BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Woodworking Skills (SWS)

Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester,

2nd In-Sem. Examination

Code: SCS1103 Stationary **Time: 1 Hour**
Course Name: Standard Machine **Max. Marks: 20**
Instruction:

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

Section A

05X01 = 05 Marks

Q1. Which one of the following is used while cutting parallel to the grain?
(A) Rip fence (B) Cross cut fence
(C) A&B both (D) None of these.

Q2. Which one of the following is the running direction of the scoring saw?
(A) Opposite to the main saw (B) Same direction of the main saw
(C) down of the main saw (D)None of them

Q3. Which one of the following is the diameter of main saw blade?
(A) 500-1000 (B) 250-400
(C) A & B both (D) None of these

Q4. The number of teeth in solid wood Rip saw is
(A) 28 (B) 96
(C) 48 (D) none of them

Q5. Which of the following machine is used to cut the curved profile?
(A) Band Saw (B) surface planner
(C) Thickness planner (D) Panel saw

Section B

03X02 = 06 Marks

Q6. What do you mean by panel saw? Write down any two function?

Q7. What is Riving knife? Write down the formula to calculate the thickness of riving knife.

Q8. Write down the parts name of panel saw machine.

Section C

03X03 = 09 Marks

Q9. Explain the difference between high and low saw position of panel saw.

Q 10 Consider a piece of dimension 500x200x35 mm. Write down the procedure to make it 90^0 with dimension 500x180x24 mm.

Q11. Explain the procedure to change the blade of Band Saw.

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Answer Key

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Section A

05X01 = 05 Marks

Q1. Which one of the following is used while cutting parallel to the grain?
(A) Rip fence (B) Cross cut fence
(C) A&B both (D) None of these. Ans. A

Q2. Which one of the following is the running direction of the scoring saw?
(A) Opposite to the main saw (B) Same direction of the main saw
(C) down of the main saw (D)None of them Ans. A

Q3. Which one of the following is the diameter of main saw blade?
(A) 500-1000 (B) 250-400
(C) A & B both (D) None of these Ans. B

Q4. The number of teeth in solid wood Rip saw is
(A) 28 (B) 96
(C) 48 (D) none of them Ans. c

Q5. Which of the following machine is used for cut the curved profile?
(A) Band Saw (B) surface planner
(C) Thickness planner (D) Panel saw Ans. A

Section B

03X02 = 06 Marks

Q6. What do you mean by panel saw? Write any two functions.

Ans. It is a woodworking machine that is used to cut the panels, profiles, solid wood, MDF, laminates etc. it used to cut the wood along the grain, cross the grain and also at miter.

Application

1. It is used to cut the panels, solid wood, plastic aluminum.
2. It used to make groove.
3. It used for angle cut.
4. It used for straight, cross and miter cut.

Q7. What is Riving knife write down the formula to calculate the thickness of riving knife?

Ans. It is fitted behind the blade of circular saw

1. It Prevents the kick back while Cutting.
2. It keeps the kerf open in separating cut.

Thickness of the riving knife = (Tooth width + thickness blade body)/2

Q8. Write down the parts name of panel saw machine.

Ans

1. Riving knife
2. Protective hood with extraction
3. Rip fence
4. Cross cut fence and miter cut fence
5. Cutting high adjuster
6. Sliding table cutting length
7. 45^0 cutting adjuster
8. Emergency button
9. Start button
10. Stop button

Scoring saw button

Section C

03X03 = 09 Marks

Q9. Explain the difference between high and low saw position of panel saw.

Ans.

Effect	High saw blade position	Low saw blade position
Cut cleanness	If saw blade is in high position, then more chip out will be produce on the bottom side.	If saw blade is in low position then the chip out on the bottom side will be less.
Security	Lower risk of kickback / cutting pressure directed down to the machine table.	Greater risk of kick back / cutting pressure tend to be directed towards the

		operator(feed resistance increases)
Service life of saw blade	Higher due to shorter cutting path in work piece.	Lower due to longer cutting path in work piece and more cutting pressure.

Q 10 Consider a piece of 500x200x35 mm dimension write down the procedure to make it 90 final dimension should be 500x180x24 mm.

