BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, V Semester,

2nd In-Sem. Examination

Course Code: SMS1114 **Time: 1 Hour**

Course Name: Basics of Production Management (Open Elective) **Max. Marks: 20**

Instructions:

1. Attempt all questions.
2. Use of Calculator is Allowed.
3. Section A contains 05 Questions. Each question carries 1 Mark.
4. Section B contains 03 Questions. Each question carries 2 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section – A

05X01 = 05 Marks

1. Consumer means:
   a) Customer
   b) Seller
   c) Business Owner
   d) None of the above
2. Work Study can be applied:
   a) Design
   b) IT industry
   c) AC industry
   d) All of the above
3. In Flow Process Chart, the symbol for transport is:
   a) Circle
   b) Inverted triangle
   c) Arrow
   d) None of the above
4. The objective of Time Study is:
   a) To reduce ineffective time
   b) To increase ineffective time
   c) To maintain ineffective time
   d) None of the above

5. Prime Cost in a Manufacturing Industry includes:
   a) All direct cost
   b) Factory overhead cost
   c) Summation of direct and factory overhead cost
   d) All of the above

Section – B

03X02 = 06 Marks

6. Define Ergonomics. Write down the objectives of Ergonomics.
7. What do you mean by Time Study? Write down the objective of Time Study.
8. Write down the steps in Method Study.

Section – C

03X03 = 09 Marks

9. Discuss in detail the various elements of costs involved in Manufacturing industry.

10. A job has been sub-divided into two elements. The time for each element and respective rating are given below: Calculate the normal time and standard time for each element and for the job if the allowance is 15%.

    Element-1: Observed time - 0.7 min. , Rating factor - 80%

    Element-2: Observed time - 0.8 min. , Rating factor - 100%

11. The accounts of Rahim Manufactures Ltd. for the year ended 31st December 2018 show the following:

	Rs.
Materials purchased	1,60,000
Material left on 31.12.88	10,000
Direct labour	50,000
Direct expenses	30,000
Factory expenses	20,000
Office & administrative expenses	10,000

Find out:

(a) Material Consumed
(b) Prime Cost
(c) Cost of Production

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Course Name: Basics of Production Management (Open Elective) **Max. Marks: 20**

Answer Key

Section – A

05X01 = 05 Marks

1. Consumer means:
   a) Customer
2. Work Study can be applied:
   d) All of the above
3. In Flow Process Chart, the symbol for transport is:
   c) Arrow
4. The objective of Time Study is:
   a) To reduce ineffective time
5. Prime Cost in a Manufacturing Industry includes:
   a) All direct cost

Section – B

03X02 = 06 Marks

6. Define Ergonomics. Write down the objectives of Ergonomics.

   Ans. - Ergonomics (or human factors) is the scientific discipline concerned with interactions among humans and other elements of a system in carrying out a purposeful activity.

   Objectives of ergonomics:

   - Optimize integration of man and machine in order to increase work rate and accuracy
   - To provide a better working place befitting the needs and requirements of the worker
   - To design equipment's and machinery in such a way that there is minimal mental and physical strain on the worker
   - To provide a conducive environment for executing his task effectively and efficiently with least efforts.

7. What do you mean by Time Study? Write down the objective of Time Study.

   Ans.- This is the most widely used means of work measurement.

   By using time study, an analyst will be taking a small sample of a single worker's activity and using it to derive a standard for the tasks of that nature.

