii) Tourism
   (iv) Every where
   Ans. (iv)
2. Application of Ergonomics are in
   (i) Aerospace (ii) Product design (iii) Health care
   (iv) All three
   Ans. (iv)
3. In Method Study, Transport is represented by
   (i) O (ii) Arrow (iii) Square (iv) Inverted Triangle
   Ans. (ii)
4. In Production System, inputs are
   (i) Materials (ii) Road (iii) Transport (iv) None of the above
   Ans. (i)
5. Direct Cost in a Manufacturing Industry includes:
   (i) Only direct labour cost (ii) Only direct material cost (iii) Summation of direct material and labour cost
   Ans. (iii)
6. Prime Cost in a Manufacturing Industry includes:
   (i)All direct cost (ii) Factory overhead cost (iii) Summation of direct and factory overhead cost
   Ans. (i)
7. Under M-T-M, the motion REACH is represented by
   (i) M (ii) T&P (iii) P (iv) R
   Ans. (iv)
8. Under M-T-M, the motion POSITION is represented by
   (ii) M (ii) T&P (iii) P (iv) R
   Ans. (iii)

9. In Method Study, Storage is represented by

(ii) O (ii) Arrow (iii) Square (iv) Inverted Triangle

Ans. (iv)

10. In Method Study, Operation is represented by

(iii) O (ii) Arrow (iii) Square (iv) Inverted Triangle

Ans. (i)

Section – B

04X04 = 16 Marks

11. Yesterday, the price of envelops was $3 a box and Ram was willing to by 10 boxes. Today, the price has gone up to $3.75 a box and Ram is now willing to buy 8 boxes. Is Ram's demand for elastic or inelastic. What is Ram's elasticity of demand?

Soln.: EOD = {(8-10)/10} / {(3.75-3.00)/3.00} = [-0.8] = 0.8

EOD is < 1. Hence inelastic.

12. What do you mean by EOD? Write down various types of elasticity of demand?

Ans.: EOD- The law of demand tells us that as the price of a commodity falls, the quantity demanded increases, and *vice versa.(Eg. Gold)*

In other words, it only tells us only direction of change but not the rate of change.

- ☐ Perfectly elastic demand (At a given price or less than the given price, infinite qty will be bought)
- ☐ Perfectly inelastic demand (Same qty will be bought at any price)
- ☐ Demand with unity elasticity (Equally proportionate demand for proportionate change)
- ☐ Relatively elastic demand (More than proportionate demand due to price change)
- ☐ Relatively inelastic demand (less than proportionate demand due to price change)

13. Discuss various factors influencing demand of Mobile Phone?

Ans.: **$D = f(P_n, P_n ... P_{n-1}, Y, T, P, A, E)$**

Where:

- ☐ P_n = Price
- ☐ $P_n ... P_{n-1}$ = Prices of other goods – substitutes and complements
- ☐ Y = Incomes – the level and distribution of income
- ☐ T = Tastes, Trends and fashions
- ☐ P = The level and structure of the population, Popularity
- ☐ A = Advertising, Attitude
- ☐ E = Expectations of consumers

14. A department store has found that in a four month period, the best forecast is derived by using 40% of the actual sales for the most recent month, 30% of the two months ago, 20% of three months ago and 10% of four months ago. Find out the forecast for the 5th month, if the actual sales for the 4 month is:

Month	1	2	3	4	5
Sales in nos.	100	90	105	95	----

Ans.: $F_5 = 0.4 \times 95 + 0.3 \times 105 + 0.2 \times 90 + 0.1 \times 100 = 97.5$ units.

Section – C

04X06 = 24 Marks

15. Describe the steps for doing a method study of job process. Illustrate one of the recording techniques used in the method improvement with a case example.

- Ans.: This involves systematic, orderly and scientific approach to problems and decisions must be taken after listing out all possible alternatives and evaluating them critically

1. ***Select*** the work to be studied
2. ***Record*** all relevant facts by direct observation
3. ***Examine*** the facts critically in sequence using special critical examination sheet
4. ***Develop*** the best method which is practical, economical and effective
5. ***Install*** the method as a standard practice

   Maintain the method installed as a standard

16. A medium scale industry incurs the following costs for their products annually. The production volume on an average is 12000 a year.

   a. Raw material cost including losses due to scrap and wastage (due to rejection) = Rs.50000
   b. Tool cost = Rs.4000
   c. Wages to skilled hands engaged on production = Rs.20000
   d. Wages to foremen, other supervisory staff = Rs.40000
   e. Expenses of office staff (salary, bonus etc.) = Rs.12000
   f. Expenses on sales and distribution agencies = Rs.8000
   g. Expenses on insurance, lighting etc. = Rs.4000

Find direct cost as percentage of total cost.

Ans. Direct cost = (50000 + 4000 + 20000) = 74000

Total Cost = 74000 + 12000 + 8000 + 4000 = 98000

% = 74000 /98000 = 75.5

17. Write down the steps for Time Study?

- Ans.: The steps for time study are as follows
  - Select the job to be studied
  - Breakdown the job into smallest possible elements
  - Inform the worker and define the best method
  - Observe the time for appropriate number of cycles
  - Determine the average cycle time
  - Determine the normal time
  - Determine the standard time using average cycle and normal time

18. What are benefits of breaking the operations into small elements?

- Ans.: The objectives of breaking down to elements are
  - To Separate the productive and unproductive activities
  - To get clear , complete and accurate information
  - To calculate operator performance accurately
  - To get detailed work specification
  - To select the best method
  - To collect information to compile standard data

Set A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1502 **Time: 2 Hour**

Course Name: Integrated CAD-CAM-CNC **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1.In a 2D CAD package anti-clockwise circular arc of radius, 5, specified from P1(15,10) to P2(10,15) will have its center at:

A. (10,10)
B. (15,10)
C. (15,15)
D. (10,15)

2.Which among the following is one of the first programming languages to use graphics other than text with black screen?

