BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No._____

School of Woodworking Skills

Session: 2021-22 (Winter Semester) Set - A

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1301 Time: 2 Hour

Course Name: Advance Power Tools Max. Marks: 50

Instruction:

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

Section A

10X01 = 10 Marks

Q. 1 Which one of the following accessories is used for Round Cut

(A) Centering mandrel (B) Longitudinal Stop

(C) Trammel unit (D) All of these.

Q. 2 Which one of the following is the diameter of saw blade

(A) 160 (B) 120

(C) 150 (D) None of these.

Q. 3 Which of the following diameter of cutter used for 4x20 domino?

(A) 10 mm (B) 4 mm

(C) 8mm (D) 5 mm

Q. 4 Which one of the following is marking Symbol

(A)Triangle (B) Wave Line

(C) Cross (D) All of these.

Q. 5 Indexing plate or track is used in

(A) Lr 32 (B) Domino

(C) Lamello (D) None of Them

Q. 6 Which of the following is the distance between saw and riving Knife in circular Saw?

(A) 10 mm (B) (0-5) mm

(C) 8 mm (D) 6 mm

Q. 7 Which of the following depth is set in Zeta P2 machine while making climax P14?

(A) 0 mm (B) 10 mm

(C) 14mm (D) Max

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Q. 8 Which one of the following are attachment of circular saw

(A) Splinter guard
(B) Riving knife
(C) Both A&B
(D) None of these.

Q. 9 Which one of the following accessories is used in LR 32 System

(A) Centering mandrel
(B) Splinter Guard
(C) Trammel unit
(D) All of these.

Q. 10 Which one of the following is the maximum depth taken in Domino

(A) 28
(B) 12
(C) 20
(D) None of these.

Section B

04X04 = 16 Marks

Q. 11 What is Zeta P2 machine? What are its functions

Q. 12 What is the purpose of Lamello machine? Discuss in brief.

Q. 13 Explain the principle of operation of Router with diagram.

Q. 14 How free play between the biscuit and slot can be incorporated by using Domino machine discuss with diagram

Section C

04X06 = 24 Marks

Q. 15 Why LR 32 system is used for cabinet making? Write down the name of its various accessories

Q. 16 How the life of a router bit can be increased? Discuss in detail.

Q. 17 Explain the principle of Domino machine. Define its various accessories.

Q. 18 Explain the procedure to change the blade of circular saw.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer Key

School of Woodworking Skills

Set-A

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Code: SCS1301 **Time: 2 Hour**
Course Name: Advance Power Tools **Max. Marks: 50**
Instruction:

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

Section A

10X01 = 10 Marks

Q. 1 Which one of the following accessories is used for Round Cut

(A) Centering mandrel (B) Longitudinal Stop
(C) Trammel unit (D) All of these. Ans. C

Q. 2 Which one of the following is the diameter of saw blade

(A) 160 (B) 120
(C) 150 (D) None of these. Ans. A

Q. 3 Which of the following diameter of cutter used for 4x20 domino?

(A) 10 mm (B) 4 mm
(C) 8mm (D) 5 mm Ans. B

Q. 4 Which one of the following is marking Symbol

(A)Triangle (B) Wave Line
(C) Cross (D) All of these. Ans. D

Q. 5 Indexing plate or track is used in

(A) Lr 32 (B) Domino
(C) Lamello (D) None of Them Ans. A

Q. 6 Which of the following is the distance between saw and riving Knife in circular Saw?

(A) 10 mm (B) (0-5) mm
(C) 8 mm (D) 6 mm Ans. B

Q. 7 Which of the following depth is set in Zeta P2 machine while making climax P14?

(A) 0 mm (B) 10 mm
(C) 14mm (D) Max Ans. D

Q. 8 Which one of the following are attachment of circular saw

(A) Splinter guard (B) Riving knife
(C) Both A&B (D) None of these. Ans. C

Q. 9 Which one of the following accessories is used in LR 32 System

(A) Centering mandrel (B) Splinter Guard
(C) Trammel unit (D) All of these. Ans. A

Q. 10 Which one of the following is the maximum depth taken in Domino

(A) 28 (B) 12
(C) 20 (D) None of these. Ans. A

Section B

04X04 = 16 Marks

Q. 11 What is Zeta P2 machine? What are its functions

Ans. Function of Zeta P2 are as follows:

1. Automatic Vertical movement create the Profile groove which enables to make the stronger joint.
2. It enables the fast locking system.
3. Easy assembling and disassembling.

Q. 12 What is the purpose of Lamello machine? Discuss in brief.

Ans. **Lamello Classic X**

It is a slot or Groove making machine for Joining one or more wooden pieces or panels together by inserting the require size biscuit in the created slot/

Accessories

1. Square Stop
2. Spacer

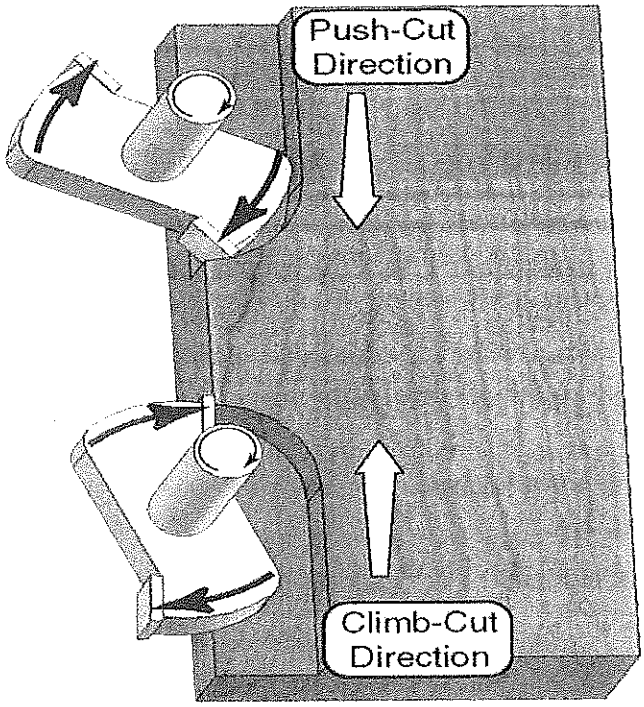
Q. 13 Explain the principle of operation of Router with diagram.

Ans. **Push Cutting** Feeding the router in opposite direction of router bit direction is known as push cutting.

It prevents the Kick back while working exteriorly.

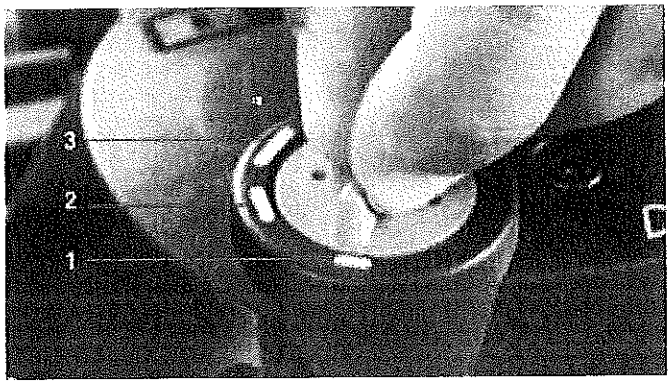
Climb Cutting Feeding the Router in the same direction as the direction of rotation of router bit is known as climb cutting

It is best suited while working interiorly.



Q. 14 How free play between the biscuit and slot can be incorporated by using Domino machine discuss with diagram

Ans. Depending on the requirements, the fixing hole or on of the elongated holes must be adjusted. The width of the slots cab be changed by simply switching while the dowel router is running. Only one fixing hole is needed to get a perfect fit without alignment.



Section C

04X06 = 24 Marks

Q. 15 Why Lr 32 system is used for cabinet making? Write down the name of its various accessories

Ans. **LR 32 System**

The festool Hole Guide System can be used in basically two modes, free-form and as a 32 mm system hole guide. In free form-form operations, most common use would be to create a series of shelf pin holes in cabinets. The name of the 32 mm system originates from the centre to centre spacing of the holes in the drill pattern. These holes controls the locations of door hinges, drawer glides, other hardware and the locations of the parts that make up the cabinet itself.

Accessories

1. Guide plate
2. Centering mandrel
3. Indexing rail
4. Side stops
5. End stops

Q. 16 How the life of a router bit can be increased? Discuss in detail.

Ans. Router bit selection is based upon several factors such as

1. Cutter shape and size
2. Shank diameter
3. Cutter diameter
4. Cutter length
5. Material of router bit etc.

Material for router bit

1.Tungsten Carbide (HW)

It is best suited for hardwood such as oak, beech etc and men made material such as panels due its less wear and tear tendency.

2.High speed steel(HSS)

It is best suited for soft wood such as pine and spruce and having less life.

1. Overloading
2. Lubrication
3. No of rotation
4. Router bit selection
5. Bit material

Q. 17 Explain the principle of Domino machine. Define its various accessories.

Ans. **Principle**

It states that the simultaneous rotation and pendulum movement of the cutter allows smooth working and creates holes without scorch marks

Accessories

1. Cross Stop
2. Trim Stop
3. Hand Rail Fence
4. Additional fence

Q. 18 Explain the procedure to change the blade of circular saw.

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

1. Take out the Allen key which is placed at the top of the circular saw.
2. Tilt up the fast fix from its position and take the saw blade below from its zero position.
3. Rotate the nut and loosen it
4. Carefully take out the blade from its position.
5. Put the new saw blade according to the work piece.
6. Tight it with the help of Allen key.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration no._____

School of Woodworking Skills

Set-B

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1301 **Time: 2 Hour**
Course Name: Advanced Power Tools **Max. Marks: 50**
Instruction:

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

Section A

10X01 = 10 Marks

Q. 1 Which one of the following machine is used for dry assembley
(A) Circular Saw (B) Jig Saw
(C) Zeta P2 (D) Lamello Classic X

Q. 2 Guide plate is an accessory of
(A) Router (B) Jig Saw
(C) Circular Saw (D) Both A&C

Q. 3 In the given option which accessories prevent the kick back in hand circular saw.
(A) Guide Rail (B) Riving Knife
(C) Side Stops (D) None of these.

Q. 4 Spacer are used in which machine to prevent throughout slot in work piece
(A) Circular Saw (B) Jig saw
(C) Edge Router (D)Lamello

Q. 5 Which of the following diameter of cutter used for 4x20 domino?
(A) 10 mm (B) 4 mm
(C) 8mm (D) 5 mm

Q. 6 LR 32 system is used in which machine
(A) Router (B) Jig Saw
(C) Circular Saw (D) Both A&C

Q. 7 Which one of the following accessories is used with MFS template for making Groove
(A) Guide Rail (B) Coping Ring
(C) Side Stops (D) None of these.

Q. 8 Splinter Guard is an attachment for

(A) Circular saw
(B) Router
(C) Joining machine
(D) None of these.

Q. 9 Dry assembly can be achieved by

(A) Climax
(B) RTA
(C) Fasteners
(D) All of these.

Q. 10 Which one of the following is the maximum depth taken in Domino

(A) 28
(B) 12
(C) 20
(D) None of these.

Section B

04X04 = 16 Marks

Q. 11 Write short notes on machine used for climax assembly.
Q. 12 Why the pendulum adjustment mechanism is done in Jig saw?
Q. 13 Explain the Table router with diagram?
Q. 14 Draw the diagram of router bit with its parts name.

Section C

04X06 = 24 Marks

Q. 15 What are the materials used for router bit? Explain its selection parameters
Q. 16 What is LR 32 system? Write down the working procedure of it.
Q. 17 Why Jig saw machines used. What are the method of guiding the Jig saw?
Q. 18 Explain the principle of Domino machine with diagram and define its various accessories.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer Key

School of Woodworking Skills

Set-B

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Code: SCS1301 **Time: 2 Hour**
Course Name: Advanced Power Tools **Max. Marks: 50**
Instruction:

- Answer all questions from section A, each question carries one mark.
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Section A

10X01 = 10 Marks

Q. 1 Which one of the following machine is used for dry assembley
(A) Circular Saw (B) Jig Saw
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Q. 2 Guide plate is an accessory of
(A) Router (B) Jig Saw
(C) Circular Saw (D) Both A&C Ans. A

Q. 3 In the given option which accessories prevent the kick back in hand circular saw.
(A) Guide Rail (B) Riving Knife
(C) Side Stops (D) None of these. Ans. B

Q. 4 Spacer are used in which machine to prevent throughout slot in work piece
(A) Circular Saw (B) Jig saw
(C) Edge Router (D)Lamello Ans. D

Q. 5 Which of the following diameter of cutter used for 4x20 domino?
(A) 10 mm (B) 4 mm
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Q. 6 LR 32 system is used in which machine
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(C) Fasteners (D) All of these. Ans. D

Q. 10 Which one of the following is the maximum depth taken in Domino

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Section B

04X04 = 16 Marks

Q. 11 Write short notes on machine used for climax assembly

Ans. Function of Zeta P2 are as follows:

1. Automatic Vertical movement create the Profile groove which enables to make the stronger joint.
2. It enables the fast locking system.
3. Easy assembling and disassembling.

Q. 12 Why the pendulum adjustment mechanism is done in Jig saw?

Ans. **Pendulum adjustment**

There are three levels for adjusting the pendulum

1. In gear one the number of stroke is less it is best suited for fine cut and for cutting hard material.
2. In gear two no of stroke is greater it cut fast but we have to compromise in surface finish.
3. In gear three no. of stroke is quite more blade cut more aggressively with poor surface finish.

