BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Carpenter Skills

Session:2019-20 (Summer Semester)

B. Voc. Program 1st Semester,

2nd In-Sem. Examination

Course Code: SCS1102 **Time: 1 Hour**

Course Name: Handy Machine **Max. Marks: 20**

Instruction:

1. Answer all questions from section A, each question carries one mark.
2. Answer all questions from section B, each question carries two mark.
3. Answer all questions from section C, each question carries three mark.

Section – A

05X01 = 05 Marks

Q.1.Which one of the following is the accessory used for straight cut by Hand Circular Saw?

(A) Guide rail (B) Riving knife

(C) Side stops (D) None of these.

Q.2.Which one of the following is the accessory used for smooth and Splinter free cut?

(A) Guide rail (B) Splinter guard

(C) Riving knife (D) Both (A) & (C)

Q.3. Which one of the following is the tool prevents ~~from~~ kick-back while cutting?

(A) Riving Knife (B) Splitting wedge

(C) Saw blade (D) Both (A) & (B)

Q.4.Which one of the following is the angular range of Hand Circular Saw?

(A) 1 to 45 (B) -1 to -47

(C) -1 to -45 (D) None of these

Q.5.Which one of the following is the thickness of riving knife used in Hand circular saw?

(A) Thicker than the tooth thickness (B) Thinner than the blade body

(C) Average thickness of cutting width & blade body (D) None of these

Section – B

03X02 = 06 Marks

Q.6.Whar are the two uses of Dust Collection System?

Q.7. What are the two functions of Riving Knife?

Q.8. Explain any five parts of Domino machine.

Section – C

03X03 = 09 Marks

Q.9.Draw the diagram of saw blade. Also mention the distance between Saw blade and Riving Knife in Diagram.

Q.10.What are the steps for miter cut by Hand Circular Saw?

Q.11.What are the steps for joining two sides of Cabinet by Domino machine?

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School of Carpenter Skills

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Section – A

05X01 = 05 Marks

Q.1.Which one of the following is the accessory used for straight cut by Hand Circular Saw?

(A) Guide rail (B) Riving knife

(C) Side stops (D) None of these. (A)

Q.2.Which one of the following is the accessory used for smooth and Splinter free cut?

(A) Guide rail (B) Splinter guard

(C) Riving knife (D) Both (A) & (C) (B)

Q.3. Which one of the following is the tool prevents from kick-back while cutting?

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(A) 1 to 45 (B) -1 to -47

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Q.5.Which one of the following is the thickness of riving knife used in Hand circular saw?

(A) Thicker than the tooth thickness (B) Thinner than the blade body

(C) Average thickness of cutting width & blade body (D) None of these (C)

Section – B

03X02 = 06 Marks

Q.6.Whar are the two uses of Dust Collection System?

ANS: Two uses of Dust Collection System are: -

1.It is used for cleaning the workshop.

2.It sucks the dust while operating machine which helps in keeping dust free environment.

Q.7. What are the two functions of Riving Knife?

ANS: Functions of Riving are described below: -

1.It prevents from kick-back while cutting.

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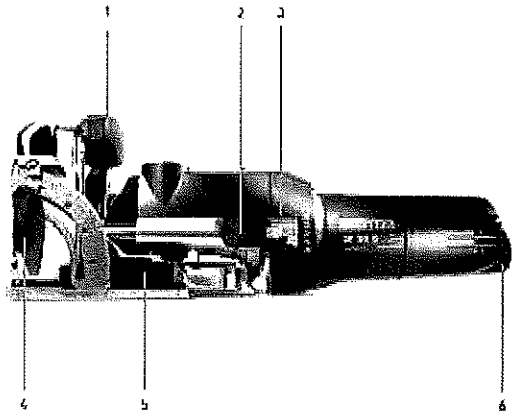
2.It keeps the kerf open in separating cuts.

Q.8. Explain any five parts of Domino machine.