A. Java
B. VBA
C. C#
D. All of the above

3.Keyboard is a _____ input device.

A. Graphical
B. text
C. Numerical
D. Both B and C

4.Which of the following is the built in CAE software?

A. Fanuc
B. Siemens
C. NASTRAN
D. None of the above

5.Which of the following is the full form for ICG?

A. Installed Computer Graphics
B. Integrated Computer Graphics
C. Integrated Computer Graphs
D. Integrated Calculator Graphics

6. CNC drilling machine is considered to be a:

A. Point to point controlled machine
B. Straight line controlled machine
C. Continuous line controlled machine
D. Servo controlled machine

7. MasterCAM is a ----------

A. Standalone CAM software
B. Integrated CAM software
C. Built In CAM software
D. All of the above

8. The axes of the turning machine are:

A. Z and X-axes
B. Z and Y-axes
C. Y and X-axes
D. None of the above

9. A robotic hand can be a substitute for:

A. CNC machine
B. Manual material handling
C. Manual packaging
D. All of the above

10. For generating a coons patch we require:

A. A set of grid points on surface
B. A set of control points
C. Four bounding curves defining surface
D. Two bounding curves and a set of grid control points

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Section – B

04X04 = 16 Marks

11. Write down the full form of CAPP and name the softwares which is used to achieve this in industry?
12. Define what are geometric primitives and also give 5 different examples of solid geometric primitives?
13. Give two popular examples of CAE tools (Strictly programming languages) and also define how they both are different from each other?
14. Explain how Fanuc is a standalone programming controller for CNC machines?

Section – C

04X06 = 24 Marks

15. Explain what you mean by CNC control system and give four examples of CNC control systems with their country of origin?
16. Explain the steps of FEM technique used for Computer Simulations of physical systems.
17. Differentiate between modelling and machining softwares with suitable examples?
18. Differentiate between DNC and CNC.

Set A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1502 **Time: 2 Hour**

Course Name: Integrated CAD-CAM-CNC **Max. Marks: 50**

Answer Key

Section – A

10X01 = 10 Marks

1.In a 2D CAD package anti-clockwise circular arc of radius, 5, specified from P1(15,10) to P2(10,15) will have its center at:

A. **(10,10)**
B. (15,10)
C. (15,15)
D. (10,15)

2.Which among the following is one of the first programming languages to use graphics other than text with black screen?

A. Java
B. **VBA**
C. C#
D. All of the above

3.Keyboard is a _____ input device.

A. Graphical
B. text
C. Numericals
D. **Both B and C**

4.Which of the following is the built in CAE software?

A. Fanuc
B. Siemens
C. **NASTRAN**
D. None of the above

5.Which of the following is the full form for ICG?

A. Installed Computer Graphics
B. **Integrated Computer Graphics**
C. Integrated Computer Graphs
D. Integrated Calculator Graphics

6. CNC drilling machine is considered to be a:

A. **Point to point controlled machine**
B. Straight line controlled machine
C. Continuous line controlled machine
D. Servo controlled machine

7. MasterCAM is a ----------

A. **Stand alone CAM software**
B. Integrated CAM software
C. Built In CAM software
D. All of the above

8. The axes of the turning machine are?

A. **Z and X-axes**
B. Z and Y-axes
C. Y and X-axes
D. None of the above

9. A robotic hand can be a substitute for:

A. CNC machine
B. Manual material handling
C. Manual packaging
D. **All of the above**

10. For generating a coons patch we require:

A. A set of grid points on surface
B. A set of control points
C. **Four bounding curves defining surface**
D. Two bounding curves and a set of grid control points

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Section – B

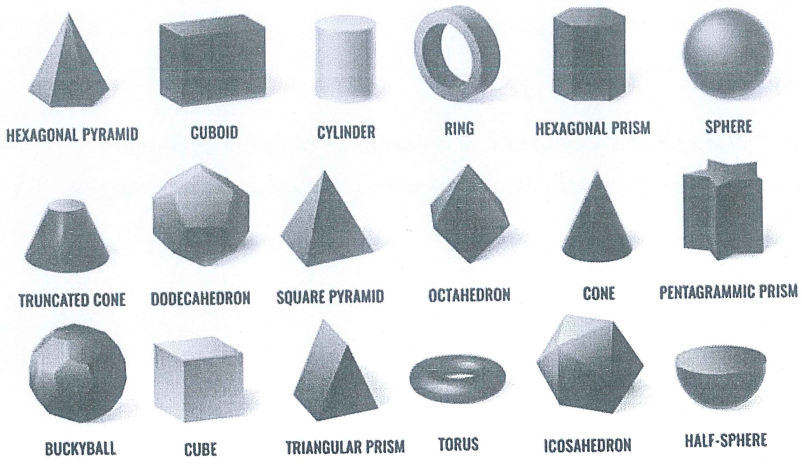
04X04 = 16 Marks

11.Write down the full form of CAPP and name the softwares which are used to achieve this in industry?