Q. 13 Explain the Table router with diagram?

Ans. **Push Cutting** Feeding the router in opposite direction of router bit direction is known as push cutting.

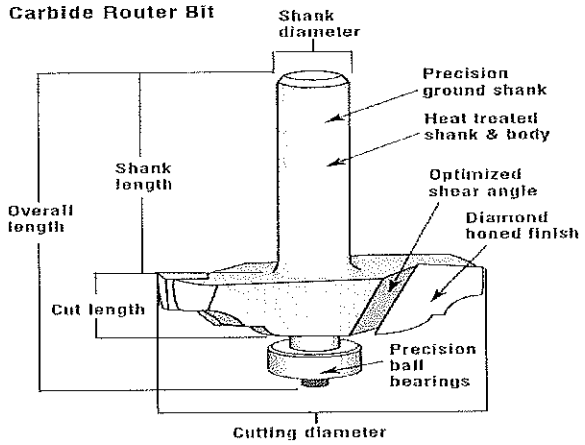
It prevents the Kick back while working exteriorly.

Climb Cutting Feeding the Router in the same direction as the direction of rotation of router bit is known as climb cutting

It is best suited while working interiorly

Q. 14 Draw the diagram of router bit with its parts name.

Ans.



Section C

04X06 = 24 Marks

Q. 15 What are the materials used for router bit? Explain its selection parameters

Ans. Router bit selection is based upon several factors such as

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2. Shank diameter
3. Cutter diameter
4. Cutter length
5. Material of router bit etc.

Material for router bit

1.Tungsten Carbide (HW)

It is best suited for hardwood such as oak, beech etc and men made material such as panels due its less wear and tear tendency.

2.High speed steel(HSS)

It is best suited for soft wood such as pine and spruce and having less life as compare to HW tool.

Q. 16 What is LR 32 system? Write down the working procedure of it.

Ans. **LR 32 System**

The festool Hole Guide System can be used in basically two modes, free-form and as a 32 mm system hole guide. In free form-form operations, most common use would be to create a series of shelf pin holes in cabinets. The name of the 32 mm system originates from the centre to centre spacing of the holes in the drill pattern. These holes controls the locations of door hinges, drawer glides, other hardware and the locations of the parts that make up the cabinet itself.

Accessories

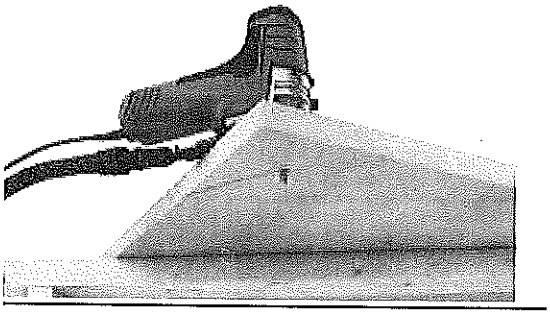
1. Guide plate
2. Centering mandrel
3. Indexing rail
4. Side stops
5. End stops

Q. 17 Why Jig saw machines used. What are the method of guiding the Jig saw?

Ans. **Guiding of the Jig saw:-**

(a) From bottom of the workpiece:- Guide the machine to the bottom of the workpiece,if only one side of a workpiece is visible.The jig saw is usually rotated and inserted from below.In this way,we can see the cutting line when sawing.

(b) From top of the workpiece:- If the quality of the cut does not matter much,it is usually easier to cut at the top.



Q. 18 Explain the principle of Domino machine with diagram and define its various accessories.

Ans. **Principle**

It states that the simultaneous rotation and pendulum movement of the cutter allows smooth working and creates holes without scorch marks

Accessories

1. Cross Stop
2. Trim Stop
3. Hand Rail Fence
4. Additional fence

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

Set – A

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End-Sem. Examination

Course Code: SCS1302 **Time: 2 Hours**

Course Name: Advance Stationary Machines **Max. Marks: 50**

Instruction:

Section – A

10X01 = 10 Marks

Q.1 Which one of the following is controlled on the outfeed table of the surface planner?

(a) Height (b) Depth

(c) Angle (d) All of them

Q.2 Which one of the following is the function of scoring saw blade?

(a) Avoid chip out (b) used to make curves

(c) Used to make a groove (d) None of these

Q.3 Which one the following is the definition of recycling?

(a) Art of making resource into waste (b) Manufacturing new products

(c) Art of making waste into a resource (d) None of these

Q.4 Which one of the following is maximum one-time depth of cut of Thicknesser machine?

(a) 4mm (b) 6mm

(c) 5mm (d) 3mm

Q.5 Which one of the following is an example of fiber board?

(a) MDF (b) LDF

(c) Solid wood (d) Both A& B

Q.6 Which of the Following Tool is used in levelling while installation?

(a) Spirit Level (b) Level bevel

(c) Level Meter (d) Dumpy Level

Q.7 Which one of the following protection hood we used for the straight cut?

(a) Narrow protective hood (b) Small protective hood

(c) Wide protective hood (d) None of these

Q.8 Which one of the following tool can use to check 90 degrees angle on Surface planner?

(a) Angle protector (b) Folding ruler

(c) a & b (d) None of these

Q.9 Which one of the following is Maximum depth of cut on Surface Planner?

(a) 5 mm (b) 8 mm

(c) 3 mm (d) 10 mm

Q.10 Which one of the following is Maximum Angle in Penal Saw?

(a) 45^0 (b) 43^0

(c) 47^0 (d) 40^0

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Section – B

04X04 = 16 Marks

Q.11 Write down the function of the protective hood on the panel saw.

Q.12 Write down the setting of the fence on the surface planner step by step?

Q.13 Define the uses of panel saw machine?

Q.14 Write down the function of riving knife?

Section – C

04X06 = 24 Marks

Q.15 Explain the spindle moulder machine and write down the process of rebate profile?

Q.16 Write down the safe and efficient hand position while working on the surface planner.

Q.17 What are the general safety rules that you should follow in the workshop?

Q.18 Draw a labelled diagram of thickness planer, highlight all the electrical buttons and write down the steps to thickness a work piece to required dimension.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer key

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

Set- A

B. Voc. Program, 3rd Semester,

End-Sem. Examination

Course Code: SCS1302 **Time: 2 Hours**

Course Name: Advance Stationary Machines **Max. Marks: 50**

Instruction:

Section – A

10X01 = 10 Marks

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(a) Avoid chip out (b) used to make curves

(c) Used to make a groove (d) None of these (a)

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(a) Art of making resource into waste (b) Manufacturing new products

(c) Art of making waste into a resource (d) None of these (c)

Q.4 Which one of the following is maximum one-time depth of cut of Thicknesser machine?

(a) 4mm (b) 6mm

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(c) a & b (d) None of these (d)

Q. 9 Which one of the following is Maximum depth of cut on Surface Planner?

(a) 5 mm (b) 8 mm

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Q.10 Which one of the following is Maximum Angle in Penal Saw?

(a) 45^0 (b) 43^0

(c) 47^0 (d) 40^0 (a)

Section – B

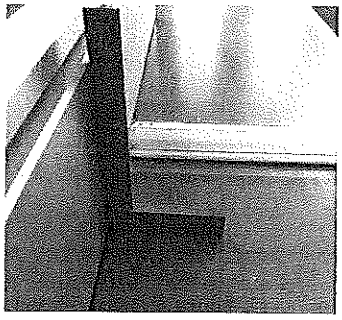
04X04 = 16 Marks

Q.11 Write down the function of the protective hood on the panel saw.
Ans.Protective hood function –

1. Protective hood use protection against contact with the circular saw blade.
2. Preventing a work piece kickback.
3. Protection against splintering wood parts, branches and sawdust extraction of the chips.
4. Sawblade protection hood for straight cut
5. Protection hood for mitre cut

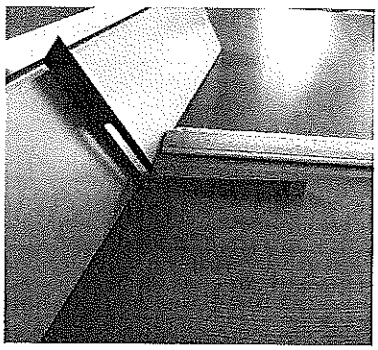
Q.12 Write down the setting of the fence on the surface planner step by step?
Ans. Right angle –

- Suitable for small parts planning right angle the angle stop is set to 90^0 is controlled on the outfeed table with a precise angle.



Bevels –

- Chamfer and sloop planning, the stop is adjusted with the bevel.
- This is controlled on the outfeed table.



Q.13 Define the uses of panel saw machine?
Ans. Panel saws are used by woodworking industry to easily cut panels, profiles, solid-wood, plywood, MDF, laminates, plastic sheets and melamine sheets into sizes or cabinet components. They are also used by sign shops to cut sheets of aluminum, plastic and wood for their sign blanks.

- To change the blade of panel saw first of all push bed of panel saw in forward direction by pressing lever below the bed.
- Open saw carriage and lock spindle by using spindle locking key.
- With the help of spanner unlock nut in cutting direction.
- Change blade and fasten nut.
- Closed saw carriage and pull bed of panel saw back.

Q. 14 Write down the function of riving knife.

Ans.

- The riving knife is fastened behind the saw blade.
- Its keeps the kerf open in separating cuts.
- If the riving knife is missing, the joint can be closed by the compression in the wood.
- Riving knife allows the ascending part of the sprocket to grasp the work piece.
- Riving knife must be thinner than the cutting width (tooth thickness) of the cutting blade.

Section – C

04X06 = 24 Marks

Q.15 Explain the spindle moulder machine and write down the process of rebate profile?

Ans. Spindle moulder are heavy duty machines that are used for the trimming and shaping of wood. Spindle Moulder make shapes, rebates and grooves on the edge of wood, composites or plastics. The machines have either fixed spindles or tilting shafts - tilting spindles give the operator more possibilities for profiling and machining.

- switch on the power supply of machine.
- Turn on safety button.
- Change the tool if required.
- Change the spindle rpm according to the tool.
- Adjust the height according to operation.
- Select the piece on which we are going to make the rebate.
- Adjust all the safety guard according to operation.
- turn off the safety button
- Switch on the machine.
- Start the operation and check the width and depth of rebate.
- Complete the rebate and check the dimension.

Note: -

- Wear all the safety equipment during the whole process.
- Check all locks before turning on the machine.
- Use all the safety gears.

Check that nobody is standing behind the machine.

Q.16 Write down the safe and efficient hand position while working on the surface planner.

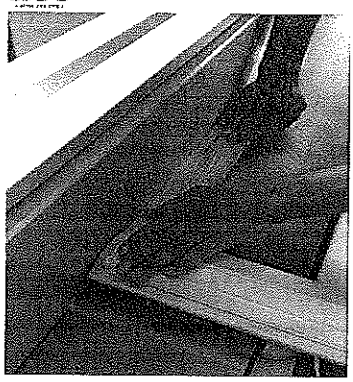
Ans.

Safe and efficient work –

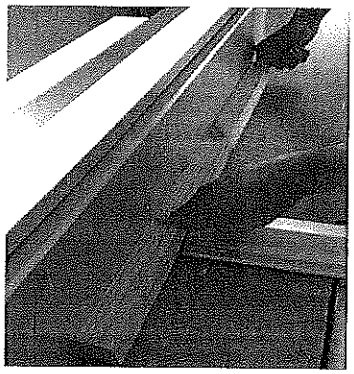
- Hand position
- Pressure distribution

Hand position when planning –

- When planning the wood, the hand should be open and flat on the work piece.
- The fingers are closed.
- The concave side of the work piece placed on the feed table.



Hand position when planning –
When planning wood, the thumbs are on the top edge and the other fingers rolled and the push the work piece against the stop.



Pressure distribution –
When planning the work piece, the pressure on the work piece should be on the dressing table.

