BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2019-20 (Summer Semester)

B. Voc. Program, V Semester,

1st In-Sem. Examination

Course Code: SMS1502 **Time: 1 Hour**

Course Name: Integrated CAD-CAM-CNC **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. What is carbon percentage in steel?
    a) 0.008-0.025%
    b) 2-4%
    c) 2-6.67%
    d) 0-2%
2. Which one is a natural material?
    a) Plastics
    b) Glass
    c) Ceramics
    d) Wood
3. Which furnace is used to manufacture Pig Iron?
    a) Blast furnace
    b) Cupola furnace
    c) Puddling furnace
    d) None of them
4. Which one is not a mechanical property of material?
    a) Toughness
    b) Elasticity & Plasticity
    c) Thermal conductivity
    d) Brittleness

5. What is carbon percentage for high carbon steel?
    a) 2-4%
    b) 4-6.67%
    c) 0.6-2%
    d) 0-0.6%

Section – B

03X02 = 06 Marks

6. What is steel?
7. Difference between alloy and composite?
8. What is pig iron?

Section – C

03X03 = 09 Marks

9. Draw a flow chart for manufacturing of pig iron?
10. What are other alloying elements present in steel? Also explain their importance in steel?
11. Write down physical properties of material?

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Answer Key

Section – A

05X01 = 05 Marks

1. What is carbon percentage in steel?

d) 0-2%

2. Which one is a natural material?

d) Wood

3. Which furnace is used to manufacture Pig Iron?

a) Blast furnace

4. Which one is not a mechanical property of material?

c) Thermal conductivity

5. What is carbon percentage for high carbon steel?

c) 0.6-2%

Section – B

03X02 = 06 Marks

6. What is steel?

Steel is an alloy of iron and carbon and other elements.

Because of its high tensile strength and low cost, it is a major component used in buildings, infrastructure, tools, ships, automobiles, machines, appliances, and weapons. Steel are materials whose main component is iron that generally have a carbon content of less than 2%.

7. Difference between alloy and composite?

   Composites are made from two or more separate materials bonded in such a way as to form one solid piece of material.

   Composites are heterogeneous.

   Alloys are mixtures of primarily metal atoms which form a continuous solid solution

   Alloys are homogeneous by nature.

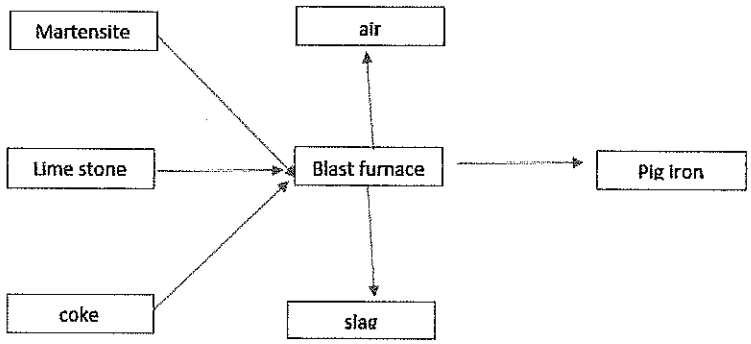
8. What is pig iron?

   Pig iron is a first form of iron. We produced it from iron ore in a blast furnace. It has 92-94% iron and 3-4% carbon. Pig iron is a raw material for cast iron, steel.

Section – C

03X03 = 09 Marks

9. Draw a flow chart for manufacturing of pig iron?



10. What are other alloying elements present in steel? Also explain their importance in steel?

    Nickel(Ni): it increases strength of steel, increase corrosion resistance.
    Chromium(Cr): it increases wear resistance &heat resistance of steel.
    Copper(Co): it increases flowability of steel, hardness & toughness increase.
    Boron(B): it increases surface hardness of steel.
    Molybdenum(Mb): it increases high temp. resistance and toughness of steel.

11. Write down physical properties of material?

    Density: The density of a material is equal to the mass of a body divided by its volume.

    Melting point (melting temperature): The melting point is the temperature at which a material starts to melt.

    Electric Conductivity: Electric conductivity describes the ability of a material to conduct the electric current.

    Linear Thermal Expansion: The coefficient of linear thermal expansion □ is the change in length □l of a 1m long body that occurs for a temperature change □t = 1 0C.

    Thermal Conductivity: Thermal conductivity measures a material's ability to conduct heat.