Ans. Procedure

1. First plane the surface planner along the thickness and make it 30 mm in thickness.
2. Then plane it against the thickness and make it 194 mm in width
3. Then remaining two sides will be planned on thickness planner machine.
4. Plane the WP. against the width up to 180 mm.
5. Plane the WP. against the thickness up to 24 mm.

Q11. Explain the procedure to change the blade of Band Saw.

Ans. Steps to change the blade of Band saw are as follows:

1. First take out the key to unlock the door of the band saw
2. Unlock the height adjusting lever
3. By using height adjusting wheel, reduce the distance between two rollers so belt will loosen.
4. Replace the blade with new one
5. By using height adjusting wheel enlarged the distance between two rollers so belt must be tight.
6. Adjust the roller by revolving it make sure teeth should not cut the rubber rim of the roller.

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Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester,

2nd In-Sem. Examination

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

Course Name: Carpenter Materials (Set A) **Max. Marks: 20**

Instruction: All the questions are compulsory.

Section – A

05X01 = 05 Marks

Q1. Veneers made by pressing a knife against the rotating tree trunk are known as

(a) Sawn Veneer (b) Sliced Veneer

(c) Peeled Veneer (d) Blind Veneer

Q2. Which one is the wrong statement for veneer gluing?

(a) Apply the veneer adhesive evenly to both sides of the carrier material

(b) Adhesive should have a suitable viscosity

(c) Place the veneer on the carrier material shortly before pressing

(d) The flash-off time should be as long as possible

Q3. Adhesive that sets two components through a chemical reaction

(a) Dispersion adhesive (b) Hot melt adhesive

(c) Reaction adhesive (d) Contact adhesive

Q4. The property by virtue of which material resist the scratches or abrasion called as

(a) strength (b) impact

(c) Hardness (d) None

Q5. The most common grade of laminate used is

(a) EN 438

(b) ISO 438

(c) EN 452

(d) EN 498

Section – B

03X02 = 06 Marks

Q6. Write the instructions for veneer selection.

Q7. Explain the various forces involved in gluing and how adhesives work with a neat and clean diagram.

Q8. Explain followings:

a) humidity

b) Bulk density

Section – C

03X03 = 09 Marks

Q9. Write the advantages of using the veneers.

Q10. Discuss dispersion adhesives, their properties and processing instructions in detail.

Q11. Explain the construction of laminate.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester,

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

Course Name: Carpenter Materials (Set A) **Max. Marks: 20**

Instruction: All the questions are compulsory.

Section – A

05X01 = 05 Marks

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(d) EN 498

Section – B

03X02 = 06 Marks

Q6. Write the instructions for veneer selection.

Ans.

Veneer selection

When choosing the veneers, you have to answer various questions:

(a) Type of wood
(b) With or without branches
(c) With or without color core
(d) Rift, flader (construction) or semi-rift

Air condition the veneer before cutting it by taking it from the warehouse to the workshop a few days before processing and adapting it to the climate of the workshop.

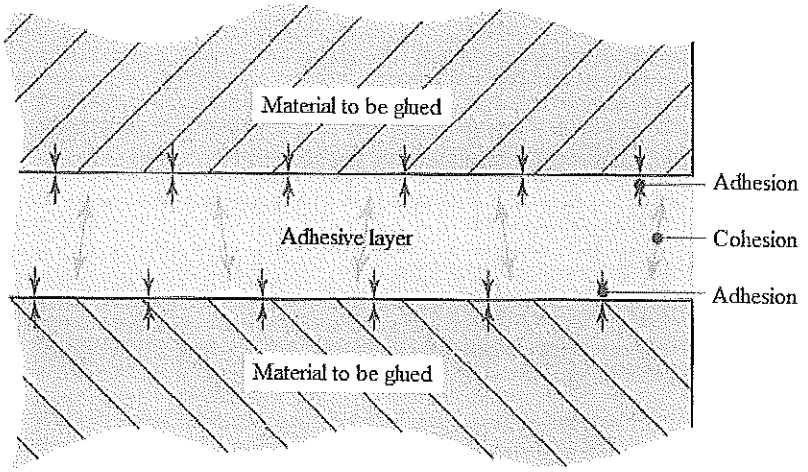
Q7. Explain the various forces involved in gluing and how adhesives work with a neat and clean diagram.