   Objectives of time study:

- To find out the time taken for each job
- To reduce ineffective time involved in the job
- To reduce the total time taken for a job
- To find the allowed or standard time for a job

8. Write down the steps in Method Study.

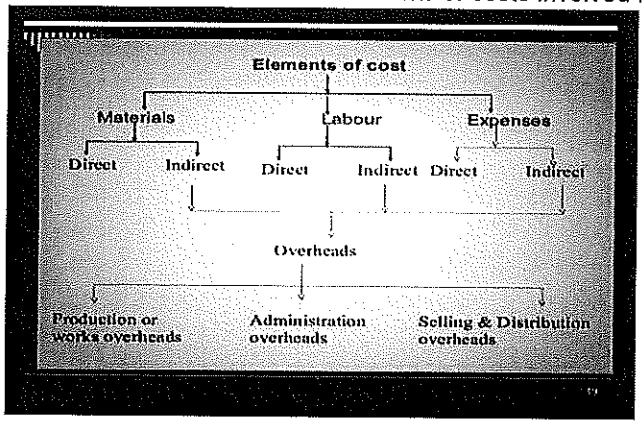
Ans.-

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

Section – C

03X03 = 09 Marks

9. Discuss in detail the various elements of costs involved in Manufacturing industry.



10. A job has been sub-divided into two elements. The time for each element and respective rating are given below: Calculate the normal time and standard time for each element and for the job if the allowance is 15%.

Element-1: Observed time - 0.7 min. , Rating factor - 80%

Element-2: Observed time - 0.8 min. , Rating factor - 100%

Ans.- Element-1: Normal time – 0.56 min , Standard time – 0.659 min.
Element-2: Normal time – 0.8 min , Standard time – 0.94 min

11. The accounts of Rahim Manufactures Ltd. for the year ended 31st December 2018 show the following:

	Rs.
Materials purchased	1,60,000
Material left on 31.12.88	10,000
Direct labour	50,000
Direct expenses	30,000
Factory expenses	20,000
Office & administrative expenses	10,000

Find out:

(a) Material Consumed

(b) Prime Cost

(c) Cost of Production

Ans.: (a) Material consumed = 160000 – 10000 = Rs. 1,50,000

b) Prime cost = 150000 + 50000 + 30000 = 230000/-

c) Cost of production = 230000 + 20000+ 10000 = 260000/-

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School of Manufacturing Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, I Semester,

2nd In-Sem. Examination

Course Code: SMS1115 **Time: 1 Hour**

Course Name: Assembly **Max. Marks: 20**

Instructions:

1. Attempt all questions.
2. Use of Calculators is Prohibited.
3. Section A contains 05 Questions. Each question carries 1 Mark.
4. Section B contains 03 Questions. Each question carries 2 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section – A

05X01 = 05 Marks

1. The joints which can be assembled and dismantled whenever required.
   a) Temporary Joint
   b) Rivet joint
   c) A & B Both
   d) None of the above
2. Example of semisolid lubricant is:
   a) Mineral oil
   b) Grease
   c) Graphite
   d) Vegetable oil
3. Non-metallic gaskets are made up of
   a) Wood & Brass
   b) Aluminum & Rubber
   c) Rubber & Asbestos
   d) All of the above
4. Jam Nut is also called.
   a) Lock Nut
   b) Castle Nut
   c) A & B Both
   d) None of the above
5. Set screw is used to.
   a) Prevent the relative motion between two part
   b) Prevent loosening of threads between the nut and screw.
   c) A & B Both
   d) None of the above

Section – B

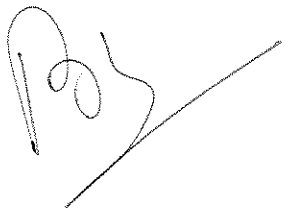
03X02 = 06 Marks

6. What is the dowel pin?
7. What is the set screw and where it is used?
8. What is oil seal and write the two function?

Section – C

03X03 = 09 Marks

9. What is a gasket? Also explain the type of gaskets.
10. What is screw locking device? Why we are using locking device also write the type of locking device?
11. What is lubrication and what are the objectives of lubrication?



BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, I Semester,

II In-Sem. Examination

Course Code: SMS1115 **Time: 1 Hour**

Course Name: Assembly **Max. Marks: 20**

Answer Key

Section – A

05X01 = 05 Marks

1. The joints which can be assembled and dismantled whenever required.
   a) **Temporary Joint**
2. Example of semisolid lubricant is:
   b) **Grease**
3. Non-metallic gaskets are made up of
   c) **Rubber & Asbestos**
4. Jam Nut is also called.
   a) **Lock Nut**
5. Set screw is used to.
   a) **Prevent the relative motion between two part**

Section – B

03X02 = 06 Marks

6. What is the dowel pin?

   Ans. They are short, cylindrical rods made of various materials including wood, metal, Plastic. Dowell pins can be tapered, grooved, slotted
7. What is the set screw and where are use it?