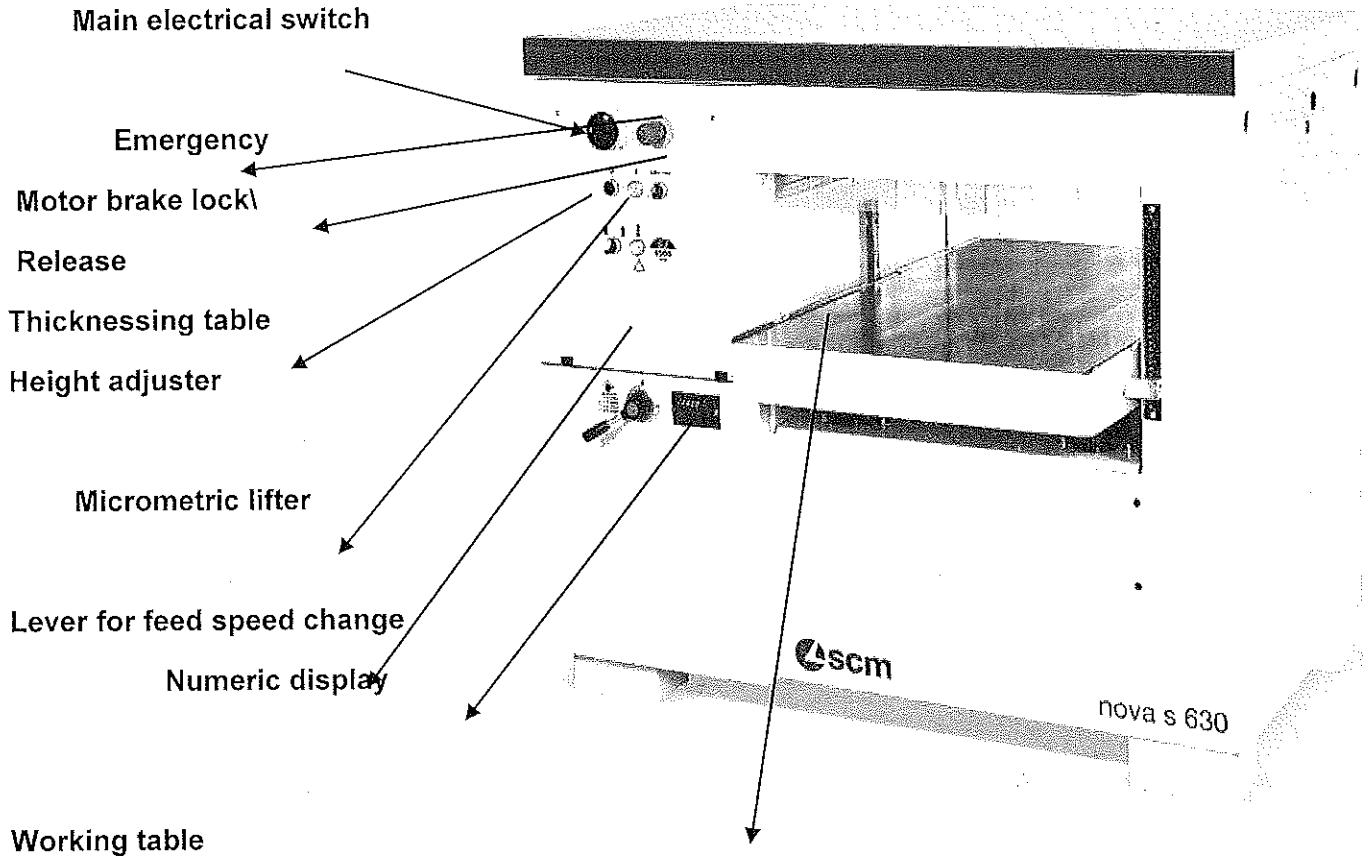
Q.17 What are the general safety rules that you should follow in the workshop?

Ans. General information about safety rules -
Before attempting any work or using any power tool or machines there are general safety rules which everyone should follow in order to keep himself and others safe in workshop.

- Always listen carefully to the trainer and follow instructions.
- Do not run in the workshop, you could 'bump' into another and cause an accident.
- Know where the emergency stop buttons are positioned in the machines. If you see an accident, happening you can use the emergency stop button to stop the machine.
- Always wear safety shoes in the workshop.
- When learning how to use a machine, listen very carefully to all the instructions given by the trainer. Ask questions, especially if you do not fully understand.
- Do not use a machine if you have not been shown how to operate it safely by the trainer.
- Always carry ear plug to the training center.
- Always use ear plug when working on a machine.
- Keep hands away from moving/rotating machinery.
- Use hand tools carefully, keeping both hands behind the cutting edge.

Report any damage to machines/equipment as this could cause an accident.

Q.18 Draw a labelled diagram of thickness planer, highlight all the electrical buttons and write down the steps to thickness a work piece to required dimension.



Working table

- Make sure that top cover is closed.
- Make sure that the emergency button is released; otherwise turn them in the arrow direction.
- Make sure that the dust collector is on.
- Turn main switch on.
- Turn starter to star position, after some second turn it to delta position.
- To lift or to lower the thicknessing table operate on selector, the table moves at high speed to the direction indicated by the selector.
- Reach the right position with micrometric shiftments of the thicknessing table by pressing button, which will carry shiftments at low speed only upwards.
- Place the work piece to the working table.

Machine the work piece until the required dimension is achieved.

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Registration No.: .....

Set – b

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End-Sem. Examination

Course Code: SCS1302 **Time: 2 Hours**

Course Name: Advance Stationary Machines **Max. Marks: 50**

Instruction:

Section – A

10X01 = 10 Marks

Q.1 Which one of the following is the correct number of spindles in multiboring?

(a) 11 (b) 21

(c) 32 (d) All of them

Q.2 Which one of the following saw blade is used for both solid wood & panel?

(a) Solid crosscut (b) Solid wood along the grains

(c) Universal (d) None of these

Q.3 What is the maximum width of work piece to be machined in Thickness planner?

(a) 620 (b) 630

(c) 530 (d) None of these

Q.4 Which color coated tool bit rotates in clockwise direction?

(a) Red (b) black

(c) both a & b (d) None of these

Q.5 Which one of the following is the part of panel saw?

(a) Crosscut fence (b) Angle cut fence

(c) Main head (d) Both A & b

Q.6 Multiboring machine drill head is rotate in 45 degree is true and false?

(a) False (b) True

Q.7 Which one of the following machines can make two face 90 degree?

(a) Surface planner (b) Panel saw

(c) Band saw (d) None of these

Q.8 Which one of the following tool can use to check 90 degrees angle on Surface planner?

(a) Try square (b) Folding ruler

(c) Angle protector (d) None of these

Q.9 Which one of the following is the distance between riving knife and main saw in panel saw machine?

(a) 8-10 (b) 1-2

(c) 5-8 (d) 3-5

Q.10 Which one of the following protection hood we used for the miter cut?

(a) Narrow protective hood (b) Small protective hood

(c) Wide protective hood (d) None of these

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Section – B

04X04 = 16 Marks

Q.11 Explain the process of setting horizontal position of multiboring?

Q.12What is the difference between a Hot press and cold press machine and use of this machine?

Q.13 Explain Crosscut fence and Extraction hood in Panel Saw?

Q.14 Write down the steps to make a circle on panel saw machine?

Section – C

04X06 = 24 Marks

Q.15 Define the multiboring and mortiser machine and write down its four parts name?

Q.16 Define the uses of band saw machine and write down blade changing process?

Q.17 Explain the spindle moulder machine and write down the process of rebate profile?

Q.18 Define the uses of panel saw machine and explain the process of blade changing?

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Answer key

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End-Sem. Examination

Set-B

Course Code: SCS1302 **Time: 2 Hours**

Course Name: Advance Stationary Machines **Max. Marks: 50**

Instruction:

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(c) 32 (d) All of them (b)

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(a) 620 (b) 640

(c) 530 (d) None of these (d)

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(c) 5-8 (d) 3-5 (c)

Q.10 Which one of the following protection hood we used for the miter cut?

(a) Narrow protective hood (b) Small protective hood

(c) Wide protective hood (d) None of these (c)

Section – B

04X04 = 16 Marks

Q.11 Explain the process of setting horizontal position of multiboring?

Ans.

- First of all, check for object or people in the overturning area.
- Pull the presser-holder bar back, loosening the handles.
- Pull the front stops back, loosening the handles.
- Loosen the lever.
- Keep the selector running until it reached the position and will the other hand keep pressing the release button until the position is reached.
- When the position is reached, tighten the lever again.

Q.12 What is the difference between a Hot press and cold press machine and use of this machine?

Ans. Both cold presses and hot presses are used for flattening, bonding, veneering and pressing of sheets. As the name implies, the cold press is only pressed at room temperature, and the hot press can heat the sheet, the temperature can be up to 300 degrees, and the flatness of the hot press is higher.

- It is used to press laminate with mdf.
- It is used to press laminate with particleboard.
- It is used to press veneer with ply board.
- It is used to press veneer together.
- It is used for doors.
- It is used for pressing solid wood.

Q. 13 Explain Crosscut fence and Extraction hood in Panel Saw.

Ans. **Crosscut fence** - The robustly mounted crosscut fence enables precise cutting of 90 degree angles. All setting is easy to read off the slanted scales. The flip stops are robust, free of play and are easy to slide individually along the full crosscutting range.

Extraction hood - The riving knife mounted protection and extraction hood allows a maximum saw blade diameter of 315mm with a maximum cutting height of 82mm.

Q.14 Write down the steps to make a circle on panel saw machine?

- Ans. First of all make a template with a square solid wood stripe and a ply board 300*300 to fixit on panel saw table grove. Then start the machine and make a straight cut.
- Then draw a line across the panel and half of the board. And make a drill in center of panel board. After that take a MDF board according to your circle raids and make a hole in center. and put the MDF on template with matching the center hole.

- Then start the machine or cut first four big corners with clockwise rotation. Then do the same repetition for cut the new corner one by one. After that you have a multi corner then you have to fix the templet in one position and rotate the work piece and take a complete round circle.

Section – C

04X06=24Marks

Q.15 Define the multiboring and mortiser machine and write down its four parts name?

Ans. Multiboring machine is generally use for drilling on the panels and grooves for drawers. Its works on laminated and non-laminated board, particle board, pvc board, melamine products, MDF board, HDF board, ply board, block board, etc.

- On/off button
- Pneumatic pedal
- Head speed adjuster
- Overturning leave button

Mortiser machine is generally use for cut mortises, or slots, in wood for mortise and tenon joints. A mortising machine is a specialized woodworking tool used for cutting square or rectangular mortises, or recesses, into wood.

- Width adjuster lever
- Depth adjuster lever
- Height adjuster gauge
- Work piece holder

Q.16 Define the uses of band saw machine and write down blade changing process?

Ans. The Band saw is one of the powerful cutting saws. With the longer & sharper blade, it helps to cut in metals, woods, or lumber. It features uniform cutting action, distributed tooth load, irregular or curved cutting shapes.

- Before making any adjustments to your band saw, always ensure that you disconnect it from the power source.
- open the machine, loosen the band saw blade guides, and release the tension on the old blade. Most machines have a specialized lever for this very purpose.
- Remove the old blade and tie it up so that it can't cause harm.
- Hold the blade in line with the guide bearings on the saw and tighten the tension so that it gets tight enough that you don't need to hold it in place.
- Once you've achieved this tightness, you can then tighten the blade completely.
- Reverse the previous steps and close your machine, again adjusting your blade guides to their required setting.
- Before beginning any of your work, be sure to test that your blade is working correctly with a trial run on some spare material.

Q.17 Explain the spindle moulder machine and write down the process of rebate profile?

Ans. Spindle moulder are heavy duty machines that are used for the trimming and shaping of wood. Spindle Moulder make shapes, rebates and grooves on the edge of wood, composites or plastics. The machines have either fixed spindles or tilting shafts - tilting spindles give the operator more possibilities for profiling and machining.

- switch on the power supply of machine.
- Turn on safety button.
- Change the tool if required.
- Change the spindle rpm according to the tool.
- Adjust the height according to operation.
- Select the piece on which we are going to make the rebate.
- Adjust all the safety guard according to operation.
- turn off the safety button
- Switch on the machine.
- Start the operation and check the width and depth of rebate.
- Complete the rebate and check the dimension.

Note: -

- Wear all the safety equipment during the whole process.
- Check all locks before turning on the machine.
- Use all the safety gears.

Check that nobody is standing behind the machine.

Q.18 Define the uses of panel saw machine and explain the process of blade changing?

Ans. Panel saws are used by woodworking industry to easily cut panels, profiles, solid-wood, plywood, MDF, laminates, plastic sheets and melamine sheets into sizes or cabinet components. They are also used by sign shops to cut sheets of aluminum, plastic and wood for their sign blanks.

- To change the blade of panel saw first of all push bed of panel saw in forward direction by pressing lever below the bed.
- Open saw carriage and lock spindle by using spindle locking key.
- With the help of spanner unlock nut in cutting direction.
- Change blade and fasten nut.
- Closed saw carriage and pull bed of panel saw back.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set- A

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: SCS1303 **Time: 2 Hour**

Course Name: Advance Assembly and Fittings **Max. Marks: 50**

Instruction:

Section – A

10X01 = 10 Marks

Q.1 Which one of the following Concealed hinge is used for individual cabinets?

(a) half overlay hinge (b) a & c

(c) inset hinge (d) none of them

Q. 2. Which one of the following joints is called Dovetail joint?

(A) The mortise hole and the tenon tongue

(B) The pins and tails have a trapezoidal shape.

(C) joint in which the members overlap

(D) None of these

Q. 3 Which one of the following known as detachable connection fittings

(a) Clamax (b) knob lock

(c) Domino (d) Lamello

Q. 4 Which one of the following screws is example of Spacer screw?

(A) 

(B) 

(C) 

(D) 

Q. 5 Which one of the following fastener is used to hang shelf in cabinet?

(A) Screw (B) Shelf support

(B) Hinges (C) None of these

Q. 6 Which kind of Clamax is used for 10 mm MDF Sheet?

(A P15 (B) P14

(C) P12 (D) None of them

Q. 7 Which one of the following is the use of magnet catchers?

(A) For keeping door open (B) For keeping door close

(B) For soft closing (C) None of these

Q. 8 Standard distance between two holes in adjustable shelf of a cabinet?

(A) 30 mm (B) 42 mm

(C) 37mm (D) None of them

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Q. 9 Which one of the following sign is helpful in assembly?

