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 an Artificial material?
   a) Granite
   b) Glass
   c) Graphite
   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 a mechanical property of material?
   a) Heat Conductivity
   b) Corrosion resistance
   c) Thermal conductivity
   d) Brittleness

5. What is carbon percentage for low carbon steel?
    a) 2-4%
    b) 4-6.67%
    c) 0.6-2%
    d) 0-0.3%

Section – B

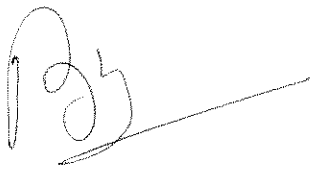
03X02 = 06 Marks

6. What do you mean by Iron casting alloys?
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 the physical properties of metal?
11. Discuss the mechanical 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 an Artificial material?

b) Glass

3. Which furnace is used to manufacture Pig Iron?

a) Blast furnace

4. Which one is a mechanical property of material?

d) Brittleness

5. What is carbon percentage for low carbon steel?

d) 0-0.3%

Section – B

03X02 = 06 Marks

6. What do you mean by Iron casting alloys?

Ans. Iron Casting alloys are also iron based materials.

It contains more than 2% Carbon may also contain other elements and are cast to form work pieces.

Alloy cast irons are the casting alloys which are based on the iron (Fe) – carbon (C) – silicon (Si) system. They contain one or more alloying elements intentionally added to improve one or more properties. The addition to the ladle of small amounts of substances such as ferrosilicon (Fe-Si), cerium (Ce), or magnesium (Mg)) that are used to control the size, shape, and/or distribution of graphite particles is termed as inoculation.

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.

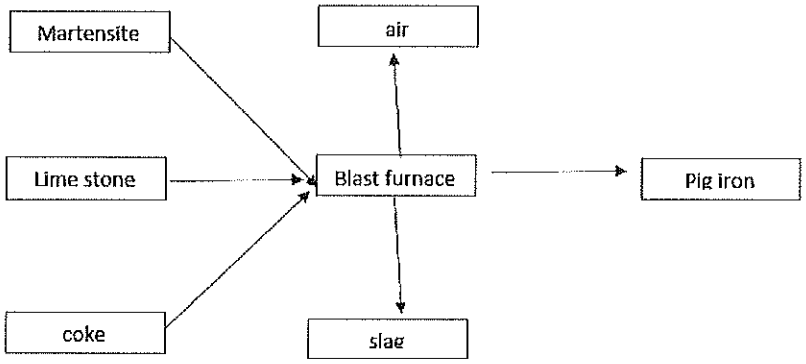
8. What is pig iron?

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 the physical properties of metal?

    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.

11. Discuss the mechanical properties of material.

    Brittleness: A material is referred to as brittle if it fractures into pieces when exposed to impact. Ceramic material and glass as well as some types of cast iron and incorrectly hardened steels are brittle.

    Hardness: Hardness refers to the resistance with which a material counters indent formation by a test indenter. Hard materials include hardened steel and hard metals. Soft materials include aluminium and copper.

    Elastic and plastic deformation:
    Different materials deform quite differently when placed under load.
    For Example, a saw blade made from hardened tool steel can be bent and springs back to its original, straight form after the force is removed. This behaviour is referred to as elastic deformation or material elasticity.

    Toughness: Material is referred to as tough if its elastic-plastic deformation under heavy loading remains small and there is extreme resistance to deformation. Structural and stainless steels are examples of tough materials.

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Session: 2019-20 (Summer 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. Please complete the sentence. A project is an activity to meet the creation of_____.
    a. Routine activities
    b. Stereotype routines
    c. A unique product or service
    d. None of the three above
2. The project will start with the "Conception & Initiation" phase. Part of the "Conception & Initiation" phase is handing over the_____ to the project leader/team.
    a. Project charter/order
    b. Deliverables
    c. Goals
    d. Appendix of the project report
3. During the "Project Definition" phase, we **do not** define the following:
    a. Communication plan
    b. Project plan / GANNT chart
    c. Project Goals
    d. The location for Project Closure ceremony
4. 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

5. In addition to the Goals we also define Deliverables in the project contract. Which of the following statements is true?
   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 Deliverables are 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.