Ans. Computer Aided Process Planning is a technique by which a subject in industry generate Process planning with the use of computer with the help of various computer application Like Microsoft Excel.

12.Define what are geometric primitives and also give 5 different examples of solid geometric primitives?

Ans: geometric primitive (or prim) is the simplest (i.e. 'atomic' or irreducible) geometric shape that the system can handle (draw, store).All other graphic elements are built up from these primitives.



13.Give two popular examples of CAE tools (Strictly programming languages) and also define how they both are different from each other?

Ans: Two popular examples of CAE tools are

1. MATLAB
2. PYTHON

Python	MATLAB
1. It is a general purpose programming language	1. It is a commercial purpose programming language
2. It is mainly used for developing computer softwares and applications	2. It is mainly used for numerical computing and programming
3. Open source	3. owned by Mathswork.inc

14.Explain how Fanuc is a standalone programming controller for CNC machines?

Ans: Fanuc is basic G-Code generator controller which works on any type of cnc machines for which it is coded.It is very different from controllers like Mazatrol which are only developed for MAZAK machines.

Section – C

04X06 = 24 Marks

15. Explain what you mean by CNC control system and give four examples of CNC control systems with their country of origin ?

Ans: A CNC machine is run by a CNC control system. The control system consists of controller, servo motors, drives and feedback devices. The controller, servomotors and their drives come as a package called CNC control system, from one manufacturer only. Some of the leading global manufacturers of CNC control systems are:-

Fanuc (Japan)
Siemens (Germany)
Heidenhain (germany)
Mitsubishi (japan)

16. Explain the steps of FEM technique used for Computer Simulations of physical systems

Ans: FEM stands for Finite Element analysis used for calculating forces and stresses on physical systems replicated virtually inside computers
Modelling of physical systems exactly in CAD
Dividing whole body into smaller parts known as meshing
Applying boundary conditions like forces,torques and pressure
Post Processing of results includes generating contours and graphs

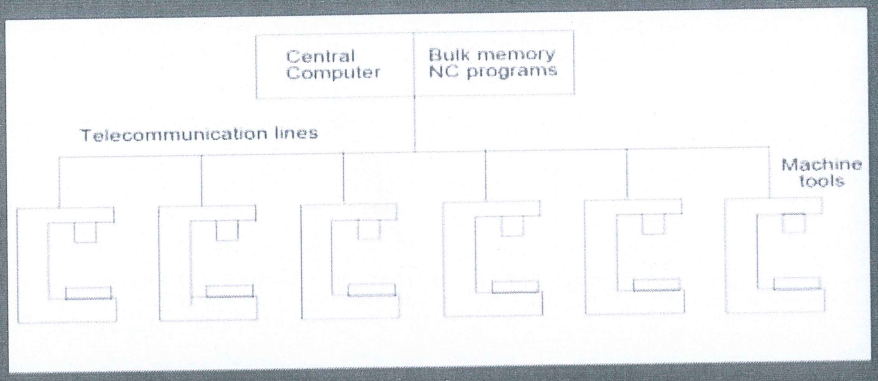
17. Differentiate between modelling and machining softwares with suitable examples?

Ans: Modelling softwares: Used for generating 3D models e.g.: solidworks
Machining softwares: used to generate G codes for CNC machines via generating graphical tool path within CAM softwares

18. Differentiate between DNC and CNC?

Ans: CNC stands for computer numerical control, DNC stands for direct numerical control. In CNC, far off control of the operation is not possible, while in DNC facilitates far-flung control. CNC is transferring machine instruction, DNC controls the information distribution to a wide variety of machines.

DNC system without satellite computer



Presented by : Narasinh Vasandia (130151119006)

A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1503 **Time: 2 Hour**

Course Name: Basics of Multiaxis Machining & Dialog CNC Programming **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Power transmission component includes
   a) Belts
   b) Shaft
   c) Couplings
   d) All of the above
2. Joining elements include:
   a) Pins
   b) Snap-fits
   c) Both a & b
   d) None of the above
3. Electric motors are driven by _____ forces.
   a) Ferromagnetic
   b) Electromagnetic
   c) Gamma
   d) External
4. Asynchronous motor is an ___ induction motor.
   a) AC
   b) DC
   c) Water
   d) Gas
5. Basic Components of CNC Controllers are
   a) Power Supply unit
   b) Circuitry protection unit
   c) Motor driver unit

d) All of the above

6. Rapid Feed rate of STAR SB-20R for X, Y and Z axes is_____
   a) 35000 mm/min
   b) 35000m/min
   c) 35000mm/rev
   d) 20 m/min
7. Maximum machining Diameter of STAR SB-20R is
   a) 20 mm
   b) 18 mm
   c) 25 mm
   d) 30 mm
8. Maximum Drilling Capability of STAR SB-20R for stationary tool is
   a) 20 mm
   b) 18 mm
   c) 25 mm
   d) 35 mm
9. Maximum spindle speed of STAR SB-20R is
   a) 15000 rpm
   b) 20000 rpm
   c) 10000 rpm
   d) 12000 rpm
10. What is operational mode of STAR SB-20R?
   a) Left Handed
   b) Right Handed
   c) Neutral
   d) Both a and b

Section – B

04X04 = 16 Marks

11. Write down the main difference between synchronous and Asynchronous electric motor.
12. Write down the various popular controllers in use.
13. Name the various functional units of STAR SB-20R.
14. Write down the capacity and major specifications of STAR SB-20R.