   Ans. Setscrew is used to prevent relative motion between two parts. Setscrew can be used instead of key to prevent relative motion between the hub and shaft in small power transmission.
8. What is oil seal and write the two function?

   Ans. An oil seal is a mechanical device, which is used to prevent leakage of fluid between two machine components.
   Function of the oil seal-
   To prevent leakage of expensive lubricating oils from the transmission system.
   To prevent the entry of foreign particles like dust or abrasive material into the operating system

Section – C

03X03 = 09 Marks

9. What is a gaskets? Also explain the type of gaskets?

   Ans.

   A gasket is a device used to create and maintain a barrier against the transfer of Fluid across the mating surfaces of a mechanical assembly. It is used in static joints, such as Cylinder block and cylinder head.

   There are two types of gaskets
   Metallic and non-metallic.

Metallic gaskets consists of sheets of lead, copper or aluminum.

Nonmetallic gaskets are made of asbestos, cork, rubber or plastics

Metallic gaskets are used for high temperature and high pressure applications.

10. What is screw locking device? Why we are using locking device also write the type of locking device?

    Locking devices are used to prevent loosening of threads between the nut and screw. Fastening become loose when subjected to cyclic and impact loads. Loosening is due to reduction of friction force in the threads due to consecutive expansion and contraction of the bolt resulting from fluctuating axial load.

    - **JAM NUT (lock nut)**
    - **CASTLE NUT with a split pin**
    - **SPLIT NUT**
    - **LOCKING WITH SETSCREW**
    - **LOCKING WITH SPRING WASHERS**

11. What is lubrication and what are the objectives of lubrication?

    Ans. Lubrication is science of reducing friction by application of suitable substance called lubricant between the rubbing surfaces of bodies having relative motion.

    - To reduce friction.
    - To carry away heat generated due to friction.
    - To reduce/prevent wear.
    - Protection against corrosion.

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Registration No.: .....

School of Manufacturing Skills

Session 2021-2022 (Summer Semester)

B. Voc. Program, I Semester

2nd In-Sem. Examination

Course Code: SMS1116 **Time: 1 Hour**

Course Name: Basics of Handskills **Marks: 20**
(Open Elective)

Instruction:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 05 Questions. Each question carries 1 Marks.
4. Section B contains 03 Questions. Each question carries 2 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A **01X5= 5 Marks**

1. Vernier caliper is not suitable for
   a) External dimension measurement
   b) Internal dimension measurement
   c) Thread measurement
   d) Depth measurement
2. What would be the procedure for reaming process?
   a) Drill – core drill – reamer
   b) Spot drill – drill – CSK – reamer
   c) Spot drill – drill – CSK – core drill – reamer
   d) None of the above
3. Which of the following indicates the enlarging scale?
   a) 3:1
   b) 3:3
   c) 1:3
   d) None of the above
4. Point angle of a twist drill is.
   a) 45°
   b) 115°
   c) 118°
   d) 90°
   e) None of the above

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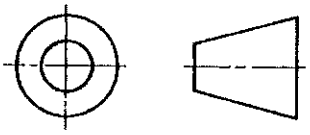
5. Identify the projection view shown in the picture

   a) First angle
   b) Third angle
   c) Cannot be determined
   d) Both a & b



Section- B **02X3= 6 Marks**

6. Write the any five tool holders name.
7. Explain the title block in the drawing.
8. Write the parts name of the Vernier caliper with neat and clean diagram.

Section- C **03X3= 9 Marks**

9. Derive the formula to calculate the chamfer value for making radius by hand.
10. Write the symbols of the following operations

    a) Drilling b) Reaming c) Tapping d) Countersinking

11. Define the following;

    a) Drilling b) Reaming c) Tapping d) Countersinking

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Registration No.: .....