Section – B

03X02 = 06 Marks

6. In the lecture the difference between "Project Management" and "Project Work/Execution" was explained. Reproduce the definition of "Project Management" or explain the term 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 probability of occurrence of an event, the greater the resulting risk on occurrence."**

Section – C

03X03 = 09 Marks

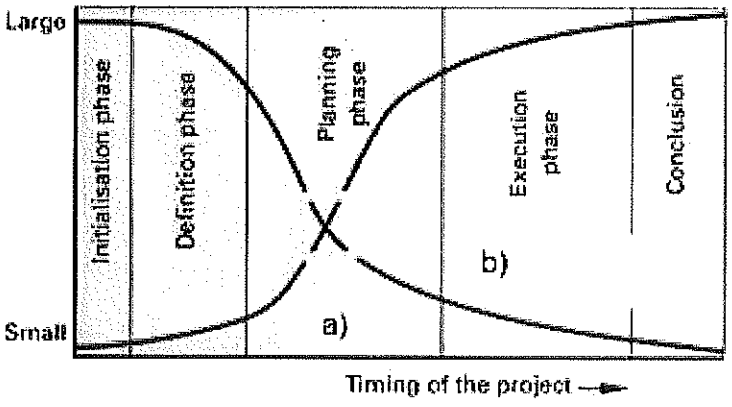
9. In the lesson we discussed the interplay of knowledge and influence of decisions in the progress of projects.

Please name the red line correctly

a) .....

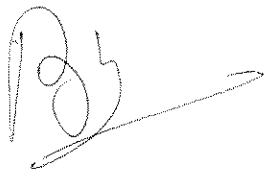
Please name the blue line correctly

b) .....



c) Explain the importance of the intersection point in the yellow circle in own words. What document should be signed ideally at this point?

10. 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.
11. At the beginning of the lectures, the progression of a project from **Point A to Point B** was explained by a sketch on the whiteboard. Reproduce this sketch and illustrate the five different phases of the project. (Project Initiation/Launch, Project Definition & Planning, Project Execution, Project Control, Project Closure)



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

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5. Section C contains 03 Questions. Each question carries 3 Marks.

Answer Key

Section – A

05X01 = 05 Marks

1. Please complete the sentence. A project is an activity to meet the creation of_____.
   a. A unique product or service
2. The project will start with the "Conception & Initiation" phase. Part of the "Conception & Initiation" phase is handing over the_____ to the project leader/team.
   a. Project charter/order
3. During the "Project Definition" phase, we **do not** define the following:
   d. The location for Project Closure ceremony
4. The project phase model was introduced. Which of the following phases is typically **not part of project management?**
   c. Launch or Execution
5. In addition to the Goals we also define Deliverables in the project contract. Which of the following statements is true?
   c. As soon as the Deliverables are submitted to the customer, the project is considered as finished and therefore the goals have been achieved.

Section – B

03X02 = 06 Marks

6. In the lecture the difference between "Project Management" and "Project Work/Execution" was explained. Reproduce the definition of "Project Management" or explain the term with your own words.

   A project in any organization is **collaboration across departments** to achieve **well defined objectives/goals**. The **process** of **planning, organizing and managing resources** to achieve the organizational objective is called **project management.**

   Note: If the student explains the term "Project Management" with its own words the a) **collaboration across departments** and b) **the planning, organizing and managing resources** 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 eliminated 1	-	risk 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)

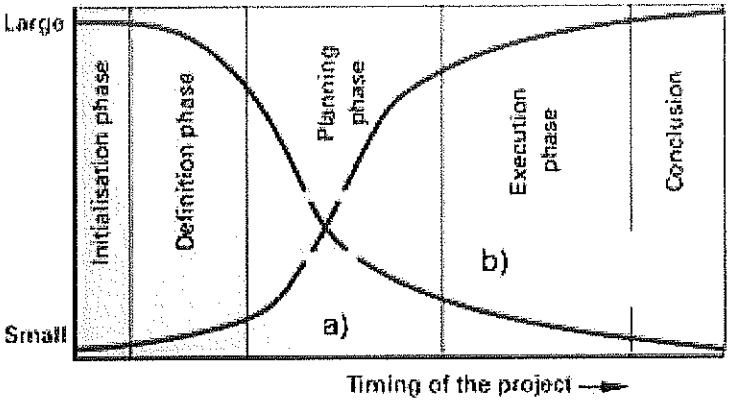
8. You are requested to evaluate whether the following statement is true or false and explain your response: **"The greater the probability of occurrence of an event, the greater the resulting risk on occurrence."**

   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 lesson we discussed the interplay of knowledge and influence of decisions in the progress of projects.



Please name the red line correctly

a) Knowledge

Please name the blue line correctly

b) Influence of decision

c) Explain the importance of the intersection point in the yellow circle in own words. What document should be signed ideally at this point?

At this moment the knowledge has increased to such a value that the project contract can be signed. The influence of the decision has decreased, but is still high enough to make the decision for the coming project phases.

10. 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.

11. At the beginning of the lectures, the progression of a project from **Point A to Point B** was explained by a sketch on the whiteboard. Reproduce this sketch and illustrate the five different phases of the project. (Project Initiation/Launch, Project Definition & Planning, Project Execution, Project Control, Project Closure)