Section – C

04X06 = 24 Marks

15. What do you mean by functional units of a machine tool? Name the various functional units of a CNC lathe.
16. Describe in brief about various types of five axis machining centers along with their application.
17. Write down the differences between Five axis machining and (3+2) axis machining?
18. Provide details of various Power transmission units of STAR SB-20R.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1503 **Time: 2 Hour**

Course Name: Basics of Multiaxis Machining & Dialog CNC Programming **Max. Marks: 50**

Answer Key

Section – A

10X01 = 10 Marks

1. Power transmission component includes
   a) Belts
   b) Shaft
   c) Couplings
   d) All of the above
2. Joining elements include:
   a) Pins
   b) Snap-fits
   c) Both a & b
   d) None of the above
3. Electric motors are driven by _____ forces.
   a) Ferromagnetic
   b) Electromagnetic
   c) Gamma
   d) External
4. Asynchronous motor is an ___ induction motor.
   a) AC
   b) DC
   c) Water
   d) Gas
5. Basic Components of CNC Controllers are
   a) Power Supply unit
   b) Circuitry protection unit
   c) Motor driver unit
   d) All of the above
6. Rapid Feed rate of STAR SB-20R for X, Y and Z axes is_____
   a) 35000 mm/min
   b) 35000m/min
   c) 35000mm/rev
   d) 20 m/min

7. Maximum machining Diameter of STAR SB-20R is
   a) 20 mm
   b) 18 mm
   c) 25 mm
   d) 30 mm
8. Maximum Drilling Capability of STAR SB-20R for stationary tool is
   a) 20 mm
   b) 18 mm
   c) 25 mm
   d) 35 mm
9. Maximum spindle speed of STAR SB-20R is
   a) 15000 rpm
   b) 20000 rpm
   c) 10000 rpm
   d) 12000 rpm
10. What is operational mode of STAR SB-20R?
    a) Left Handed
    b) Right Handed
    c) Neutral
    d) Both a and b

Section – B

04X04 = 16 Marks

11. Write down the main difference between synchronous and Asynchronous electric motor.

Ans. **Synchronous motor:**

Synchronous motor is a motor that operates at synchronous speed, i.e., speed of the rotor is equal to the stator speed of the motor.

Asynchronous motor:

Asynchronous motor is an AC Induction motor. The rotor of the Asynchronous motor rotates at the speed less than the synchronous speed

12. Write down the various popular controllers in use.

Ans. 1) Fanuc 21M
2) Sinumerik Operate 840D
3) Heidenhain TNC426

13. Name the various functional units of STAR SB-20R.

Ans.
A) Guide Bush
B) Back Attachment
C) Back -4 spindle
D) Head Stock
E) Tool Post

14. Write down the capacity and major specifications of STAR SB-20R.

Ans.

Item		Specifications
Maximum machining diameter		Φ 20 mm
Maximum headstock stroke	Guide bush version	205 mm
	Non-guide bush version	50 mm
Maximum drilling capability	Stationary tool	Φ 20 mm
	Power driven tool	Φ 5 mm Φ 6 mm & Φ 7 mm
Maximum tapping capability	Stationary tool	M 10x P1.5
	Power driven tool	M 5 x P0.5, M6x P1.0
Maximum milling capability		Φ 7 mm, Φ 10 mm

Section – C

04X06 = 24 Marks

15. What do you mean by functional units of a machine tool? Name the various functional units of a CNC lathe.

Ans. 1) Drive Units
2) Power transmission Units
3) Work units
4) Supporting and holding components
5) Joints and fastening units
6) Measuring and control units
7) Units for environmental protection, disposal and safety at work.

16. Describe in brief about various types of five axis machining centers along with their application.

Ans. **1) Rotary table + Pivot Spindle Head**

This machine design is effective for tall workpieces and for cylindrical parts with holes around the periphery.

2) Double rotary table

This is the best machine for the use of long tools or extensions. It is also effective for cylindrical parts with a ring of holes in one face.

3) Double Pivot Spindle Head

This machine is effective for parts that are rectangular instead of round.

4) Rotary Table + Table Trunnion

This machine can take relatively deep cuts for its size.

17. Write down the differences between Five axis machining and (3+2) axis machining?

Ans. **5-Axes Machining**

1. Also called continuous or simultaneous 5-axis machining involves continuous adjustments of the cutting tool along all five axes to keep the tip optimally perpendicular to the part.
2. Machining is faster.
3. Movement at higher speed results in increased wear rate as well as greater need for part crash detection hence it is more difficult from programming point of view.

(3+2) Axes Machining

1. Also called positional 5-axis machining involves executing 3-axis program with cutting tool locked at an angle determined by the two rotational axes. Machining that involves reorienting the tool bit along the rotational axes between cuts is called '5-axis indexed' though it still counts 3+2.
2. Machining is relatively slow due to stopping and starting between each reorientation of the tool.
3. Part programming is relatively simpler.

18. Provide details of various Power transmission units of STAR SB-20R.

Ans.