ANS:



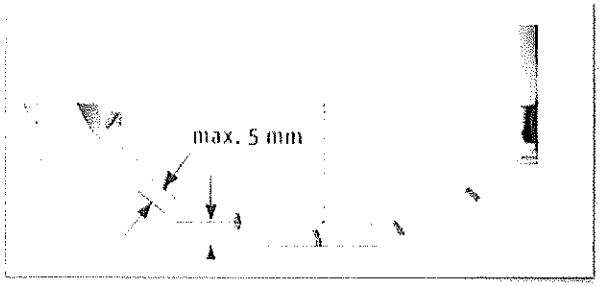
S.no	Part name
1	Secondary handle
2	Locking lever lock
3	Domino hole depth locking lever
4	Angle stop clamping lever
5	Material thickness preselect slider
6	Mains connection
7	Spindle lock

Section – C

03X03 = 09 Marks

Q.9.Draw the diagram of saw blade. Also mention the distance between Saw blade and Riving Knife in Diagram.

ANS:



Q.10.What are the steps for miter cut by Hand Circular Saw?

ANS: Steps for miter cut by Hand Circular Saw are described below:

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1.Align the Guide rail on the marked line.

2.Set the required angle on Hand Circular Saw by loosening the knob.

3.Set 5 to 7 mm more depth of cut than the thickness of work piece.

4. Clamp the guide rail and work piece by screw clamp.

5. Connect the machine to the dust collection system and make the miter cut.

Q.11.What are the steps for joining two sides of Cabinet by Domino machine?

ANS: Steps for joining two sides of Cabinet by Domino machine are described below: -

1.Mark on the sides where domino is to be made.

2.Set the machine according to the domino dowels and thickness of sides.

3.Connect machine to the power plug and dust collection system.

4.At,last make the domino to both sides of cabinet.

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Registration No.: .....

School of Carpenter Skills

Session: 2019-20 (Summer Semester)

B. Voc. Program, I Semester,

II[nd] In-Sem. Examination

Course Code: SCS1105 **Time: 1 Hour**

Course Name: Carpenter material **Max. Marks: 20**

Instructions:

1. Answer all questions from section A, each question carries one mark.
2. Answer all questions from section B, each question carries two marks.
3. Answer all question from section C, each question carries three marks.

Section – A

05X01 = 05 Marks

Q.1. Which one of the followings is a not a consideration factor before gluing?

(a) surface symmetry (b) porous

(c) roughness (d) thickness of board

Q.2. Which one of the followings is a Slenderness ratio in wood panel manufacturing?

(a) Length/Area (b) Area/Thickness

(c) Length/Thickness (d)Thickness/Length

Q.3. Which one of the followings is not a standard size of Fiber board?

(a) 4*8 feet (b) 6*8 feet

(c) 5*6 feet (d) 4*7 feet

Q.4. Which one of the following raw materials is used for OSB?

(a)Fiber (b) wooden straw

(c) Particles (d) wooden strips

Q.5. Which one of the following is not a type of wood panels?

(a) Particle board (b) Ply board

(c) MDF (d) Solid wood board

Section – B

03X02 = 06 Marks

Q.6. What do you mean by OSB, explain different types Oriented Strand Board.

Q.7. What do you understand by aspect ratio in wood panels?

Q.8. Discuss various types of adhesives with their applications to be used in different working condition.

Section – C

03X03 = 09 Marks

Q.9. Discuss common adhesives for economic production of wood panel.

Q.10. What is Bonding, discuss adhesion and cohesion in adhesive process with neat sketch.

Q.11. Explain the importance of Wood based panels; discuss any two types of wood panels.

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School of Carpenter Skills **Answer key**

Session: 2019-20 (Summer semester)

B. Voc. Program, I Semester,

IInd in –Sem Examination

Course Code: SCS1106 **Time: 3 Hour**

Course Name: Hand Drawing **Max. Marks: 100**

Instructions:

1. Answer all questions from section A, each question carries one mark.
2. Answer any six questions from section B, each question carries five marks.
3. Answer all question from section C, each question carries ten marks.

Section – A

05X01 = 05 Marks

Q.1 Which one of the following projection angle methods is not used in carpentry drawing?

(a) First angle (b) Fourth angle

(c) third angle (d) None of these **(B)**

Q 2. Which one of the following method is not used for temporary fastening?

(A) Adhesive (B) Welding (C) Rivets (D) nut & bolt **(D)**

Q 3. Which one of the following projection is used in projection method?

(A) Third angle (B) Second angle (C) Fourth angle (D) None of these **(A)**

Q 4. Original dimension of the object is 250 mm and it is in drawing of 500. What will be the scale ratio?