(A) snake line
(B) circle mark
(C) Tringle sign
(D) None of these

Q. 10 Which one of the following fitting is permanent fitting?

(A) Clamex P – 14
(B) Clamex P - 15
(C) Lamello Biscuits
(D) Knock down fitting

Section – B

04X04 = 16 Marks

Q. 11 Explain any two types of hinges with figure.
Q. 12 Write short note on following
a) Climax
b) Biscuit
Q. 13 What is furniture fittings?
Q. 14 Describe the following with diagram
a) Lap Joint
b) Mortise and tenon

Section – C

04X06 = 24 Marks

Q. 15 Explain the Knock down fitting with diagram
Q. 16 What is concealed hinges? Explain the inset hinge with figure.
Q. 17 Explain the step to make a cabinet with all dimensional parameters.
Q. 18 What is runner? Write down its uses.

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Set A- Answer

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: SCS1303 **Time: 2 Hour**

Course Name: Advance Assembly and Fittings **Max. Marks: 50**

Instruction:

Section – A

10X01 = 10 Marks

Q.1 Which one of the following Concealed hinge is used for individual cabinets? (d)

(a) half overlay hinge (b) a & c

(c) inset hinge (d) none of them

Q. 2. Which one of the following joints is called Dovetail joint? (b)

(A) The mortise hole and the tenon tongue

(B) The pins and tails have a trapezoidal shape.

(C) joint in which the members overlap

(D) None of these

Q. 3 Which one of the following known as detachable connection fittings (a)

(a) Clamax (b) knob lock

(c) Domino (d) Lamello

Q. 4 Which one of the following screws is example of Spacer screw? (c)

(A) 

(B) 

(C) 

(D) 

Q. 5 Which one of the following fastener is used to hang shelf in cabinet?

(A) Screw (B) Shelf support (b)

(B) Hinges (C) None of these

Q. 6 Which kind of Clamax is used for 10 mm MDF Sheet? (d)

(A P15 (B) P14

(C) P12 (D) None of them

Q. 7 Which one of the following is the use of magnet catchers? (b)

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(B) For soft closing (C) None of these

Q. 8 Standard distance between two holes in adjustable shelf of a cabinet? (d)

(A) 30 mm (B) 42 mm

(C) 37mm (D) None of them

Q. 9 Which one of the following sign is helpful in assembly? (c)

(A) snake line (B) circle mark

(C) Tringle sign (D) None of these

Q. 10 Which one of the following fitting is permanent fitting? (c)

(A) Clamex P – 14 (B) Clamex P - 15

(C) Lamello Biscuits (D) Knock down fitting

Section – B

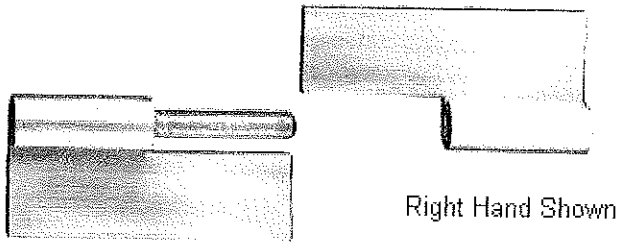
04X04 = 16 Marks

Q. 11 Explain any two types of hinges with figure.

Ans.

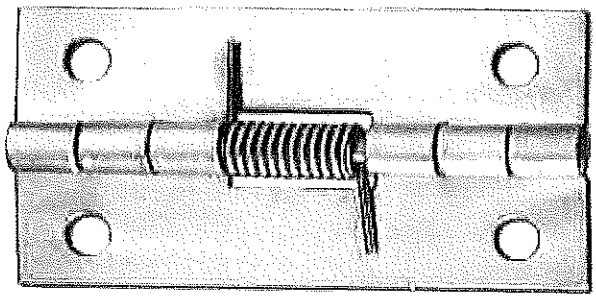
Slip Hinge -

Slip_hinges are great for removable door or lid applications. Typical applications are cabinets, control boxes and computer housings where easy, full access to the interior is required.



Spring Hinge -

Spring_hinges are ideal for applications that require holding doors and lids in an open or closed position.



Q. 12 Write short note on following

a) Climax

b) Biscuit

Ans.

A) Climax -These are the detachable connecting fittings.

- Clamex P is a detachable furniture fitting on the basis of the P-System is connected with a lever.
- Clamex P is not required glue
- Practically wear-free knock down fitting
- General sizes of Biscuits are –
  i. Clamex P 10 – 52 x 19 x 9.7 mm
  ii. Lamello 10 – 66 x 27 x 9.7 mm

B) A biscuit joiner is a wood working tool used to join two pieces of wood together. A biscuit joiner uses a small circular saw blade to cut a crescent-shaped hole (called the mouth) in the opposite edges of two pieces of wood or wood composite panels.

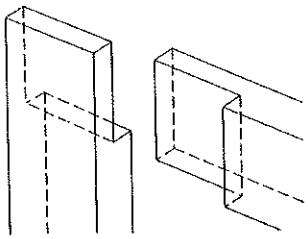
Q. 13 What is furniture fittings?

Ans.
Furniture hardware are those products that are used to support the furniture look, design and durability. Furniture hardware products include furniture frames, furniture legs, furniture arms, windows, doors, and cabinets etc. Common examples include hinges, handles.

Q. 14 Describe the following with diagram
a) Lap Joint
b) Mortise and tenon

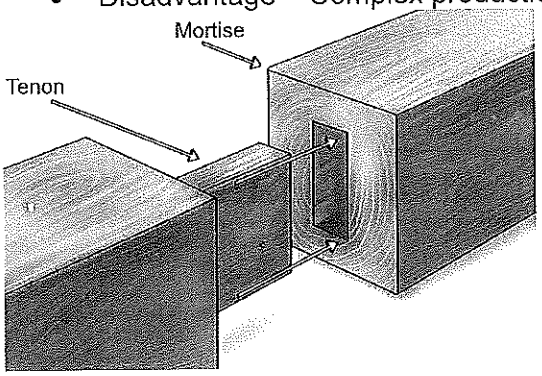
Ans.
a) Lap Joint- A lap joint or overlap joint is a joint in which the members overlap.

- Lap joints can be used to join wood, plastic, or metal. A lap joint may be a full lap or half lap.
- In a half lap joint or halving joint, material is removed from both of the members so that the resulting joint is the thickness of the thickest member.
- Advantage – Simple production
- Disadvantage – Low strength joint



b) Mortise and tenon - A mortise and tenon joint is a type of joint that connects two pieces of wood at an angle of 90

- Mortise and tenon are two components: the mortise hole and the tenon tongue.
- The tenon is cut to fit the mortise hole exactly and usually has shoulders that seat when the joint fully enters the mortise hole. The joint may be glued, pinned, or wedged to lock it in place.
- Advantage – Very good strength for heavy doors and gates
  - It is both simple and strong
- Disadvantage – Complex production while mortise hole



Section – C

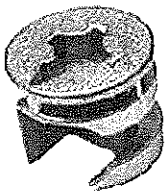
04X06 = 24 Marks

Q. 15 Explain the Knock down fitting with diagram

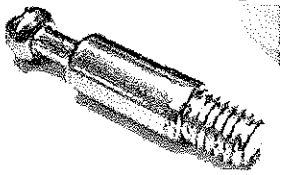
Ans.
Ready to Assembly fitting (RTA) - It is ready to assemble fitting which is also known as knock down fitting, it come with the assembly of three parts,

a. Cam - The disk fits into a recess in the first side of the cabinet. It rotates by inserting a screwdriver into the slot in its side. The shaft is screwed into the

second side of the cabinet. The collar of the shaft is passed through the hole in the second slot in the disk. When the disk rotates the shaft is locked in position. This keeps both sides of the cabinet locked together.



b. Connecting Screw – Connecting screw is a cylindrical screw which have two ends and one of the end inserts in the socket and another end inserts in the cam. It is used to connect joint and to give strength to it.



c. Socket – Socket is assembled in second part of assembly. It is used to provide grip to the connecting screw.

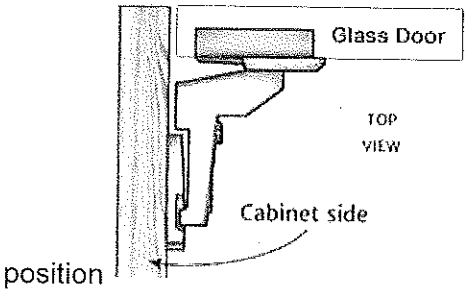
Q. 16 What is concealed hinges? Explain the inset hinge with figure.

Ans.

Concealed hinges - are fully concealed behind the cabinet door, so they're not visible when the door is closed. They're self-closing and usually easily adjustable. They are the most common used of the cabinet door hinges. The mounting plate is fitted to the cabinet and a special bit is used to drill out the back of the door to take the cup hinge. products are made of materials like plastics, metals and may be glasses.

Inset hinge - This hinge is the type of Concealed hinge, inset doors fit entirely within the cabinet opening and sit flush with the cabinet sides or face frames when in the closed position.

Inset Cabinet



Q. 17 Explain the step to make a cabinet with all dimensional parameters.

Ans.

1. First collect all tools that are required like screw driver, Cordless drill, screw according to the cabinet wall and measuring instruments.
2. Take the measurement of the cabinet and drawer.

3. According to the measurement of the drawer and cabinet select drawer runner. Runner length must be shorter than the length of drawer.
4. Bearing runner are generally attached to the bottom of drawer because it gives more load capacity.
5. Marking on cabinet walls and attach the half part of runner with screw on wall.
6. Now start marking other half part of the runner, while marking maintain the distance of runner from front part.
7. Attach the other half part on bottom of drawer runner with screw.
8. After that insert runner inside with force, after complete assembly we can adjust the height of rawer with the help of screws.

Q. 18 What is runner? Write down its uses.

Ans.

Runners & its application –
Drawer runners are small devices that are used to facilitate fluid motion during opening and closing.

- The simplest drawer runners had a small set of wheels that are attached to the external sides of the drawer.
- Within the base cabinet frame where the drawer is set, a small guiding track will be installed to accept the wheels of the drawer.
- Drawer slides use guides, bearings, or rollers to support drawers and facilitate their motion. They provide smooth action and high lateral stability.
- There are many different types of drawer slides. Examples include:
    - heavy duty drawer slides
    - ball bearing drawer slides
    - full extension drawer slides
    - plastic drawer slides

Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Woodworking Skills

Session: 2021-22 (Winter Semester) Set b

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1303 **Time: 2 Hour**
Course Name: Advanced Assembly and Fittings **Max. Marks: 50**
Instruction:

Section – A

10X01 = 10 Marks

Q.1 Which one of the following Concealed hinge is used for individual cabinets?

(a) half overlay hinge (b) full overlay hinge

(c) inset hinge (d) all of them

Q. 2 Which one of the following is the Concealed hinge mounted on middle partition of the cabinet?

(a) half overlay hinge (b) full overlay hinge

(c) inset hinge (d) but hinge

Q. 3 Which one of the following lock used for external door?

(a) Mortise Lock (b) cam lock

(c) pad lock (d) knob lock

Q. 4 Which one of the following lock is not permanently attached to anything else?

(a) Mortise Lock (b) cam lock

(c) pad lock (d) knob lock

Q. 5 Which one of the following runner mounted on the bottom edge of each drawer side?

(a) nylon runner (b) steel ball bearing runner

(c) soft close runner (d) None of them

Q. 6 Which one of the following Clamax is used for 10 mm MDF Sheet.

(A P10 (B) P14

(C) P12 (D) P15

Q. 7 Which one of the following is a function of the runner?

(A) used to facilitate fluid motion during opening and closing.

(B) it is produce friction

(C) it provide hard opening

(D) None of them

Q. 8 Which one of the following value is standard distance between two holes in adjustable shelf of a cabinet?

(A) 30 mm (B) 32 mm

(C) 37mm (D) 33 mm

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Q. 9 Which one of the following sign is not helpful in assembly?

(A) snake line (B) circle mark

(C) Cross sign (D) None of these

Q. 10 Which one of the following fitting is not a permanent fitting?

(A) Clamex P – 14 (B) Clamex P - 15

(C) Knock down fitting (D) None of these

Section – B

04X04 = 16 Marks

Q. 11 What is furniture fittings? Write down the significance of runner and hinge.

Q. 12 Explain the any two types of hinges with figure.

Q. 13 Write short note on following

a) Mortise

b) Cam

Q. 14 Describe the following with diagram

a) Butt Joint

b) Tenon Mortise

Section – C

04X06 = 24 Marks

Q. 15 Explain the procedure to install butt hinges.

Q. 16 What is runner? Write down its function.

Q. 17 What is concealed hinges? Explain the half overlay hinge with figure.

Q. 18 Explain the RTA and fasteners with diagram

Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Woodworking Skills

Session: 2021-22 (Winter Semester) **Set b- Answer**

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1303 **Time: 2 Hour**
Course Name: Advanced Assembly and Fittings **Max. Marks: 50**
Instruction:

Section – A

10X01 = 10 Marks

Q.1 Which one of the following Concealed hinge is used for individual cabinets? (b)

(a) half overlay hinge (b) full overlay hinge

(c) inset hinge (d) all of them

Q. 2 Which one of the following is the Concealed hinge mounted on middle partition of the cabinet? (a)

(a) half overlay hinge (b) full overlay hinge

(c) inset hinge (d) but hinge

Q. 3 Which one of the following lock used for external door? (c)

(a) Mortise Lock (b) cam lock

(c) pad lock (d) knob lock

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Q. 5 Which one of the following runner mounted on the bottom edge of each drawer side?

(a) nylon runner (b) steel ball bearing runner (c)

(c) soft close runner (d) None of them

Q. 6 Which one of the following Clamax is used for 10 mm MDF Sheet. (a)

(A P10 (B) P14

(C) P12 (D) P15

Q. 7 Which one of the following is a function of the runner? (a)

(A) used to facilitate fluid motion during opening and closing.