Ans.

Forces of the adhesives

Adhesives must adhere perfectly to the materials to be bonded. This adhesion is known as adhesion or force of adhesion.

In addition, the adhesive layer should have high internal strength. This strength is known as cohesion or cohesive force.



How adhesives work

In order for adhesives to adhere to the material surface (adhesion), the adhesive must touch the material surface directly and be well accepted by it. In addition, the adhesive must completely cover the surface.

The drying time must be observed so that the internal strength of the adhesive layer (cohesion) is sufficiently strong. In addition, no cavities must appear in the adhesive layer during drying.

Q8. Explain followings:

a) humidity

b) Bulk density

Ans.

a) It is the mass of water vapour present in 1 kg of dry air, and is generally expressed in terms of gram per kg of dry air (g/kg of dry air). It is also called specific humidity or humidity ratio.

b) In the case of porous substances, the ratio between mass and volume can vary greatly. the decisive factor is how much material and how much air or gas is in the volume. That is why the term density is used instead of density for such substances. It is expressed as "kg/m3"

Section – C

03X03 = 09 Marks

Q9. Write the advantages of using the veneers.

Ans.

Veneer is used for a variety of reasons but the most important is that it is economical than using solid wood. They are largely used in residential projects, hotel and office projects. Before using veneers, you must be aware of advantages and disadvantages of veneers.

Advantages

(a) *Aesthetics like natural wood with low cost:* Each veneer sheet is an original because the grain patterns in any two trees are never exactly alike. You are truly getting a beautiful and unique product when you choose veneer. Veneers provide aesthetics like natural wood with less cost. As there is scarcity of natural wood nowadays, it has become expensive. Veneers are only thin slice of wood; they can be easily glued to an engineered wood substrate to provide wood-like aesthetics.

(b) *Flexibility in designs:* Each veneer sheet is unique as each tree is unique. Even within a tree log, each layer is different. Hence there are endless design possibilities to give your furniture an exclusive look. Making a curved surface with veneer is easy. In comparison to laminates, natural veneers can be customized with polish or varnish to change its shade from light to dark more easily. It helps to achieve edge and surface finishes with uniformity and gives a timeless look to the space.

(c) *Increased strength and durability:* Apart from increasing aesthetics, applying veneer sheets to weak engineered woods like particle board can help in increasing its strength. Fiberboards like MDF and HDF are susceptible to damage in presence of water, hence applying wood veneer sheets will protect them from damage and increase its durability. It resists warping and fragmentation. Being natural product, it lasts longer than laminates. However, when veneer sheets come in contact with water, its polish may get damaged.

(d) Eco-friendly: It is an eco-friendly material and can be easily recycled. It's a natural product made from a renewable resource. After its intended lifetime, veneers can be crushed to make wood waste which can be utilized in making particle board and MDF. Therefore, it is one of the most environmentally friendly decorative products available to the consumer.

(e) *Better way of wood utilization:* Veneers help in better utilization of wood, as only a thin layer of wood is used to make furniture. A tree log can be used to create only few pieces of furniture, while the same tree log can give you numerous veneer sheets which can be utilized as covering materials for many pieces of furniture.

(f) *Non-toxic:* Unlike laminates, veneers are a natural product. They are generally non-toxic. Nowadays there are non-toxic adhesive available in the market which do not emit VOCs. These adhesives can be used in applying veneer to the substrates.

Q10. Discuss dispersion adhesives, their properties and processing instructions in detail.

Ans.

Group 1: Dispersion adhesives (white glue)

With dispersion adhesives, you can carry out numerous interior fittings. Dispersion adhesives differ in the open time, setting time and water resistance.

Stress groups

Dispersion adhesives are divided into water resistance classes D1-D4 according to EN (European standard):

Stress group	Climatic conditions / Areas of application
D1	For bonding indoors without exposure to increased moisture (e.g. furniture, interior fittings, room doors)
D2	For bonding indoors with brief exposure to high humidity. (e.g. furniture and interior fittings in kitchens and bathrooms)
D3	For bonds with short-term exposure to water. (e.g. exterior doors, windows, fixtures in wet rooms)
D4	For bonds with increased longer-lasting exposure to moisture and moisture. (e.g. garden furniture)

Properties of dispersion adhesives

- Dispersion adhesives set (dry) as the water evaporates from the adhesive layer and migrates into the air and into the material.
- Dispersion adhesives become soft and at elastic high temperature. As a result, the strength values of the glue line decrease significantly.