Item			Specifications	Remarks
Power supply [redacted]	Voltage		3 phase, 200Vac±10%	
	Frequency		50/60Hz ±1Hz	
	Capacity	SB-12R	Load run average power: 4.5KVA	Power supply capacity of the machine body only
		SB-16R/ 20R [redacted]	Load run average power: 3.7KVA [redacted]	
Main circuit breaker	Machine		Rated current: 30A Rated shutdown capacity: Icu/Ics: 2.5/1kA	QF001
	External transformer		Rated current: 20A Rated shutdown capacity: Icu/Ics: 2.5/1kA	Transformer [0G492]
			Rated current: 20A Rated shutdown capacity: Icu/Ics: 7.5/4kA	Transformer CE Marking Version [0T497]
Leakage current			5mA	
Electric circuit diagram No.			10171/**_***	Included with the machine **_*** is an edition number

A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1504 **Time: 2 Hour**

Course Name: Project work **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Assembling project team and assigning their responsibilities are done during which phase of a project management?
   A. Initiation
   B. Planning
   C. Execution
   D. Closure
2. "Risk" is usually _____ as the project progresses.
   A. Increases
   B. Reduces
   C. Remains same
   D. Becomes negligible
3. Which of the following is not a part of project management?
   A. Initiating
   B. Monitoring
   C. Closing
   D. All above are parts
4. Project management is divided in _____phases process groups.
   A. 3
   B. 7
   C. 5
   D. 4

5. The project phase model was introduced. Which of the following phases is typically **not part of project management**?
   A. Definition & Planning
   B. Performance & Control
   C. Launch or Execution
   D. Project Close
6. How the project work will be carried out, monitored, and controlled? These question are answered in which phase of project management?
   A. Initiating
   B. Planning
   C. Executing
   D. Closing
7. Which from the following represent the correct project cycle?
   A. Planning→Initiating→Executing→Closing
   B. Planning→Executing→Initiating→Closing
   C. Initiating→Planning→Executing→Closing
   D. Initiating→Executing→Planning→Closing
8. In addition to the Goals we also define Deliverables in the project contract. Which of the following statements is true? (Mark only one answer)
   A. The Deliverables are used to measure and to proof whether the agreed goals have been met.
   B. The Deliverables are outside of the area of interest.
   C. As soon as the Project Report is submitted to the customer, the project is considered as finished and therefore the goals have been achieved.
   D. There are no Deliverables to be achieved in a project! We only are interested to achieve the agreed goals.
9. During the "Project Definition" phases, we **do not** define the following:
   A. Communication plan
   B. Project plan / GANNT chart
   C. Project goals
   D. The location for project closure ceremony
10. A horizontal bar chart that shows project tasks against a calendar is called
   A. Milestone
   B. Goal
   C. Gantt chart
   D. PERT chart

Section – B

04X04 = 16 Marks

11. What do you understand by the term "Project" and why start projects?
12. What is STAR model explain.
13. What are the role and responsibilities of a project manager?
14. Define what is project contact?

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Section – C

04X06 = 24 Marks

15. Explain project Phases Lifecycle with diagram.
16. Explain the five project phases in proper sequence also draw layout diagram to support this.
17. Define the SMART Acronym with the help of examples.
18. Discuss the curve propagation of large via different phase timings with proper diagram.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (~~Summer~~ Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1504

Course Name: Project Work

Time: 2 Hour

Max. Marks: 50

Answer Key

Section – A

10X01 = 10 Marks

1. Assembling project team and assigning their responsibilities are done during which phase of a project management?
   - **A. Initiation**
   - B. Planning
   - C. Execution
   - D. Closure
2. "Risk" is usually _____ as the project progresses.
   - A. Increases
   - **B. Reduces**
   - C. Remains same
   - D. Becomes negligible
3. Which of the following is not a part of project management?
   - A. Initiating
   - B. Monitoring
   - C. Closing
   - **D. All above are parts**
4. Project management is divided in _____phases process groups.
   - A. 3
   - B. 7
   - **C. 5**
   - D. 4
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   A. Milestone
   B. Goal
   C. Gantt chart
   D. PERT chart