(B) it is produce friction

(C) it provide hard opening

(D) None of them

Q. 8 Which one of the following value is standard distance between two holes in adjustable shelf of a cabinet? (b)

(A) 30 mm (B) 32 mm

(C) 37mm (D) 33 mm

Q. 9 Which one of the following sign is not helpful in assembly? (d)

(A) snake line (B) circle mark

(C) Cross sign (D) None of these

Q. 10 Which one of the following fitting is not a permanent fitting? (d)

(A) Clamex P – 14 (B) Clamex P - 15

(C) Knock down fitting (D) None of these

Section – B

04X04 = 16 Marks

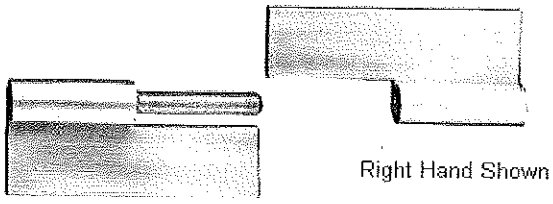
Q. 11 What is furniture fittings? Write down the significance of runner and hinge.
Ans.

Furniture hardware are those products that are used to support the furniture look, design and durability. Furniture hardware products include furniture frames, furniture legs, furniture arms, windows, doors, and cabinets etc. Common examples include hinges, handles.

significance of hinge- A hinge is a mechanical bearing that connects two solid objects, typically allowing only a limited angle of rotation between them. Two objects connected by an ideal hinge rotate relative to each other about a fixed axis of rotation: all other translations or rotations being prevented, and thus a hinge has one degree of freedom.

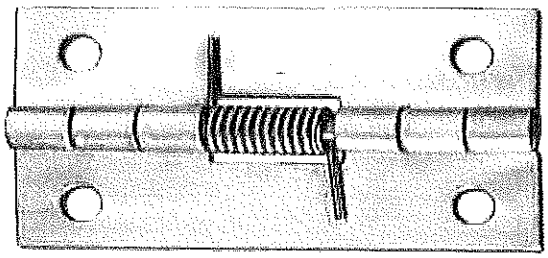
significance of runner - Drawer runners are small devices that are used to facilitate fluid motion during opening and closing.

Q. 12 Explain the any two types of hinges with figure.
Ans.
Slip Hinge -
Slip_hinges are great for removable door or lid applications. Typical applications are cabinets, control boxes and computer housings where easy, full access to the interior is required.



Spring Hinge -

Spring_hinges are ideal for applications that require holding doors and lids in an open or closed position.



BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q. 13 Write short note on following
a) Mortise
b) Cam

Ans.

(a) Mortise Locks -

Mortise locks are powerful locks used on external doors. However, they are available in both light and heavy duty models. They are comprised of an internal system which makes them more of locksets than just locks. These locksets can house either knobs or levers and are often comprised of a cylindrical body. They are threaded and utilize mortise components added within the door.

(b) Cam Locks -

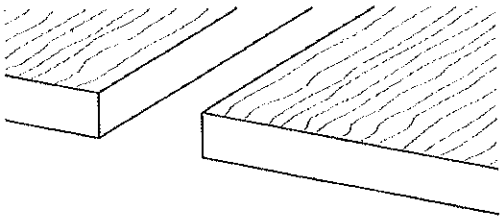
Cam locks are used in a variety of applications but are most frequently found in filing cabinets, mailboxes, and lower security OEM applications. They come in several different lengths and can use a variety of tail pieces or "cams" to interface with another locking mechanism. There is a very large variety of cam options.

Q. 14 Describe the following with diagram
a) Butt Joint
b) Tenon Mortise

Ans.

a) Butt Joint –

- A butt joint is a technique in which two pieces of material are joined by simply placing their ends together without any special shaping.
- The butt joint is the simplest joint to cutting the wood to the appropriate length and butting them together by glue with holding together.
- The parts must be precisely equal in order to achieve good joint. Generally used to make board wider.
- It can be stronger if we are using some fasteners screws, nails, dowels etc.
- Advantage – Fast and easy joining
- Disadvantage – Limited strength
    - The work parts slip easily when pressing parts.



b) Tenon and mortise joints –

- A mortise and tenon joint is a type of joint that connects two pieces of wood at an angle of 90
- Mortise and tenon are two components: the mortise hole and the tenon tongue.
- The tenon is cut to fit the mortise hole exactly and usually has shoulders that seat when the joint fully enters the mortise hole. The joint may be glued, pinned, or wedged to lock it in place.
- Advantage – Very good strength for heavy doors and gates
    - It is both simple and strong
- Disadvantage – Complex production while mortise hole

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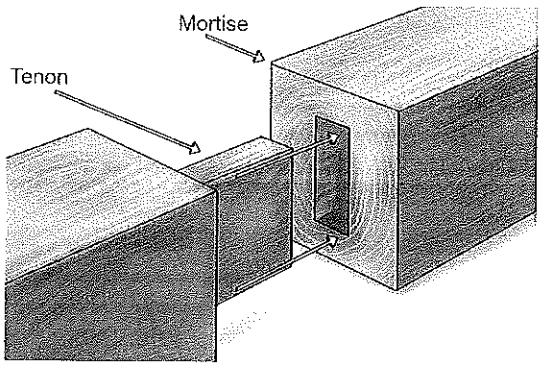


Section – C

04X06 = 24 Marks

Q. 15 Explain the procedure to install butt hinges.

ans.

Process to Instal butt hinge -.

1.First we have to select the mating parts by hinges and accordingly no of hinges we have to decide.

2.Mark the dimension on work piece according to the hinge plate thickness, width and length on door as well as frame.

3.Measure the knuckle & hinge plate thickness and make routing according to that for material removing in both parts.

4.Check the slot depth and insert hinge in both groove and mark screw position and drilling as screw dimensions.

5.After that we have to assemble mating parts with hinges with screws. Check the required functioning requirement.

Q. 16 What is runner? Write down its function.

Ans.

Drawer runners are small devices that are used to facilitate fluid motion during opening and closing.

- The simplest drawer runners had a small set of wheels that are attached to the external sides of the drawer.
- Within the base cabinet frame where the drawer is set, a small guiding track will be installed to accept the wheels of the drawer.
- Drawer slides use guides, bearings, or rollers to support drawers and facilitate their motion. They provide smooth action and high lateral stability.
- There are many different types of drawer slides. Examples include:
    - heavy duty drawer slides

Q. 17 What is concealed hinges? Explain the half overlay hinge with figure.

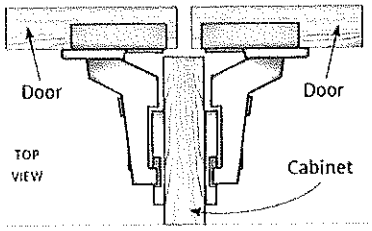
Ans.

Concealed hinges -

Concealed hinges are fully concealed behind the cabinet door, so they're not visible when the door is closed. They're self-closing and usually easily adjustable. They are the most common used of the cabinet door hinges. The mounting plate is fitted to the cabinet and a special bit is used to drill out the back of the door to take the cup hinge.

Half overlay hinge –

Half overlay hinges are intended for pairs of doors in the middle of a run of cabinets, where two doors have their hinges mounted on opposite sides of a shared middle partition.

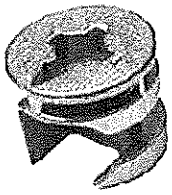


Q. 18 Explain the RTA and fasteners with diagram

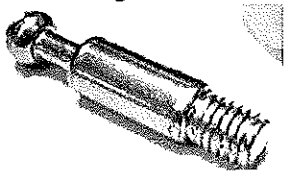
Ans.

Ready To Assembly fitting (RTA) - It is ready to assemble fitting which is also known as knock down fitting, it come with the assembly of three parts,

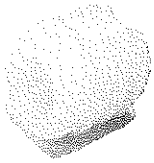
a. Cam - The disk fits into a recess in the first side of the cabinet. It rotates by inserting a screwdriver into the slot in its side. The shaft is screwed into the second side of the cabinet. The collar of the shaft is passed through the hole in the second slot in the disk. When the disk rotates the shaft is locked in position. This keeps both sides of the cabinet locked together.



b. Connecting Screw – Connecting screw is a cylindrical screw which have two ends and one of the end inserts in the socket and another end inserts in the cam. It is used to connect joint and to give strength to it.



c. Socket – Socket is assembled in second part of assembly. It is used to provide grip to the connecting screw.



BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set - A

Registration No_____

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1304
Course Name: Carpenter Mathematics

Time: 2 Hour
Max. Marks: 50

Instruction:

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

Section A

10x1=10 marks

Q. 1 Share is bought on which value

(a) Market Value
(b) Registered Value
(c) Face Value
(d) None of these

Q. 2 Dividend is calculated on which

(a) Face Value
(b) Market Value
(c) Both a & b
(d) II, IV quadrants

Q. 3 What will be the total surface area of a cube of side 6cm in m^2

(a) 36
(b) 216
(c) 64
(d) 0.0216

Q. 4 The Volume of a cylinder having radius 7 cm and height 10cm would be in cm^3

(a) 748
(b) 1540
(c) 440
(d) None of them

Q. 5 Dividend of one share of Rs 100 at 10% per annum is available at a premium of Rs 20

(a) 10
(b) 12
(c) 6
(d) 20

Q. 6 The plane which consists of two number lines that intersect each other at right angle is called:

(a)Functional plane
(b) Cartesian plane
(c)Ordinate plane
(d) Dimensional plane

Q. 7 General notation for Cylindrical coordinates system is:

(a) (x,y,z) (b) $(r, \theta, \emptyset)$

(c) (r, θ, z) (d) None of these

Q. 8 If a share of NV of Rs 20 is selling at Rs 30then:

(a) the share is at a premium of Rs 10 (b) discounted at Rs.10.

(c) at par. (d) None of these.

Q. 9 Location of the point (2, 4) and (8, -8) in cartesian coordinates:

(a) I, II quadrants (b) III, IV quadrants

(c) II, III quadrants (d) II, IV quadrants

Q. 10 sec(90-A) is

(a)sin A (b) tan A

(c) cosec A (d) None

Section – B

04X04 = 16 Marks

Q. 11 A rectangular piece of paper 11 cm × 4 cm is folded without overlapping to make a cylinder of height 4 cm. Find the volume of the cylinder.

Q. 12 Calculate the money required to buy: (i) 400, Rs 30 shares at a premium of Rs 7. (ii) 375, Rs 60 shares at a discount of Rs 10.

Q. 13 Given Cot A =3/4
find the other
trigonometric ratios of the angle A.

Q. 14 Show that the points (1, 7), (4, 2), (–1, –1) and (– 4, 4) are the vertices of a square.

Section – C

04X06 = 24 Marks

Q. 15 Evaluate

a.) tan 65°/cot 25°

b.) If sin 3A = cos (A – 26°), where 3A is an acute angle, find the value of A

Q. 16 We have the point (3, 30°, 6) in cylindrical coordinates. What is its equivalence in Cartesian coordinates and also plot it in diagram?

Q.17 In a building there are 24 cylindrical pillars. The radius of each pillar is 28 cm and height is 4 m. Find the total cost of painting the curved surface area of all pillars at the rate of 8 per m^2

Q. 18 Consider Δ ACB, right-angled at C, in which AB = 29 units, BC = 21 units and ∠ ABC = θ (see Fig. 8.10). Determine the values of

(i) $\cos^2 \theta + \sin^2 \theta$

(ii) $\cos^2 \theta - \sin^2 \theta$.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set A

Answer Key

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1304 **Time: 2 Hour**
Course Name: Carpenter Mathematics **Max. Marks: 50**
Instruction:

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

Section A

10x1=10 marks

Q. 1 Share is bought on which value

(a) Market Value (b) Registered Value

(c) Face Value (d) None of these Ans. (a)

Q. 2 Dividend is calculated on which

(a) Face Value (b) Market Value

(c) Both a & b (d) II, IV quadrants Ans. (a)

Q. 3 What will be the total surface area of a cube of side 6cm in m^2

(a) 36 (b) 216

(c) 64 (d) 0.0216 Ans. (d)

Q. 4 The Volume of a cylinder having radius 7 cm and height 10cm would be in cm^3

(a) 748 (b) 1540

(c) 440 (d) None of them Ans. (c)

Q. 5 Dividend of one share of Rs 100 at 10% per annum is available at a premium of Rs 20

(a) 10 (b) 12

(c) 6 (d) 20 Ans. (a)

Q. 6 The plane which consists of two number lines that intersect each other at right angle is called:

(a)Functional plane (b) Cartesian plane

(c)Ordinate plane (d) Dimensional plane Ans. (a)

Q. 7 General notation for Cylindrical coordinates system is:

(a) (x,y,z) (b) $(r, \theta, \emptyset)$

(c) (r, θ, z) (d) None of these Ans. (c)

Q. 8 If a share of NV of Rs 20 is selling at Rs 30then:

(a) the share is at a premium of Rs 10 (b) discounted at Rs.10.

(c) at par. (d) None of these. Ans: (a)

Q. 9 Location of the point (2, 4) and (8, -8) in cartesian coordinates:

(a) I, II quadrants (b) III, IV quadrants

(c) II, III quadrants (d) II, IV quadrants Ans: (a)

Q. 10 sec(90-A) is

(a)sin A (b) tan A

(c) cosec A (d) None Ans. (c)

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Section – B

04X04 = 16 Marks

Q. 11 A rectangular piece of paper 11 cm × 4 cm is folded without overlapping to make a cylinder of height 4 cm. Find the volume of the cylinder.