School of Manufacturing Skills

Session 2021-2022 (Summer Semester)

B. Voc. Program, I Semester

2nd In-Sem. Examination

Course Code: SMS1116 **Time: 1 Hour**

Course Name: Basics of Handskills **Marks: 20**
(Open Elective)

Answer Key

Section- A **01X5= 5 Marks**

1. Vernier caliper is not suitable for
   c) Thread measurement
2. What would be the procedure for reaming process?
   c) Spot drill – drill – CSK – core drill – reamer
3. Which of the following indicates the enlarging scale?
   a) 3:1
4. Point angle of a twist drill is.
   c) 118°
5. Identify the projection view shown in the picture
   b) Third angle

Section- B **02X3= 6 Marks**

6. Write the any five tool holders name.

   Answer:

   1. Drill chuck
   2. Sleeve
   3. Tap holder
   4. Collet holder
   5. Pin holder
7. Explain the title block in the drawing.

   It has the following information
   1. Material code and dimensions
   2. Scale
   3. Projection view
   4. Organization information
   5. modification
8. Write the parts name of the Vernier caliper with neat and clean diagram.

   Main scale
   Vernier scale
   Depth bar
   External jaws
   Internal Jaws

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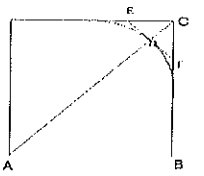
Section- C **03X3= 9 Marks**

9. Derive the formula to calculate the chamfer value for making radius by hand.

Derivation to Calculate Chamfer Value for Radius-



Let: AB = BC = AD = R

So in triangle ABC, angle C and A is of 45°

$AC^2 = AB^2 + BC^2 = R^2 + R^2 = 2R^2$

$AC = R\sqrt{2} = R \times 1.414 = 1.414R$

$AC = AD + CD \rightarrow CD = AC - AD \rightarrow CD = 1.414R - R = 0.414R$

In triangle FDC –

Angle D is of 90°, C is of 45°, so angle F is also of 45°

Then, $CF^2 = FD^2 + CD^2$

$\rightarrow (0.414R)^2 + (0.414R)^2$

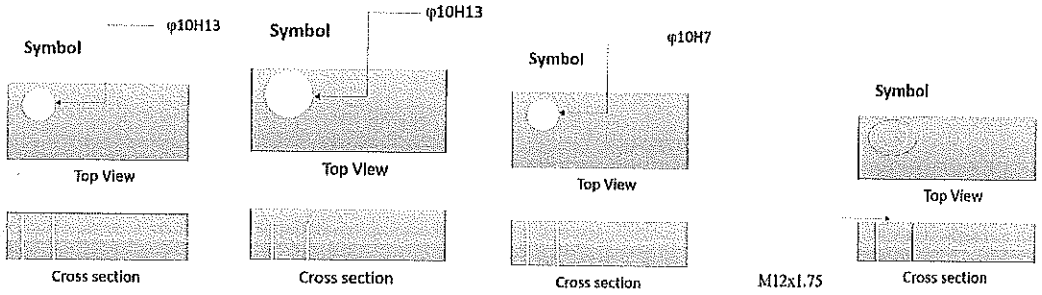
$CF = 0.414R\sqrt{2} = 0.414R \times 1.414$

$CF = 0.5853R = CF \approx 0.6R$

10. Write the symbols of the following operations

a) Drilling b) Reaming c) Tapping d) Countersinking

a.



11. Define the following;

a) Drilling b) Reaming c) Tapping d) Countersinking

Answer:

a) Drilling – It is a process of making hole onto the work piece.

b) Reaming – It is a process of enlarging a hole with high surface quality and within tolerance of 10 – 20 microns.

c) Tapping – It is a process of making internal thread with a special tool named 'tap'.

d) CSK – It is a process of making a conical shape at the entrance of the hole.