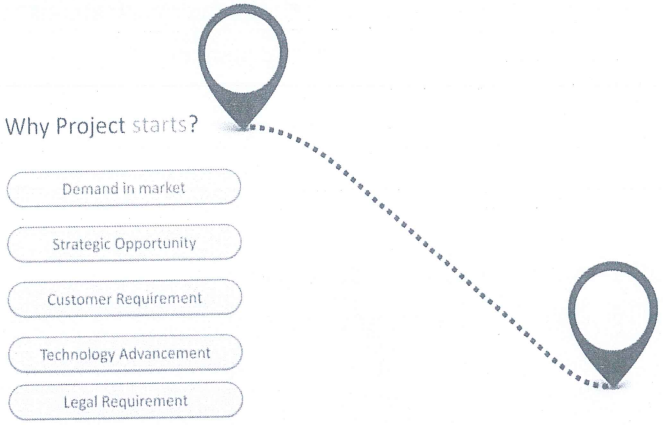
Section – B

04X04 = 16 Marks

11. What do you understand by the term "Project" and why start projects?

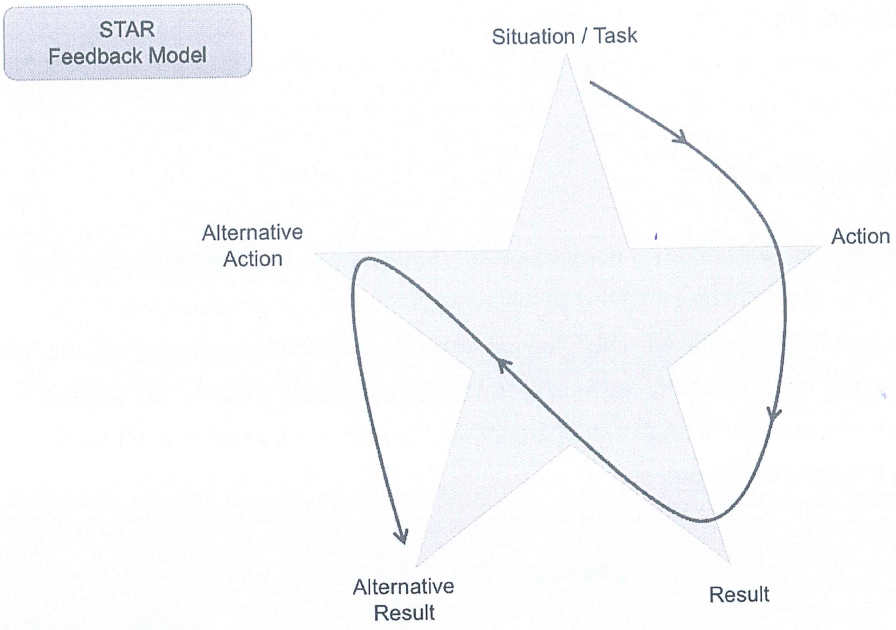
Ans.

- A project is defined as a "**temporary endeavor** with a **beginning and an end** and it must be used to create a **unique product, service or result**".
- Projects are undertakings that are characterized essentially by the **uniqueness** of the **conditions**
  that affect it as a whole.



12. What is STAR model explain.

Ans.



The STAR format stands for *Situation*, *Task*, *Action*, *Result*:

- **S**ituation: An event, project, or challenge faced
- **T**ask: Your responsibilities and assignments for the situation
- **A**ction: Steps or procedure taken to relieve or rectify situation
- **R**esult: Results of actions taken.

The *STAR method* is a technique of answering behavioral interview questions in a structured manner by describing a specific situation, task, action, and result of the situation you are discussing. The STAR method helps you explain in a simple yet powerful way how you handled specific work situations and challenges.

13. What are the role and responsibilities of a project manager?

Ans.

- Project manager are the one who ensure that the entire process of project management flows in controlled.

- Manager in other words they are majorly responsible for driving a project through various phases of project management in an effective yet organized manner.
- Project manager also shoulder the
  - responsibility of the entire project scope
  - project team management
  - risk estimation
  - Also with the various resources needed in the project.
- As a project manager you will have a number of roles and responsibilities to perform.

- Planning
- Leadership
- Time management
- Budget planning
- Customer Satisfaction
- Handling project risks
- Monitoring development
- Create repot

14. Define what is project contact?

Ans.

- **Contract** is an agreement between two or more parties, to exchange providing a specific work (Scope of Work) with agreed compensations (mainly cost and/or any others specified in the contract) include terms and conditions. The Contract terms and conditions including both parties' obligation, liability, payment, and other terms and conditions are legally binded. The Contract dispute settlement process and change management work process are a part of contract. In addition to being a signed document.

Section – C

04X06 = 24 Marks

15. Explain project Phases Lifecycle with diagram.

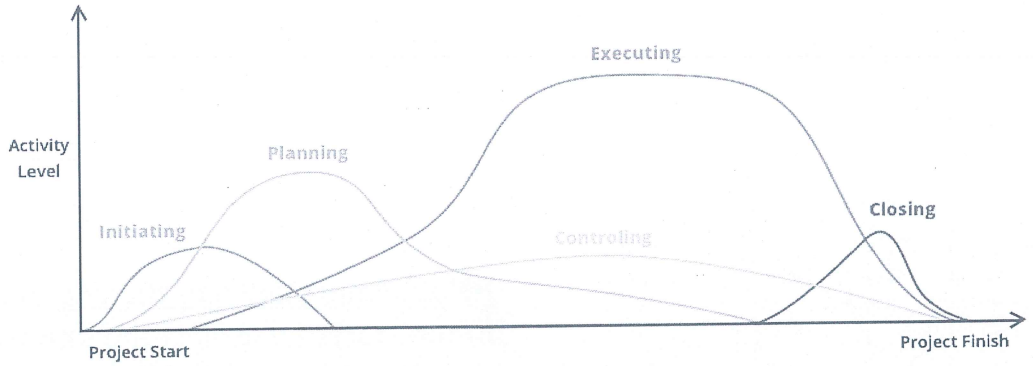
Ans.