Ans. Let radius of the cylinder = r

height = h

Perimeter of the base of the cylinder = $2\pi r = 11$ or $22/7 \times 2 \times r = 11$

Therefore, r = 7/ 4 cm

Volume of the cylinder = $V = \pi r^2 h = 22/7 \times (7/4)^2 \times 4$ cm3 = 38.5 cm3 .

Hence the volume of the cylinder is 38.5 cm3 .

Q. 12 Calculate the money required to buy: (i) 400, Rs 30 shares at a premium of Rs 7. (ii) 375, Rs 60 shares at a discount of Rs 10.

Ans. (i) No. of shares = 400 NV = Rs 30 MV = Rs (30+7) = Rs 37

Therefore, money required to buy 400 shares = Rs (400 x 37)= Rs 14800

(ii) No. of shares = 375 NV= Rs 60 MV= Rs (60-10) = Rs 50

Therefore, money required to buy 275 shares = Rs (375 × 50) =Rs 18750

Q. 13 Given Cot A =3/4
find the other
trigonometric ratios of the angle A.

Ans.

Therefore, if BC = $4k$, then AB = $3k$, where k is a positive number.

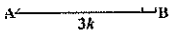


Fig. 8.8

Now, by using the Pythagoras Theorem, we have

$$AC^2 = AB^2 + BC^2 = (4k)^2 + (3k)^2 = 25k^2$$

So, $AC = 5k$

Now, we can write all the trigonometric ratios using their definitions.

$$\sin A = \frac{BC}{AC} = \frac{4k}{5k} = \frac{4}{5}$$

$$\cos A = \frac{AB}{AC} = \frac{3k}{5k} = \frac{3}{5}$$

Therefore, $\cot A = \frac{1}{\tan A} = \frac{3}{4}$, $\operatorname{cosec} A = \frac{1}{\sin A} = \frac{5}{4}$ and $\sec A = \frac{1}{\cos A} = \frac{5}{3}$

Q. 14 Show that the points (1, 7), (4, 2), (–1, –1) and (– 4, 4) are the vertices of a square.

Ans

Let A(1, 7), B(4, 2), C(–1, –1) and D(– 4, 4) be the given points. One way of showing that ABCD is a square is to use the property that all its sides should be equal and both its digonals should also be equal. Now,

$$AB = \sqrt{(1-4)^2 + (7-2)^2} = \sqrt{9+25} = \sqrt{34}$$
$$BC = \sqrt{(4+1)^2 + (2+1)^2} = \sqrt{25+9} = \sqrt{34}$$
$$CD = \sqrt{(-1+4)^2 + (-1-4)^2} = \sqrt{9+25} = \sqrt{34}$$
$$DA = \sqrt{(1+4)^2 + (7-4)^2} = \sqrt{25+9} = \sqrt{34}$$
$$AC = \sqrt{(1+1)^2 + (7+1)^2} = \sqrt{4+64} = \sqrt{68}$$
$$BD = \sqrt{(4+4)^2 + (2-4)^2} = \sqrt{64+4} = \sqrt{68}$$

Since, AB = BC = CD = DA and AC = BD, all the four sides of the quadrilateral ABCD are equal and its diagonals AC and BD are also equal. Therefore, ABCD is a square.

Section – C

04X06 = 24 Marks

Q. 15 Evaluate

a.) tan 65°/cot 25°

b.) If sin 3A = cos (A – 26°), where 3A is an acute angle, find the value of A

Ans. cot A = tan (90° – A)

So, cot 25° = tan (90° – 25°) = tan 65°,

tan 65°/ cot 25° = tan 65° / tan 65° = 1

sin 3A = cos (A – 26°).

Since sin 3A = cos (90° – 3A),

we can write (1) as cos (90° – 3A) = cos (A – 26°)

Since 90° – 3A and A – 26° are both acute angles,

therefore, 90° – 3A = A – 26° which gives A = 29°

Q. 16 We have the point (3, 30°, 6) in cylindrical coordinates. What is its equivalence in Cartesian coordinates and also plot it in diagram?

Ans.

We start with the values r=3, θ=30∘, z=6. Using these values and the formulas seen above, we have to find the values of *x* and *y*. Therefore, the value of *x* is:

$x=r\cos(\theta)$

$x=3\cos(30)$

$x=2.6$

The value of *y* is:

$y=r\sin(\theta)$

$y=3\sin(30)$

$y=1.5$

We know that the *z* component remains the same, so the coordinates of the point are (2.6, 1.5, 6).

Q.17 In a building there are 24 cylindrical pillars. The radius of each pillar is 28 cm and height is 4 m. Find the total cost of painting the curved surface area of all pillars at the rate of 8 per m^2

Ans.

Radius of cylindrical pillar, r = 28 cm = 0.28 m
height, h = 4 m
curved surface area of a cylinder = $2\pi rh$
curved surface area of a pillar =2 x 3.14 x 0.28 x 0.28 = 7.04

curved surface area of 24 such pillar = 7.04 × 24 = 168.96 m2
cost of painting an area of 1 m2 = ` 8
Therefore, cost of painting 1689.6 m2 = 168.96 × 8 = ` 1351.68

Q. 18 Consider Δ ACB, right-angled at C, in which AB = 29 units, BC = 21 units and ∠ ABC = θ (see Fig. 8.10). Determine the values of

(i) $\cos^2\theta + \sin^2\theta$

(ii) $\cos^2\theta - \sin^2\theta$.

Ans.

$$AC = \sqrt{AB^2 - BC^2} = \sqrt{(29)^2 - (21)^2}$$

Fig. 8.10

$$= \sqrt{(29 - 21)(29 + 21)} = \sqrt{(8)(50)} = \sqrt{400} = 20 \text{ units}$$

So, $\sin\theta = \frac{AC}{AB} = \frac{20}{29}$, $\cos\theta = \frac{BC}{AB} = \frac{21}{29}$.

Now, (i) $\cos^2\theta + \sin^2\theta = \left(\frac{20}{29}\right)^2 + \left(\frac{21}{29}\right)^2 = \frac{20^2 + 21^2}{29^2} = \frac{400 + 441}{841} = 1$,

and (ii) $\cos^2\theta - \sin^2\theta = \left(\frac{21}{29}\right)^2 - \left(\frac{20}{29}\right)^2 = \frac{(21 + 20)(21 - 20)}{29^2} = \frac{41}{841}$.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set-B

Registration No_____

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1304 **Time: 2 Hour**
Course Name: Carpenter Mathematics **Max. Marks: 50**
Instruction:

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

Section A

10x1=10 marks

Q. 1 Amount required for buying 300 shares, Rs 60 shares at a discount of Rs 10.

(a) 13500/- (b) 12300/-

(c) 15000/- (d) 11750/-

Q. 2 If a share of NV of Rs 210 is selling at Rs 190 then:

(a) the share is at a premium of Rs 20. (b) discounted at Rs. 20.

(c) at par. (d) None of these.

Q. 3 General notation of spherical coordinates system is:

(a) (x,y,z) b) (r, θ, z)

c) $(r, \theta, \emptyset)$ d) None of these

Q.4 Location of the point (-2, -4) and (-7, 8) in Cartesian coordinates:

(a) I, II quadrants (b) III, IV quadrants

(c) II, III quadrants (d) II, IV quadrants

Q. 5 Amount required for buying 20 shares, Rs 75 quoted at Rs 70.5.

(a) 1410/- (b) 1430/-

(c) 1530/- (d) 1555/-

Q. 6 The conversion of (4, -1, -8) in cylindrical coordinates represented by:

(a) $(\sqrt{17}, 3.3866, 8)$ (b) $(\sqrt{19}, 4.876, 8)$

(c) $(\sqrt{17}, 8, 3.3866)$ (d) $(\sqrt{17}, -1, 8)$

Q. 7 General notation for cartesian coordinates system is:

(a) (x,y,z) (b) $(r, \theta, \emptyset)$

(c) (r, θ, z) (d) None of these

Q. 8 $1+ \tan^2 A$ is

(a) $\cot^2 A$ (b) $\text{Sec}^2 A$

(c) $\text{Cosec}^2 A$ (d) $\text{Sin}^2 A$

Q. 9 $\frac{\tan 27}{\cot 63^\circ} =$

(a) 2 (b) 1

(c) 0 (d) None

Q. 10 The area of a rhombus is 200 cm2 and one of the diagonals is 10 cm. The length of another diagonal is

(a) 15 cm (b) 40 cm

(c) 32 cm (d) 12 cm

Section – B

04X04 = 16 Marks

Q. 11 Show that the points (1, 7), (4, 2), (–1, –1) and (– 4, 4) are the vertices of a square.

Q. 12 Mahesh invests Rs 20000 in a company paying a dividend of 6% per annum when a share of NV Rs 100 stands at Rs 200. What is his annual income? If he sells 50% of his shares when the price rises to Rs 250, what is his gain in this transaction?

Q. 13 Do the points (3, 2), (–2, –3) and (2, 3) form a triangle? If so, name the type of triangle formed.

Q. 14 Given tan A =4/3
find the other
trigonometric ratios of the angle A.

Section – C

04X06 = 24 Marks

Q. 15 Convert the following equation written in Cartesian coordinates into an equation in Cylindrical coordinates.

$$x^3 + 2x^2 - 6Z = 4 - 2y^2$$

Q. 16 Write short notes on:

a) Dry and wet bulb temperature

b) tensile and compressive strength.

Q. 17 The internal measures of a cuboidal room are 12 m × 8 m × 4 m. Find the total cost of whitewashing all four walls of a room, if the cost of white washing is ` 5 per m2 . What will be the cost of white washing if the ceiling of the room is also whitewashed.

Q. 18 Prove that

$$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{1}{\sec\theta - \tan\theta}$$

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set B

Answer Key

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1304
Course Name: Carpenter Mathematics

Time: 2 Hour
Max. Marks: 50

Instruction:

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

Section A

10x1=10 marks

Q. 1 Amount required for buying 300 shares, Rs 60 shares at a discount of Rs 10.

(a) 13500/- (b) 12300/-

(c) 15000/- (d) 11750/- Ans.(c)

Q. 2 If a share of NV of Rs 210 is selling at Rs 190 then:

(a) the share is at a premium of Rs 20. (b) discounted at Rs. 20.

(c) at par. (d) None of these. Ans.(b)

Q. 3 General notation of spherical coordinates system is:

(a) (x,y,z) b) (r, θ, z)

c) $(r, \theta, \emptyset)$ d) None of these Ans.(c)

Q.4 Location of the point (-2, -4) and (-7, 8) in Cartesian coordinates:

(a) I, II quadrants (b) III, IV quadrants

(c) II, III quadrants (d) II, IV quadrants Ans: (c)

Q. 5 Amount required for buying 20 shares, Rs 75 quoted at Rs 70.5.

(a) 1410/-
(b) 1430/-
(c) 1530/-
(d) 1555/-
Ans. (a)

Q. 6 The conversion of (4, -1, -8) in cylindrical coordinates represented by:

(a) $(\sqrt{17}, 3.3866, 8)$
(b) $(\sqrt{19}, 4.876, 8)$
(c) $(\sqrt{17}, 8, 3.3866)$
(d) $(\sqrt{17}, -1, 8)$
Ans. (a)

Q. 7 General notation for cartesian coordinates system is:

(a) (x,y,z)
(b) $(r, \theta, \emptyset)$
(c) (r, θ, z)
(d) None of these
Ans. (a)

Q. 8 $1+ \tan^2 A$ is

(a) $\cot^2 A$
(b) $\text{Sec}^2 A$
(c) $\text{Cosec}^2 A$
(d) $\text{Sin}^2 A$
Ans. (b)

Q. 9 $\frac{\tan 27}{\cot 63^\circ} =$

(a) 2
(b) 1
(c) 0
(d) None
Ans. (b)

Q. 10 The area of a rhombus is 200 cm2 and one of the diagonals is 10 cm. The length of another diagonal is

(a) 15 cm
(b) 40 cm
(c) 32 cm
(d) 12 cm
Ans. (b)

Section – B

04X04 = 16 Marks

Q. 11 Show that the points (1, 7), (4, 2), (–1, –1) and (– 4, 4) are the vertices of a square.

Ans.

Let A(1, 7), B(4, 2), C(–1, –1) and D(– 4, 4) be the given points. One way of showing that ABCD is a square is to use the property that all its sides should be equal and both its digonals should also be equal. Now,

$$AB = \sqrt{(1-4)^2 + (7-2)^2} = \sqrt{9+25} = \sqrt{34}$$
$$BC = \sqrt{(4+1)^2 + (2+1)^2} = \sqrt{25+9} = \sqrt{34}$$
$$CD = \sqrt{(-1+4)^2 + (-1-4)^2} = \sqrt{9+25} = \sqrt{34}$$
$$DA = \sqrt{(1+4)^2 + (7-4)^2} = \sqrt{25+9} = \sqrt{34}$$
$$AC = \sqrt{(1+1)^2 + (7+1)^2} = \sqrt{4+64} = \sqrt{68}$$
$$BD = \sqrt{(4+4)^2 + (2-4)^2} = \sqrt{64+4} = \sqrt{68}$$

Since, AB = BC = CD = DA and AC = BD, all the four sides of the quadrilateral ABCD are equal and its diagonals AC and BD are also equal. Therefore, ABCD is a square.