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School of Manufacturing Skills
Session: 2019-20 (Summer Semester)
B. Voc. Program, V Semester,
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Course Code: SMS1504 **Time: 1 Hour**

Course Name: Project Work **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 project phase model was introduced. Which of the following phases is typically not **part of project execution?**
    a. Conception & Initiation
    b. Performance & Control
    c. Launch or Execution
    d. Project Close
2. Which of the following undertakings can be called a "**Project**"?
    a. Production of the Mobile Phone "Samsung Galaxy J7 Star".
    b. Work at the cash checkout in the "Reliance Smart" shop in Jaipur (Elements Mall).
    c. Planning and execution of the reforestation of the lost forest areas due to the urbanization in industrialized nations.
    d. Playing on the mobile phone during the lectures in "Project Management".
3. The project will be completed after the "Closure" phase. Part of the "Closure" phase is the transfer of the ..... to the customers.
    a. Project contract
    b. Deliverables
    c. Goals
    d. Appendix of the project report

4. During the "Project Definition" phase, we define the following:
    a. Key Performance Indicator (KPI)
    b. "Project Charter" sheet
    c. Project Goals
    d. The location for Project Closure ceremony
5. In addition to the Goals we also define Not-Goals in the project contract. Which of the following statements is not true?
    a. Not-Goals can be Goals in another project.
    b. Not-Goals are inside of the area of interest.
    c. Not-Goals are ordinary and boring to achieve. Therefore, we define them as Not-Goals.
    d. The definition of Not-Goals has the deeper intention of sharpening the profile of the Goals. The aim is to avoid the project team wasting time going in the "wrong direction".

Section – B

03X02 = 06 Marks

6. In the very start of the lecture the term "Project" was defined by two different sentences. Reproduce one of them or explain the term "Project" with your own words.
7. Note and explain the mathematical derivation of the risk analysis. Determine first the scale of the boundaries of the required individual terms/factors.
8. You are requested to evaluate whether the following statement is true or false and explain your response: **"The greater the negative impact of an event, the greater the resulting risk on occurrence."**

Section – C

03X03 = 09 Marks

9. In the classroom the acronym S.M.A.R.T. was discussed. Explain the a) purpose of the acronym, b) define the meaning of each letter.
10. In the lecture on project risks, eight typical project risks were mentioned. You are requested to name **three** of them and to take a suitable risk reduction measure for each risk.
11. In the lecture on project risks we discussed the "magic triangle" of project risks. You are requested to explain the magic triangle with the help of a sketch.

9/9/19

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Course Code: SMS1504 **Time: 1 Hour**

Course Name: Project Work **Max. Marks: 20**

Instructions:

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3. Section A contains 05 Questions. Each question carries 1 Mark.
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5. Section C contains 03 Questions. Each question carries 3 Marks.

Answer Key

Section – A

05X01 = 05 Marks

1. The project phase model was introduced. Which of the following phases is typically not **part of project execution?**
   a. Conception & Initiation
2. Which of the following undertakings can be called a "**Project**"?
   c. Planning and execution of the reforestation of the lost forest areas due to the urbanization in industrialized nations.
3. The project will be completed after the "Closure" phase. Part of the "Closure" phase is the transfer of the ..... to the customers.
   b. Deliverables
4. During the "Project Definition" phase, we define the following:
   c. Project Goals
5. In addition to the Goals we also define Not-Goals in the project contract. Which of the following statements is not true?
   c. Not-Goals are ordinary and boring to achieve. Therefore, we define them as Not-Goals.

Section – B

03X02 = 06 Marks

6. In the very start of the lecture the term "Project" was defined by two different sentences. Reproduce one of them or explain the term "Project" with your own words.

   Definition Nb. 1

   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".

(ref: Project Management Body of Knowledge, 3rd edition)

Definition Nb. 2

Projects are undertakings that are characterized essentially by the uniqueness of the conditions that affect it as a whole.

(ref: DIN 69901-5 (2009-01))

Note: If the student explains the term "Project" with its own words. The a) **unique character** of the project and b) **the temporarily boarder condition** must be named.

7. Note and explain the mathematical derivation of the risk analysis. Determine first the scale of the boundaries of the required individual terms/factors.

Factors/Terms		Scale of the Boundries	
Negative impact of the event	=	small effect 1 -	disaster 10
Probability of occurrence	=	no occurrence 0% [0] -	guaranteed 100% [1]
Effectiveness of risk reduction measure	=	small effect 1 -	risk eliminated 10

Step 1: (probability of occurrence of the event x negative impact of the event) = (resulting risk on occurrence)

Step 2: (resulting risk on occurrence) - (effectiveness of 1st risk reduction measures + effectiveness of 2st risk reduction measures + ...) = (resulting risk on occurrence after reduction measures)

8. You are requested to evaluate whether the following statement is true or false and explain your response: **"The greater the negative impact of an event, the greater the resulting risk on occurrence."**

False. As can be seen in the formula above the **resulting risk on occurrence** is a multiplication with the **probability of occurrence and the negative impact of the event**. Both factors are needed that a resulting risk on occurrence exists.