Typical tasks of Project Management:

- Conception & Initiation
- Definition & Planning
- ***Performance & Control***
- ***Project Close***

Typical tasks of Project Execution (work):

- Launch and Execution
- ***Performance & Control***
- ***Project Close***

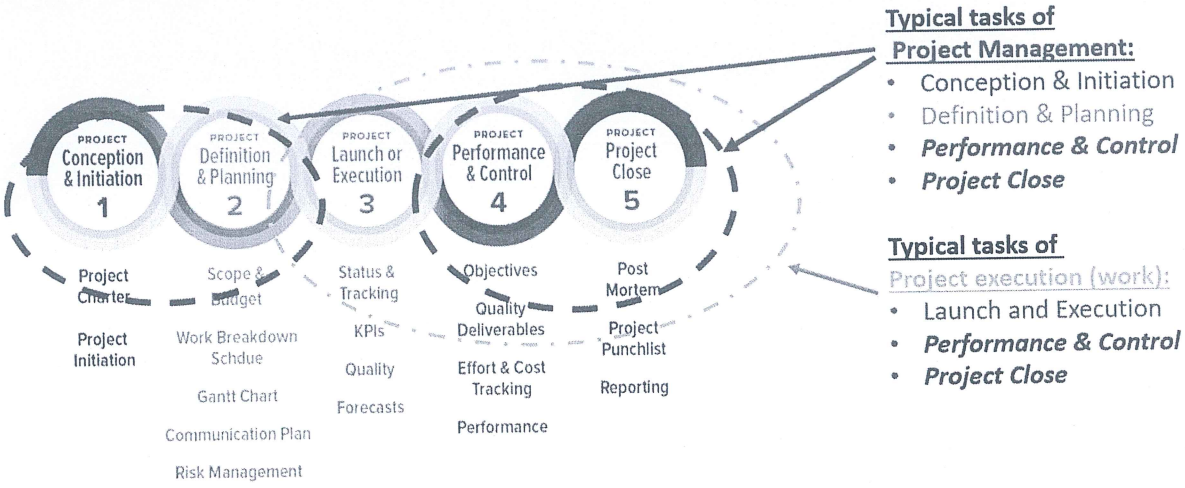


How processes overlap on a project
Planning is the most important at the start of a project. Then, executing takes over. Controlling is important throughout the entire project.

16. Explain the five project phases in proper sequence also draw layout diagram to support this.

Ans.

Project Phases:



17. Define the SMART Acronym with the help of examples.

Ans.

SMART is a acronym to guide in the setting of objectives and goals in project management.

S *Specific* – target a specific area for improvement.

M *Measurable* – quantify or at least suggest an indicator of progress.

A *Achievable* – specify who will do it.

R *Realistic*– state what results can realistically be achieved, given available resources.

T *Time-related* – specify when the result(s) can be achieved.

18. Discuss the curve propagation of large via different phase timings with proper diagram?

Ans.

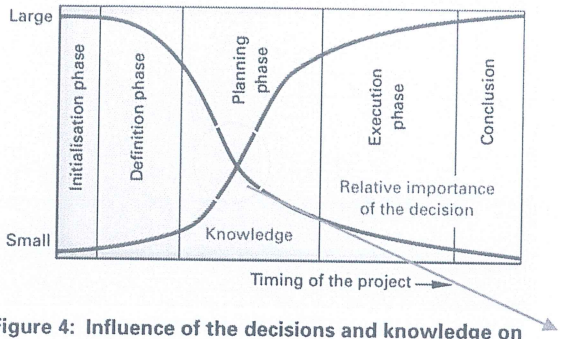


Figure 4: Influence of the decisions and knowledge on the project

Relativ importance of the decision:
In the start of a project the importance of decisions is always biggest with the least amount of knowledge.

Gain of knowledge:
The gain of knowledge in project comes with the progress we make in a project.

Ideal moment for signing the **Project Contract!!**

A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

End-Sem. Examination

Course Code: SMS1505 **Time: 2 Hour**

Course Name: Quality Management **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Dock Inspection is called.
   A. Incoming Inspection
   B. Final Inspection
   C. In process Inspection
   D. BOP Inspection
2. For Attribute data which chart is prepared:
   A. X bar Chart
   B. Range Chart
   C. P chart
   D. None of the above
3. Which generic approach's precursor is the Toyota Production System?
   A. Kaizen
   B. TQM
   C. Lean manufacturing
   D. Six sigma
4. 80/20 Rules is applicable for
   A. Pareto Charts
   B. Fishbone Diagram
   C. To define the OEE
   D. PFMEA

5. A six sigma process has defect level below _____ defects per million opportunities.
   A. 3.4
   B. 4.3
   C. 5.6
   D. 6.0

6. Which of the following is not among 7 QC tools?
   A. Check sheet
   B. Histogram
   C. Kanban
   D. Pareto chart

7. The cause and effect diagram is also called
   A. Stratification analysis
   B. Total quality management
   C. PDCA technique
   D. Fishbone diagram

8. Which of the following is correct in context to Inspection?
   A. It is a way to prevent the production of bad items
   B. Inspection adds to the cost of the product but not for its value
   C. Fatigue and Monotony don't affect any inspection judgment
   D. None of the above

9. ISO 9000 determines
   A. If the company practices its written procedures
   B. If vendors are performing well
   C. Process capability
   D. The kind of control chart to be used

10. Seven QC tools include
   A. Team meetings & 5-S
   B. Deming 14 points approach
   C. Workers' toolkit
   D. Histogram

Section – B

04X04 = 16 Marks

11. When assignable causes are identified in a process, explain with an example?
12. What is COPQ? Define Appraisal and prevention cost.
13. Differentiate between Quality control & Quality assurance with practical example.
14. Write down purpose of inspection.