(A) 1:1 (B) 1:2 (C) 2:1 (D) None of these **(C)**

Q 5. Which one of the following section method is not used in drawing?

(A) object section (B) half section (C) full section (D) off cut **(A)**

Section – B

Q6. Differentiate between Third angle projection and First angle projection

Ans.

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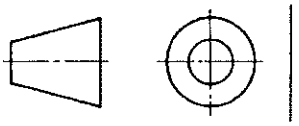
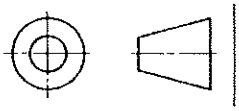
FIRST ANGLE PROJECTION	THIRD ANGLE PROJECTION
Observer – object – plan of projection	Observer – plan of projection – object
View stays in first quadrant .	View stays in third quadrant.
This is used in India.	This is used in European country.
	
Dimensions are drawn up to the axis line.	Dimension are drawn below to the axis line.

Q7 What is half sectional View, explain its purpose to use in drawing.

In this view, the cutting plane is assumed to bend at a right angle and cuts through only half of the represented object, not the full length. When the quarter of the object that was cut is removed, the remainder is called a "half section." A half section view is effective only on symmetrical objects, and its main purpose is to show an object's internal and external construction in the same drawing.

Q 8 Why the second angle projections and fourth angle projection methods are not used in drawing?

As per rule of projection when horizontal plane is rotated 90 degree in clockwise direction, top and front view will overlap. Therefore 2nd angle projection system is not used. Similarly when object is placed in 4th quadrant both top and front view will overlap. Therefore fourth angle projection is also not used.

Q 9. What do you understand by fastening, discuss permanent and temporary fastening?

Ans. Fasteners are devices that find application in joining two objects together. There are two types of fasteners available temporary and permanent. Temporary fasteners are used to temporarily binding two objects together. On the other hand, permanent fasters involve joining objects permanently. A classic example of permanent fasteners is welding.

These types of fasteners are used to make provisional joints. Temporary fasteners come in various designs, shapes and sizes. It is used to join two materials for a short period of time and can be replaced in future as well. In other words, it can be said as a hardware tool to fasten objects together. It can be installed easily with a use of power tool. Permanent fasteners are used for giving extra prevention and it also protects the infrastructure for a long term. It is basically used in buildings, storage, factories, depots, docks and various other related fields. These fasteners are very durable and are used in structures

Q 10. What is projection of points? Draw points (2,4), (3,6), (-5,5) on coordinate axis.

Ans. –

Q 11. Describe types of section views used in hand drawing with a suitable diagram.

Ans. –

Full Section

If the imaginary cutting plane passes through the entire object, splitting the drawn object in two with the interior of the object revealed, this is called a "full section." A full section is the most widely-used sectional view.

Half View

In this view, the cutting plane is assumed to bend at a right angle and cuts through only half of the represented object, not the full length. When the quarter of the object that was cut is removed, the remainder is called a "half section." A half section view is effective only on symmetrical objects, and its main purpose is to show an object's internal and external construction in the same drawing.

Offset View

When specific features of an object that need highlighting are not located on the straight line of the cutting plane, an irregular-shaped cutting plane is imagined cutting the object, revealing the desired components. This is called an "offset view," and is effective on complex objects. The bends in the imaginary cutting pane are always 90 degrees.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Carpenter Skills

Session: 2019-20 (Summer Semester)

B. Voc. Program, I Semester,

II[nd] In-Sem. Examination

Course Code: SCS1106 **Time: 1 Hour**

Course Name: Hand Drawing **Max. Marks: 20**

Instructions:

1. Answer all questions from section A, each question carries one mark.
2. Answer all questions from section B, each question carries two marks.
3. Answer all question from section C, each question carries three marks.

Section – A

05X01 = 05 Marks

Q.1 Which one of the following projection angle methods is not used in carpentry drawing?

(a) First angle (b) Fourth angle

(c) third angle (d) None of these

Q 2. Which one of the following method is not used for temporary fastening?

(A) Adhesive (B) Welding (C) Rivets (D) nut & bolt

Q 3. Which one of the following projection is used in projection method?

(A) Third angle (B) Second angle (C) Fourth angle (D) None of these

Q 4. Original dimension of the object is 250 mm and it is in drawing of 500. What will be the scale ratio?