Section – C

03X03 = 09 Marks

9. In the classroom the acronym S.M.A.R.T. was discussed. Explain the a) purpose of the acronym, b) define the meaning of each letter.

A) SMART is an acronym to guide in the setting of goals in project management.

B)

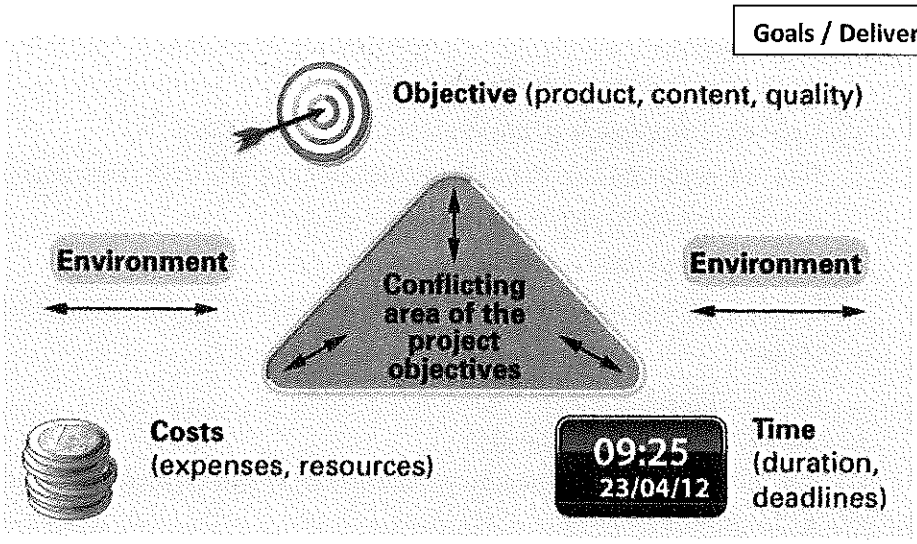
S	*Specific*	– target a specific area for improvement.
M	*Measurable*	– quantify or at least suggest an indicator of progress.
A	*Achievable*	– specify who will do it.
R	*Realistic*	– state what results can realistically be achieved, given available resources.
T	*Time-related*	– specify when the result(s) can be achieved.

10. In the lecture on project risks, eight typical project risks were mentioned. You are requested to name **three** of them and to take a suitable risk reduction measure for each risk.

Project risks – typical project risks

- Over-optimistic timing and budget plan
  Example of risk reduction measure: Planning of reserves/extra resources in the project contract
  (similar measure to reduce the risk is also valid)
- Loss of key employees due to illness, leaving the company
  Risk reduction measure: Planning of reserves/extra resources in the project contract
  (similar measure to reduce the risk is also valid)
- Non-compliance with agreed deadlines
  Risk reduction measure: Precise reporting and monitoring of the progress of the project
  (similar measure to reduce the risk is also valid)
- Conflict between team members
  Risk reduction measure: Addressing conflicts early and solution-oriented in team meetings
  (similar measure to reduce the risk is also valid)
- Lack of support of management
  Risk reduction measure: Write interim reports, using examples to point out the importance of the project. (similar measure to reduce the risk is also valid)
- Lack of acceptance among potential users of the product
  Risk reduction measure: Carry out experiments on the customers at an early stage. Design aspects of the product in such a way that the customers want the product.
  (similar measure to reduce the risk is also valid)
- Technological feasibility such as limited material properties or size
  Risk reduction measure: Recognize and recommend early termination of the project
  (similar measure to reduce the risk is also valid)
- Legal risk such as product liability
  Risk reduction measure: Know legal aspects of the area of interest. Derive responsibilities for product safety from this, adhere to them in the product and record them in the user manual.
  (similar measure to reduce the risk is also valid)

11. In the lecture on project risks we discussed the "magic triangle" of project risks. You are requested to explain the magic triangle with the help of a sketch.



Project planning, project management and guidance and the following implementation always include three variables; goals/deliverables (quality, result), time (duration, deadlines) and costs (expenses, resources).

This leads to the conflicting area of the project objectives.