Processing instructions

- Only process bonds with dispersion adhesives after the specified processing times. Some of the water from the adhesive migrates into the wood. This causes it to swell in the area of the joint. This swelling must have subsided before further processing. Pay particular attention to this when routing edges flush. It is ideal if you let the adhesive dry during the night.
- Dispersion adhesives are relatively harmless to humans and the environment.

Q11. Explain the construction of laminate.

Ans.

High pressure laminate: The pressure during production is more than 7N/mm2. The pressure becomes more scratch-resistant and hard. HPL boards are used by the carpenter in individual interior design, since the presses are advantageously used to produce small runs can.

Construction

Essentially, the decorative laminate (HPL) consists of more than 60% paper. The remaining 30 to 40% consist of hardened phenol formaldehyde resin for the core and melamine formaldehyde resin for the surface layers.

Top layer

The approximately 15 to 80g / m2 thin paper, impregnated with melamine resin, is applied to the printed decorative paper to increase the abrasion resistance.

Decorative layer

The decorative layer consists of melamine resin impregnated, printed paper with a thickness of 50 to 160 g / m2, which is usually colored through. Thin wood veneers or metal foils impregnated with melamine resin are also used.

Barrier layer

White cellulose paper impregnated with melamine resin is used used with light decorative layers for color blocking.

Core papers

The cellulose kraft paper with a strength of 80 to 300 g / m2 is not uncommon bleaches for use and is impregnated with phenolic resins. The number Core papers determine the thickness of the laminate.

Balancing layer

The counter-pull layer is standard for panels over 2mm thick available. These resin impregnated papers are stacked one on top of the other and pressed in packets under pressure between sheets at about 150 ° C. to form an extremely hard mass.

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Session: 2020-21 (Summer Semester)

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Course Code: SCS1106 **Time: 1 Hour**
Course Name: Hand Drawing **Max. Marks: 20**
Instruction:

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

Section A

05X01 = 05 Marks

Q1. In engineering field drawing is created generally in
(A) Km (B) Meter
(C) Millimeter (D) Decameter

Q2. In India drawing is created in which angle of projection
(A) 2nd (B) 1st
(C) 3rd (D) 4th

Q3. 100 millimeters are equivalent to
(A) 10 Centimeter (B) 1 feet
(C) 1 Meter (D)None of them

Q4. A point lies in front of vertical plane but below horizontal plane. It lies in which quadrant
(A) 2nd (B) 1st
(C) 3rd (D) 4th

Q5. What is the significance of continuous thick line in technical drawing?
(A) Outlines of the object (B) Hidden surface
(C) A&B Both (D) line of symmetry

Section B

03X02 = 06 Marks

Q6. What do you mean by projection? What are the variables to draw the projections?

Q7. Define the Line. Write down the application of any two type of line used in engineering drawing.

Q8. What do you mean by plane of projection? Explain with diagram.

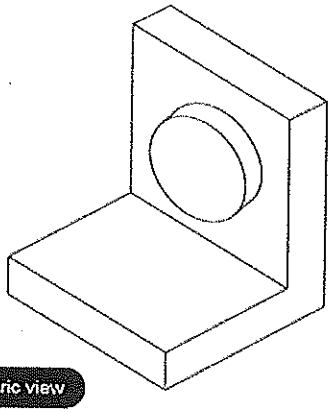
Section C

03X03 = 09 Marks

Q9. A point is placed 30 mm in front of vertical plane and 20 mm above horizontal plane. Draw the projection of a point with diagram.

10 Define the Nominal Size, Basic Size & Actual size.

Q11. Draw the front, top and right side view of the following Diagram in 1st angle projection?