(A) 1:1 (B) 1:2 (C) 2:1 (D) None of these

Q 5. Which one of the following section method is not used in drawing?

(A) object section (B) half section (C) full section (D) off cut

Section – B

Q 6. Differentiate between Third angle projection and First angle projection

Q 7 What is half sectional View, explain its purpose to use in drawing.

Q 8 Why the second angle projections and fourth angle projection methods are not used in drawing?

Section – C

Q 9. What do you understand by fastening, discuss permanent and temporary fastening?

Q 10. What is projection of points? Draw points (2,4), (3,6), (-5,5) on coordinate axis.

Q 11. Describe types of section views used in hand drawing with a suitable diagram.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer key

School of Carpenter Skills

Session: 2019-20 (Summer Semester)

B. Voc. Program, I Semester,

IInd In-Sem. Examination

Course Code: SCS1105 **Time: 1 Hour**

Course Name: Carpenter material **Max. Marks: 20**

Instructions:

1. Answer all questions from section A, each question carries one mark.
2. Answer all questions from section B, each question carries two marks.
3. Answer all question from section C, each question carries three marks.

Section – A

05X01 = 05 Marks

Q.1. Which one of the followings is a not a consideration factor before gluing?

(a) surface symmetry (b) porous

(c) roughness (d) thickness of board (d)

Q.2. Which one of the followings is a Slenderness ratio in wood panel manufacturing?

(a) Length/Area (b) Area/Thickness

(c) Length/Thickness (d)Thickness/Length (c)

Q.3. Which one of the followings is not a standard size of Fiber board?

(a) 4*8 feet (b) 6*8 feet

(c) 5*6 feet (d) 4*7 feet (c)

Q.4. Which one of the following raw materials is used for OSB?

(a)Fiber (b) wooden straw

(c) Particles (d) wooden strips (b)

Q.5. Which one of the following is not a type of wood panels?

(a) Particle board (b) Ply board (d)

(c) MDF (d) Solid wood board

Section – B

03X02 = 06 Marks

Q.6. What do you mean by OSB, explain different types Oriented Strand Board.

Ans

Oriented strand board (OSB), also known as flake board, sterling board is a type of engineered wood similar to particle board, formed by adding adhesives and then compressing layers of wood strands (flakes) in specific orientations. It was invented by Armin Elmendorf in California in 1963.[1] OSB may have a rough and variegated surface with the individual strips of around 2.5 cm × 15 cm (1.0 by 5.9 inches), lying unevenly across each other and comes in a variety of types and thicknesses.

Types of OSB

OSB/0 – No added formaldehyde

- OSB/1 – General purpose boards and boards for interior fitments (including furniture) for use in dry conditions
- OSB/2 – Load-bearing boards for use in dry conditions
- OSB/3 – Load-bearing boards for use in humid conditions
- OSB/4 – Heavy-duty load-bearing boards for use in humid conditions

Q.7. What do you understand by aspect ratio in wood panels?

Ans.

It is the length of a particle divided by its diameter. For spherical or cubical particles, the aspect ratio equals to one. Aspect ratio in this context is a ratio of the fiber length to fiber thickness. For wood flour this ratio is often about 3:1–4:1. Generally, long fibers, oriented along the flow, render a composite material with improved mechanical properties, compared to short-fiber-filled composite material. In other words, a higher aspect ratio leads to better flexural properties. As a result, in WPCs the cellulose fiber is the main load-bearing component, and the more the fibers are oriented along the flow, the higher are the flexural properties of the material

Q.8. Discuss various types of adhesives with their applications to be used in different working condition.

Ans.

Three types of wood adhesives are available:

Type-I exhibits some waterproof properties.

Type-II will perform better in exterior conditions. These adhesives generally have a longer open time and can bond at colder temperatures. Both types I and II can be used for exterior applications, such as outdoor furniture and trim.

Type-III is not water resistant and is designed for interior use only. It is good for interior woodwork and trim projects.

Section – C

03X03 = 09 Marks

Q.9. Discuss common adhesives for economic production of wood panel.