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Section – C

04X06 = 24 Marks

15. What are the different types of waste in Lean manufacturing & define them?
16. Explain Pareto chart with appropriate example.
17. Write at least six characteristics of quality circle.
18. Name the 7 QC tool. Explain the fishbone diagram with neat & clean Sketch.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, V Semester,

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Course Code: SMS1505 | **Time: 2 Hour**

Course Name: Quality Management | **Max. Marks: 50**

Answer Key

Section – A

10X01 = 10 Marks

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10. Seven QC tools include
    A. Team meetings & 5-S
    B. Deming 14 points approach
    C. Workers' toolkit
    D. Histogram

Section – B

04X04 = 16 Marks

11. When assignable causes are identified in a process? Explain with example.

Ans.

When there is some inconsistency in process operation.

For example, a breakfast cereal packaging line may be designed to fill each cereal box with 500 grams of product, but some boxes will have slightly more than 500 grams, and some will have slightly less, in accordance with a distribution of net weights. If the production process, its inputs, or its environment changes (for example, the machines doing the manufacture begin to wear) this distribution can change. For example, as its cams and pulleys wear out, the cereal filling machine may start putting more cereal into each box than specified. If this change is allowed to continue unchecked, more and more product will be produced that fall outside the tolerances of the manufacturer or consumer, resulting in waste. While in this case, the waste is in the form of "free" product for the consumer, typically waste consists of rework or scrap.

12. What is COPQ? Define Appraisal and prevention cost.

Ans.

Those costs that are generated as a result of producing defective material. This cost includes the cost involved in fulfilling the gap between the desired and actual product/service quality. It also includes the cost of lost opportunity due to the loss of resources used in rectifying the defect. This cost includes all the labour cost, rework cost, disposition costs, and material costs that have been added to the unit up to the point of rejection. COPQ does not include detection and prevention cost.

13. Differentiate between Quality control & Quality assurance with a practical example.

Ans.

- **Quality Control**: "A part of quality management focused on fulfilling quality requirements".
- **Quality Control** is defined as "The operational techniques and activities used to fulfil requirements for quality".
- **Quality Assurance**: "A part of quality management focused on providing confidence that quality requirements will be fulfilled
- **Quality Assurance** is defined as "All the planned and systematic activities implemented within the quality system that can be demonstrated to provide confidence that a product or service will fulfil requirements for quality".

14. Write any two purposes of inspection.

Ans.

(1) To distinguish good lots from bad lots

(2) To distinguish good pieces from bad pieces.

(3) To determine if the process is changing.

(4) To determine if the process is approaching the specification limits.

Section – C

04X06 = 24 Marks

15. What are the different types of waste in Lean manufacturing & define them?

Ans.

- unnecessary transportation;
- excess inventory;
- the unnecessary motion of people, equipment or machinery;
- waiting, whether it is people waiting or idle equipment;
- over-production of a product;
- over-processing or putting more time into a product than a customer needs, such as designs that require high-tech machinery for unnecessary features; and
- defects, which require effort and cost for corrections.
- Waste of unused talent and ingenuity.

16. Explain the Pareto chart with appropriate example.

Ans.

A Pareto diagram, also called 80/20 rule, is used to graphically abridge and display the relative significance of the differences between clusters of data i.e., separating the vital few causes (20%) that account for a dominant share of quality loss (80%) (Besterfield, 2001). The Pareto diagram is based on the Pareto principle, which states that few of the defects account for most of the effects.

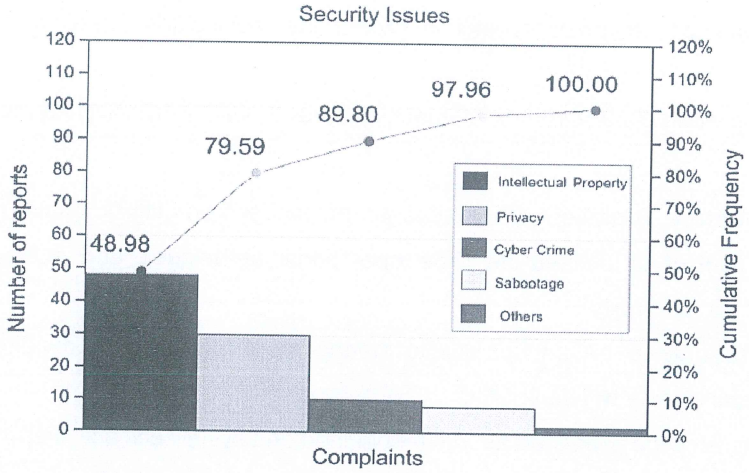

Figure 4 Pareto diagram used to prioritize the security issues

17. Write at least six characteristics of the quality circle.

Ans.

- Volunteers
- Set Rules and Priorities
- Decision made by consensus
- Members of a circle need to receive training
- Support of senior management required
- Members need to be empowered

18. Name the 7 QC tool. Explain the fishbone diagram with neat & clean Sketch.

Ans.

- Histogram or stem-and-leaf plot
- Check sheet
- Pareto chart
- Cause-and-effect diagram
- Defect concentration diagram
- Scatter diagram
- Control chart

Fishbone Diagram Steps:

1. Define the problem or effect to be analyzed.
2. Form the team to perform the analysis. Often the team will uncover potential
3. causes through brainstorming.
4. Draw the effect box and the center line.
5. Specify the major potential cause categories and join them as boxes connected to
6. the center line.
7. Identify the possible causes and classify them into the categories in step 4. Create
8. new categories, if necessary.
9. Rank order the causes to identify those that seem most likely to impact the problem.
10. Take corrective action.