Q. 12 Mahesh invests Rs 20000 in a company paying a dividend of 6% per annum when a share of NV Rs 100 stands at Rs 200. What is his annual income? If he sells 50% of his shares when the price rises to Rs 250, what is his gain in this transaction?

Ans

No. of shares bought by Mukesh $((\boldsymbol{Investment})/\boldsymbol{MV})$=20000/200=100

His annual income on 1 share=6% of NV=6% of Rs 100= Rs 6

His total annual income= (100 × Rs 6) = Rs 600

Since, 50% of shares= 50% of 100 =50

Money received on selling these shares =(50 ×Rs 250)=Rs 12500

Also, cost of these shares=(50 ×Rs 200)=Rs 10000

Therefore, Mukesh's gain= Rs (12500-10000) = Rs 2500

Q. 13 Do the points (3, 2), (–2, –3) and (2, 3) form a triangle? If so, name the type of triangle formed.

Solution: Let us apply the distance formula to find the distances PQ, QR and PR, where P(3, 2), Q(–2, –3) and R(2, 3) are the given points. We have

$$PQ = \sqrt{(3+2)^2 + (2+3)^2} = \sqrt{5^2 + 5^2} = \sqrt{50} = 7.07 \text{ (approx.)}$$
$$QR = \sqrt{(-2-2)^2 + (-3-3)^2} = \sqrt{(-4)^2 + (-6)^2} = \sqrt{52} = 7.21 \text{ (approx.)}$$
$$PR = \sqrt{(3-2)^2 + (2-3)^2} = \sqrt{1^2 + (-1)^2} = \sqrt{2} = 1.41 \text{ (approx.)}$$

Since the sum of any two of these distances is greater than the third distance, therefore, the points P, Q and R form a triangle.

Q. 14 Given tan A =4/3
find the other
trigonometric ratios of the angle A.

Ans.

Therefore, if BC = $4k$, then AB = $3k$, where k is a positive number.

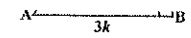


Fig. 8.8

Now, by using the Pythagoras Theorem, we have

$$AC^2 = AB^2 + BC^2 = (4k)^2 + (3k)^2 = 25k^2$$

So, $AC = 5k$

Now, we can write all the trigonometric ratios using their definitions.

$$\sin A = \frac{BC}{AC} = \frac{4k}{5k} = \frac{4}{5}$$

$$\cos A = \frac{AB}{AC} = \frac{3k}{5k} = \frac{3}{5}$$

Therefore, $\cot A = \frac{1}{\tan A} = \frac{3}{4}$, $\operatorname{cosec} A = \frac{1}{\sin A} = \frac{5}{4}$ and $\sec A = \frac{1}{\cos A} = \frac{5}{3}$.

Section – C

04X06 = 24 Marks

Q. 15 Convert the following equation written in Cartesian coordinates into an equation in Cylindrical coordinates.

$$x^3 + 2x^2 - 6Z = 4 - 2y^2$$

Solution:

$$x = rcos\theta, \quad y = rsin\theta \qquad r^2 = x^2 + y^2$$

Using these values of x, y, and r

$$x^3 + 2x^2 + 2y^2 - 6z = 4 \qquad \rightarrow \qquad x^3 + 2\left(x^2 + y^2\right) - 6z = 4$$

$$r^3cos^3\theta + 2r^2 - 6z = 4$$

Q. 16 Write short notes on:

a) Dry and wet bulb temperature

b) tensile and compressive strength.

Ans.

a) Dry bulb temperature It is the temperature of air recorded by a thermometer, when it is not affected by the moisture present in the air. The dry bulb temperature (briefly written as DBT) is generally denoted by td or tdb. Wet bulb temperature It is the temperature of air recorded by a thermometer, when its bulb is surrounded by a wet cloth exposed to the air. Such a thermometer is called *wet bulb thermometer. The wet bulb temperature (briefly written as WBT) is generally denoted by tw or twb. At 100% relative humidity, the wet-bulb temperature is equal to the air temperature (dry-bulb temperature) and is lower at lower humidity.

b) Tensile strength : The tensile strength of wood parallel to the grain depends upon the strength of the fibers and is affected not only by the nature and dimensions of the wood elements but also by their arrangement. Compressive or crushing strength :Is very closely related to hardness and transverse shear. There are two ways in which wood is subjected to stress of this kind, namely, (1) with the load acting over the entire area of the specimen, and (2) with a load concentrated over a portion of the area.

Q. 17 The internal measures of a cuboidal room are 12 m × 8 m × 4 m. Find the total cost of whitewashing all four walls of a room, if the cost of white washing is ` 5 per m2 . What will be the cost of white washing if the ceiling of the room is also whitewashed.

Ans. Let the length of the room = l = 12 m Width of the room = b = 8 m Height of the room = h = 4 m

Area of the four walls of the room = Perimeter of the base × Height of the room = 2 (l + b) × h = 2 (12 + 8) × 4 = 2 × 20 × 4 = 160 m2 .

Cost of white washing per m2 = ` 5

Hence the total cost of white washing four walls of the room = ` (160 × 5) = ` 800

Area of ceiling is 12 × 8 = 96 m2

Cost of white washing the ceiling = ` (96 × 5) = ` 480

So the total cost of white washing = ` (800 + 480) = ` 1280

Q. 18 Prove that

$$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{1}{\sec\theta - \tan\theta}$$

Ans. LHS =

$$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{\tan\theta - 1 + \sec\theta}{\tan\theta + 1 - \sec\theta}$$

$$\frac{(\tan\theta + \sec\theta) - 1}{(\tan\theta - \sec\theta) + 1} = \frac{\{(\tan\theta + \sec\theta) - 1\}(\tan\theta - \sec\theta)}{\{(\tan\theta - \sec\theta) + 1\}(\tan\theta - \sec\theta)}$$

$$\frac{1}{\sec\theta - \tan\theta}$$

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.....

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

Set-A

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: SCS1305 **Time: 2 Hour**

Course Name: Woodworking CNC Machine **Max. Marks: 50**

Instruction: (if any)

Section – A

01X10 = 05 Marks

Q.1 Display of CNC Working fields, consoles and vacuum pods are shown in_____?

(a) CNC Board (b) Techno Manager

(c) Program Editor (d) Tool Arch

Q.2 Glue application unit applies glue to which of the following in the edge banding machine?

(a) Work piece.

(b) Edge banding tape.

(c) Both work piece and edge banding tape.

(d) Can be set to apply glue to either work piece or tape.

Q.3 All the tooling data has been found in_____?

(a) CNC Board (b) Techno Manager

(c) Program Editor (d) Tool Arch

Q.4 Which one of the following glue types are use in the edge banding machine?

(a) Water based glue (b) PUR

(c) Hot Melt glue (d) Contact glue

Q.5 Which one of the following is the name of Software used in CNC Router?

(a) Wood flash (b) Wood flash 4.0

(c) Wood flash 3.0 (d) None of the above

Q.6 How many work stations are there in CNC Router Machine?

(a) 3 (b) 2

(c) 5 (d) 4

Q.7 Which one of the following is the name of Symbol attached?

(a) CNC Board (b) Techno Manager

(c) 2D Simulator (d) 3D Simulator

Q.8 Which one of the function of buffing unit in Edge Banding Machine?

(a) Clean the edge (b) Polish the edge

(c) Removes extra material (d) Makes a profile

Q.9 Which one of the following is a property of the pre-milling Unit in edge banding machine?

(a) Trim the edge
(b) Cut of the length
(c) Clean extra material
(d) Rounding the edge

Q.10 What setting can you make with this counter in edge banding machine?

(a) Edge banding material thickness.
(b) Edge banding material length.
(c) Work piece thickness
(d) Work piece length.

Section – B

04X04 = 16 Marks

Q. 11 What are the two functions of Techno Manager?

Q.12 What are the major axes in CNC Router?

Q.13 What are the functions of 3D Simulator?

Q.14 Define the term WOP?

Section – C

04X06 = 24 Marks

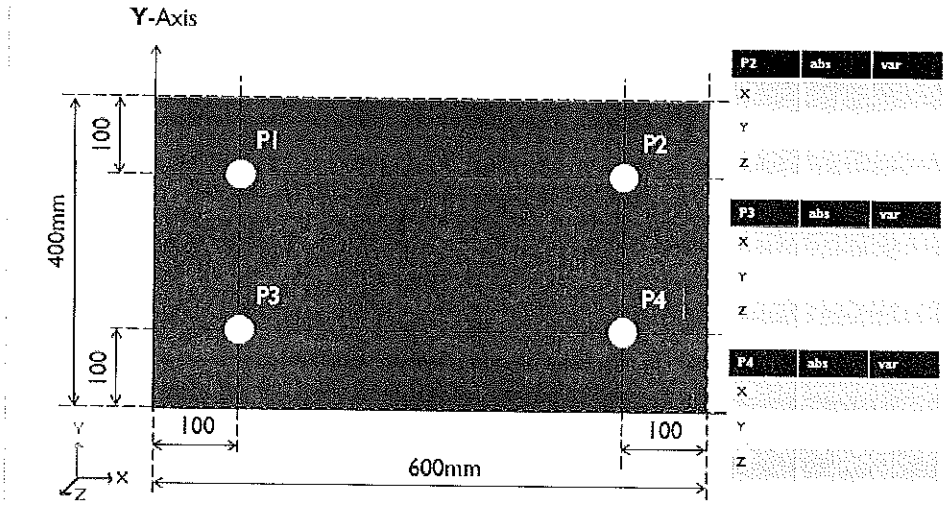
Q.15 Describe the edge banding stages.

Q.16 What are the points we pay attention while running a CNC Router Machine?

Q.17. Why edge banding is required at the edge of work piece?

Q.18 Write the coordinates of points given in attached sheet.

Drilling: Vertical single drilled holes G81
The drilled holes should be 10 mm deep with a diameter of 35mm.
Please enter the coordinates first absolute and then with variables.



BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer key.....

Set-A

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: SCS1305 **Time: 2 Hour**

Course Name: Woodworking CNC Machine **Max. Marks: 50**

Instruction: (if any)

Section – A

01X10 = 05 Marks

Q.1 Display of CNC Working fields, consoles and vacuum pods are shown in_____?

(a) CNC Board (b) Techno Manager

(c) Program Editor (d) Tool Arch (A)

Q.2 Glue application unit applies glue to which of the following in the edge banding machine?

(a) Work piece.

(b) Edge banding tape.

(c) Both work piece and edge banding tape.

(d) Can be set to apply glue to either work piece or tape. (A)

Q.3 All the tooling data has been found in_____?

(a) CNC Board (b) Techno Manager

(c) Program Editor (d) Tool Arch (B)

Q.4 Which one of the following glue types are use in the edge banding machine?

(a) Water based glue (b) PUR

(c) Hot Melt glue (d) Contact glue (C)

Q.5 Which one of the following is the name of Software used in CNC Router?

(a) Wood flash (b) Wood flash 4.0

(c) Wood flash 3.0 (d) None of the above (B)

Q.6 How many work stations are there in CNC Router Machine?

(a) 3 (b) 2

(c) 5 (d) 4 (D)

Q.7 Which one of the following is the name of Symbol attached?

(a) CNC Board (b) Techno Manager

(c) 2D Simulator (d) 3D Simulator (A)

Q.8 Which one of the function of buffing unit in Edge Banding Machine?

(a) Clean the edge (b) Polish the edge

(c) Removes extra material (d) Makes a profile (B)

Q.9 Which one of the following is a property of the pre-milling Unit in edge banding machine?

(a) Trim the edge (b) Cut of the length

(c) Clean extra material (d) Rounding the edge (A)

Q.10 What setting can you make with this counter in edge banding machine?

(a) Edge banding material thickness.

(b) Edge banding material length.

(c) Work piece thickness

(d) Work piece length. (A)

Section – B

04X04 = 16 Marks

Q. 11 What are the two functions of Techno Manager?

Ans:- The machine will be loaded with the tooling that where entered into the Tool Parameters program

Each tool is placed in one of the free tool loading positions on the machine

Q.12 What are the major axes in CNC Router?

Ans:- Main Axes X, Y, Z

With the three main axes of movement, every point in the room can be approached. However, the tool is always perpendicular to an axis. Thus, for example, no oblique holes or saw cuts in any angle possible.

Q.13 What are the functions of 3D Simulator?

Ans:- A program can be simulated in 3D and in real time.

> Profiles are shown realistically.

> Collisions with a vacuum pods are displayed by colour change.

> Working order can be checked and changed.

Q.14 Define the term WOP?

Ans:- **(Workshop-oriented programming): -** Most machine suppliers sell their machines with a WOP.These CAD-like programs simplify programming for the operator and represent the work piece with the machining graphically.