Ans. The adhesive must cure in the press very quickly, say within 1-5 minutes, but it must also have a pot life of something in excess of 20-30 minutes so that the adhesive does not cure before entering the press. Longer pot lives are desired, and achieved by many, to allow for line stoppages. The most commonly used particleboard adhesive is UF, this is followed by melamine formaldehyde (MF) and then phenol formaldehyde (PF). Other adhesives have only minor importance in the global view.

1 Phenol-Formaldehyde

Phenol-formaldehyde (PF) resins are typically used in the manufacture of construction plywood and oriented strand board where exposure to weather during construction is a concern. Other moisture exposure situations, such as temporary weather exposure, occasional plumbing leaks, or wet foot traffic, may also necessitate the use of PF resins. PF resins are commonly referred to as phenolic resins. Phenolic resins are relatively slow-curing compared with other thermosetting resins.

2 Urea-Formaldehyde

Urea-formaldehyde (UF) resins are typically used in the manufacture of products used in interior applications, primarily particleboard and medium-density fiberboard (MDF), because moisture exposure leads to a breakdown of the bond-forming reactions. Excessive heat exposure will also result in chemical breakdown of cured UF resins, therefore UF-bonded panels are typically cooled after emergence from the press. Advantages of UF resins include lower curing temperatures than PF resins and ease of use under a variety of curing conditions. UF resins are the lowest cost thermosetting adhesive resins. They offer light color, which often is a requirement in the manufacture of decorative products. However, the release of formaldehyde from products bonded with UF is a growing health concern.

3 Melamine-Formaldehyde

Melamine-formaldehyde (MF) resins are used primarily for decorative laminates, paper treating, and paper coating. They are typically more expensive than PF resins. MF resins may, despite their high cost, be used in bonding conventional wood-based composites. MF resins are often used in combination with UF. MF–UF resins are used when an inconspicuous (light color) adhesive is needed and when greater water resistance than can be attained with UF resin is required.

Q.10. What is Bonding, discuss adhesion and cohesion in adhesive process with neat sketch.

Ans.

Bonding is the joining of two substrates using an adhesive, an adhesive is defined as a non-metallic binder that acts via adhesion and cohesion. An adhesive as "a substance capable of holding materials together by surface attachment". Adhesion is the adhering of similar or different types of materials to each other. Cohesion is the inner strength of a material,

The adhesive interactions between an adhesive and a substrate not only concern the actual area of contact (adhesion zone) of the adhesive and substrate but also concern the state of the adhesive in the vicinity of the surface of the substrate (transition zone).

Q.11. Explain the importance of Wood based panels; discuss any two types of wood panels.
Ans.

Engineered wood products are versatile and available in a wide variety of thicknesses, sizes, grades, and exposure durability classifications, making the products ideal for use in unlimited construction, industrial and home project application.

- Engineered wood products are designed and manufactured to maximize the natural strength and stiffness characteristics of wood. The products are very stable and some offer greater structural strength than typical wood building materials.
- Glued laminated timber has greater strength and stiffness than comparable dimensional lumber and, pound for pound, is stronger than steel.
- Some engineered wood products offer more design options without sacrificing structural requirements
- Engineered wood panels are easy to work with using ordinary tools and basic skills. They can be cut, drilled, routed, jointed, glued, and fastened. Plywood can be bent to form curved surfaces without loss of strength. And large panel size speeds construction by reducing the number of pieces to be handled and installed.
- Engineered wood products make more efficient use of wood. They can be made from small pieces of wood, wood that has defects or underutilized species.

Any two panels can be discussed.

MDF stands for medium-density fiberboard, which is an engineered wood composite made up of wood fibers. Because the MDF is composed of small wood fibers, there is no visible wood grain, rings, or knots. The making of the composite uses the fibers, glue, and heat to create a tight bonding board. Both softwood and hardwood are used to manufacture MDF. Generally denser than plywood, this composition creates a stronger material for building. We use a veneer sealant to prevent water damage. Two types of fiberboard are moisture resistant (which is typically blue) and fire retardant.

Plywood is an engineered wood product made up of sheets of wood veneer. The wood veneer boards are pressed and bonded together to create one solid piece. This manufacturing process is called cross-graining and it reduces shrinkage and expansion while improving panel strength consistency. Different grades of plywood are used for different purposes. Plywood grades are affected by many variables including the type of wood ply, thickness, adhesive, and manufacturing/compaction process