Isometric view

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Answer Key

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Max. Marks: 20

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Section A

05X01 = 05 Marks

Q1. In engineering field drawing is created generally in
(A) Km (B) Meter
(C) Millimeter (D) Decameter Ans. C

Q2. In India drawing is created in which angle of projection
(A) 2nd (B) 1st
(C) 3rd (D) 4th Ans. B

Q3. 100 millimeters are equivalent to
(A) 10 Centimeter (B) 1 feet
(C) 1 Meter (D)None of them Ans. A

Q4. A point lies in front of vertical plane but below horizontal plane it lies in which quadrant.
(A) 2nd (B) 1st
(C) 3rd (D) 4th Ans. D

Q5. What is the significance of continuous thick line in technical drawing?
(A) Outlines of the object (B) Hidden surface
(C) A&B Both (D) line of symmetry Ans. A

Section B

03X02 = 06 Marks

Q6. What do you mean by projection? What are the variables to draw the projections?

Ans. In engineering, 3-dimensonal objects and structures are represented graphically on a 2-dimensional media. The act of obtaining the image of an object is termed "projection". The image obtained by projection is known as a "view".

All projection theory are based on two variables:

- Line of sight
- Plane of projection.

Q7. Define the Line. Write down the application of any two type of line used in engineering drawing.

Ans. **Lines**

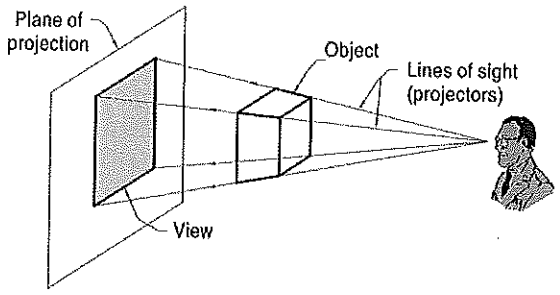
It is one important aspect of technical drawing. Lines are always used to construct meaningful drawings. Various types of lines are used to construct drawing, each line used in some specific sense. Lines are drawn following standard conventions mentioned in BIS (SP46:2003). A line may be curved, straight, continuous, segmented. It may be drawn as thin or thick. A few basic types of lines widely used in drawings are shown in Table

Types of lines used in engineering drawing.

Illustration	Application
Thick	Outlines, visible edges, surface boundaries of objects, margin lines
Continuous thin	Dimension lines, extension lines, section lines leader or pointer lines, construction lines, boarder lines
Continuous thin wavy	Short break lines or irregular boundary lines – drawn freehand
Continuous thin with zig-zag	Long break lines
Short dashes, gap 1, length 3 mm	Invisible or interior surfaces
Short dashes	Center lines, locus lines Alternate long and short dashes in a proportion of 6:1,
Long chain thick at end and thin elsewhere	Cutting plane lines

Q8. What do you mean by plane of projection? Explain with diagram.

Ans A plane of projection (i.e. an image or picture plane) is an imaginary flat plane upon which the image created by the line of sight is projected. The image is produced by connecting the points where the lines of sight pierce the projection plane. In effect, 3-D object is transformed into a 2-D representation, also called projections. The paper or computer screen on which a drawing is created is a plane of projection.



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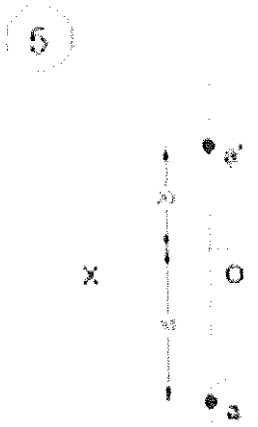
Section C

03X03 = 09 Marks

Q9. A point is place 30 mm in front of vertical plane and 20 mm above horizontal plane Draw the projection of a point with diagram?
ans

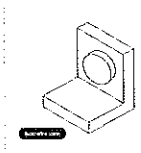


Q10 Define the Nominal Size, Basic Size & Actual size.
Ans. **Nominal size:** The nominal size of a dimension is the size specified in the drawing. It is usually given in the drawing as rounded of whole millimeters.

Basic size: The basic size of dimension is the size in relation to which all limits of variations are determined.

Actual size: the actual size of a dimension is its measured

Q11. Draw the front, top and right side view of the following Diagram in 1st angle projection?



Ans

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