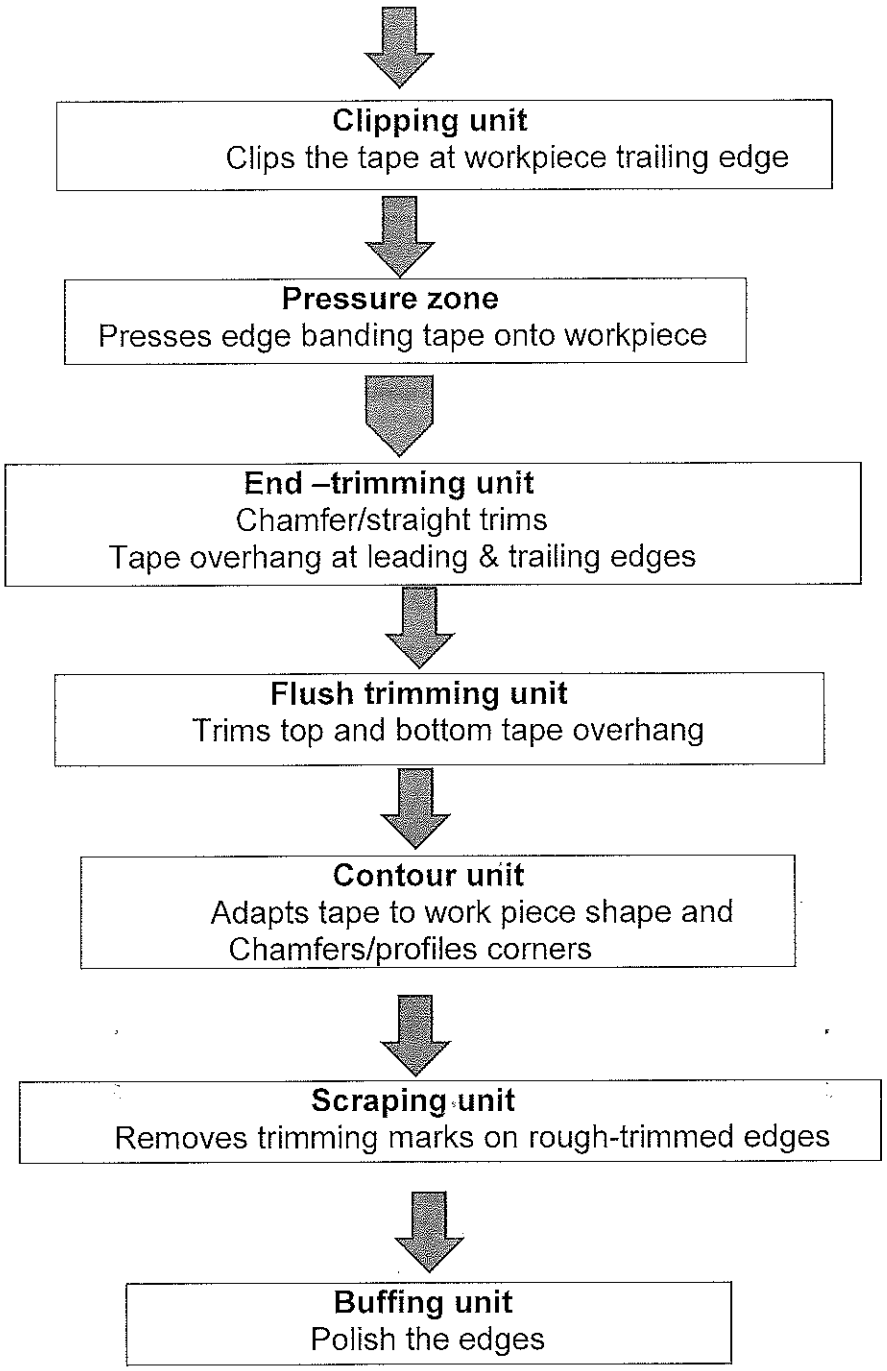
Section – C

04X06 = 24 Marks

Q.15 Describe the edge banding stages.

Ans:-

Glue application unit
Applies glue to workpiece



Q.16 What are the points we pay attention while running a CNC Router Machine?

Ans:- When running a CNC machining centre, pay attention to the following points:

1. Never bridge or disassemble the existing safety devices.
2. Never dismantle the dust extraction covers, they protect against wood and tool splinters.
3. The work pieces must be well stretched. Check this before every program start.
4. The stop cams for the work pieces must be lowered at the start of the program so that the tool does not travel into the stops.
5. Before the milling, the positioning of the suction cups has to be checked.
6. Offcuts must not be jammed.

Encapsulation towards the operator

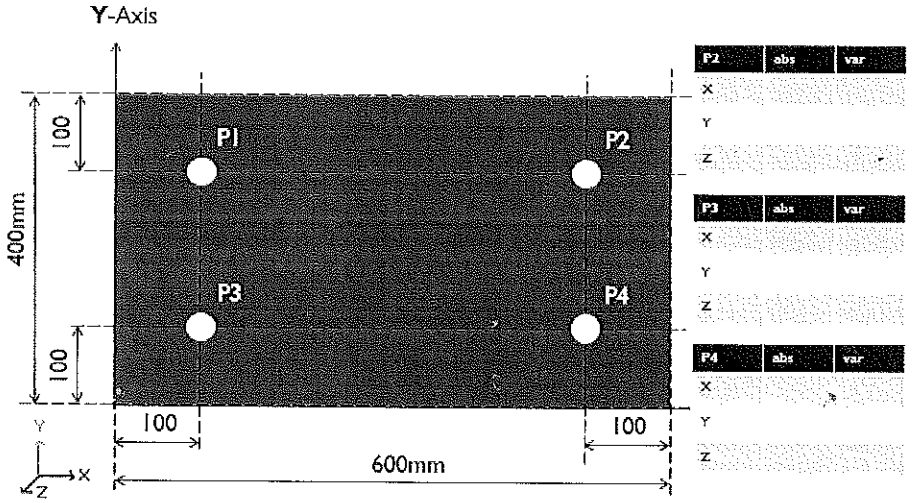
7. The minimum as well as the maximum speeds must be observed. The maximum speed must be stored in the machine control.

Q.17. Why edge banding is required at the edge of work piece?

Ans:- Edge banding is used to cover the exposed sides of materials such as plywood, particle board or MDF, increasing durability and giving the appearance of the solid or more valuable material. Edge banding can be made of different material including PVC , ABS ,Acrylic, Melamine, Wood or Wood Veneer.
1. Protect its sides and edges from moisture,humidity and water.
2. Give it a better apperence.
3.Protect its edges from broken.

Q.18 Write the coordinates of points given in attached sheet.

Drilling: Vertical single drilled holes G81
The drilled holes should be 10 mm deep with a diameter of 35mm.
Please enter the coordinates first absolute and then with variables.



Ans:-

P2	Absolute	Variable
X	500	X-100
Y	300	Y-100
Z	-10	-10

P3	Absolute	Variable
X	100	100
Y	100	100
Z	-10	-10

P4	Absolute	Variable
X	500	X-100

Y	100	100
Z	-10	-10

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2021-22 (Winter Semester) Set- B

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: SCS1305 **Time: 2 Hour**

Course Name: Woodworking CNC Machine **Max. Marks: 50**

Instruction: (if any)

Section – A

01X10 = 05 Marks

Q.1 Which one of the following is the total number of faces of the work piece in the CNC router machine?

(a) 3 (b) 6

(c) 5 (d) 4

Q.2 Glue application unit applies Material to which of the following in the edge banding machine?

(a) Work piece.

(b) Edge banding tape.

(c) Both work piece and edge banding tape.

(d) Can be set to apply glue to either work piece or tape.

Q.3 What is the compressed air pressure consumption in the CNC router machine?

(a) 8 bar (b) 6 bar

(c) 5 bar (d) 9 bar

Q.4 Which kind of material types are use in the edge banding machine?

(a) Water based glue (b) Hot melt glue

(c) PUR glue (d) Contact glue

Q.5 Which one of the following surface is possible to operate with CNC router?

(a) 1,2,3,4 (b) 1,2,3

(c) 1,2,3,4,5,6 (d) 1,3,4,5.6

Q.6 How many working areas are there in CNC Router Machine?

(a) 3 (b) 1

(c) 2 (d) 4

Q.7 How many heads we have in CNC Router Machine?

(a) 5 (b) 4

(c) 2 (d) 3

Q.8 Which one of the function of last step unit in Edge Banding Machine?

(a) Clean the edge (b) Polish the edge

(c) Removes extra material (d) Makes a profile

15/07/22

Q.9 Which one of the following is a property of the first step unit in edge banding machine?

(a) Trim the edge
(b) Cut of the length
(c) Clean extra material
(d) Rounding the edge

Q.10 What setting can you make with this counter in edge banding machine?

(a) Edge banding material thickness.
(b) Edge banding material length.
(c) Work piece thickness
(d) Work piece length.

Section – B

04X04 = 16 Marks

Q. 11 Define the term CNC and WOP.

Q.12 What are the functions of 2D Simulator?

Q.13 What are the major axes in CNC Router?

Q.14 What are the two functions of CNC Board?

Section – C

04X06 = 24 Marks

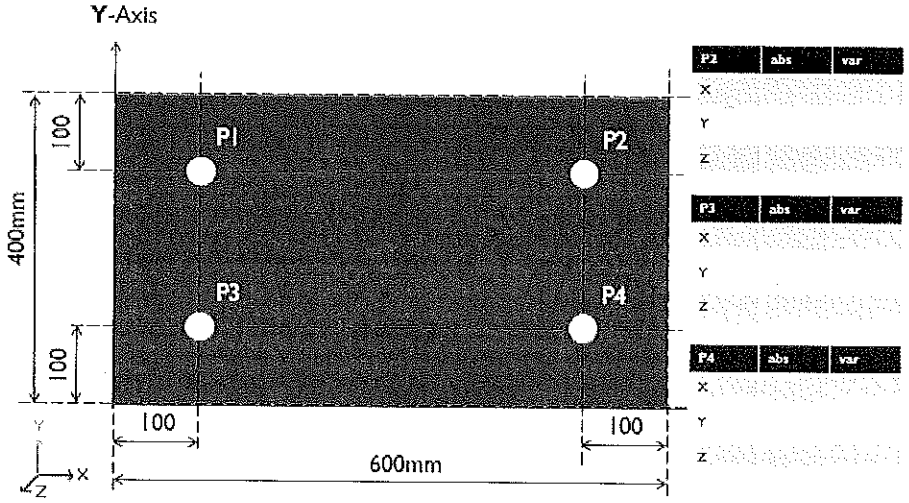
Q.15 Explain difference Between Standard machine and CNC machine

Q.16 Describe the edge banding stages.

Q.17 Explain the vacuum clamping in CNC Router?

Q.18 Write the coordinates of points given in attached sheet.

Drilling: Vertical single drilled holes G81
The drilled holes should be 10 mm deep with a diameter of 35mm.
Please enter the coordinates first absolute and then with variables.



BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer Key.....

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

Set-B

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: SCS1305 **Time: 2 Hour**

Course Name: Woodworking CNC Machine **Max. Marks: 50**

Instruction: (if any)

Section – A

01X10 = 05 Marks

Q.1 Which one of the following is the total number of faces of the work piece in the CNC router machine?

(a) 3 (b) 6

(c) 5 (d) 4 (B)

Q.2 Glue application unit applies material to which of the following in the edge banding machine?

(a) Work piece.

(b) Edge banding tape.

(c) Both work piece and edge banding tape.

(d) Can be set to apply glue to either work piece or tape. (A)

Q.3 What is the compressed air pressure consumption in the CNC router machine?

(a) 8 bar (b) 6 bar

(c) 5 bar (d) 9 bar (B)

Q.4 Which kind of material types are use in the edge banding machine?

(a) Water based glue (b) Hot melt

(c) PUR (d) Contact glue (b)

Q.5 Which one of the following surface is possible to operate with CNC router?

(a) 1,2,3,4 (b) 1,2,3

(c) 1,2,3,4,5,6 (d) 1,3,4,5.6 (D)

Q.6 How many working areas are there in CNC Router Machine?

(a) 3 (b) 2

(c) 5 (d) 4 (D)

Q.7 How many heads we have in CNC Router Machine?

(a) 5 (b) 4

(c) 2 (d) 3 (C)

Q.8 Which one of the function of last step unit Edge Banding Machine?

(a) Clean the edge (b) Polish the edge

(c) Removes extra material (d) Makes a profile (B)

Q.9 Which one of the following is a property of first step Unit in edge banding machine?

(a) Trim the edge (b) Cut of the length

(c) Clean extra material (d) Rounding the edge (A)

Q.10 What setting can you make with this counter in edge banding machine?

(a) Edge banding material thickness.

(b) Edge banding material length.

(c) Work piece thickness

(d) Work piece length. (A)

Section – B

04X04 = 16 Marks

Q. 11 Define the term CNC and WOP.

Ans: - **CNC (Computerized Numerical Control): -** CNC machines are machine tools that, thanks to the use of Computer-controlled measuring and coordinate systems, are able to automatically produce work pieces with high precision, even for complex shapes. They outperform mechanically controlled machines in terms of precision and speed.

WOP (Workshop-oriented programming): - Most machine suppliers sell their machines with a WOP.These CAD-like programs simplify programming for the operator and represent the work piece with the machining graphically.

Q.12 What are the functions of 2D Simulator?

Ans: - The working time can be simulated here.

> Adjustable speed from 1/256- to 256-times the real speed.

> The working order of a program can be checked and changed

Q.13 What are the major axes in CNC Router?

Ans: - Main Axes X, Y, Z

With the three main axes of movement, every point in the room can be approached. However, the tool is always perpendicular to an axis. Thus, for example, no oblique holes or saw cuts in any angle possible.

Q.14 What are the two functions of CNC Board?

Ans: - Main menu, all the programs can be started from here

> Display of CNC working fields, consoles and vacuum pods

> The working order of the individual programs is here defined in list form

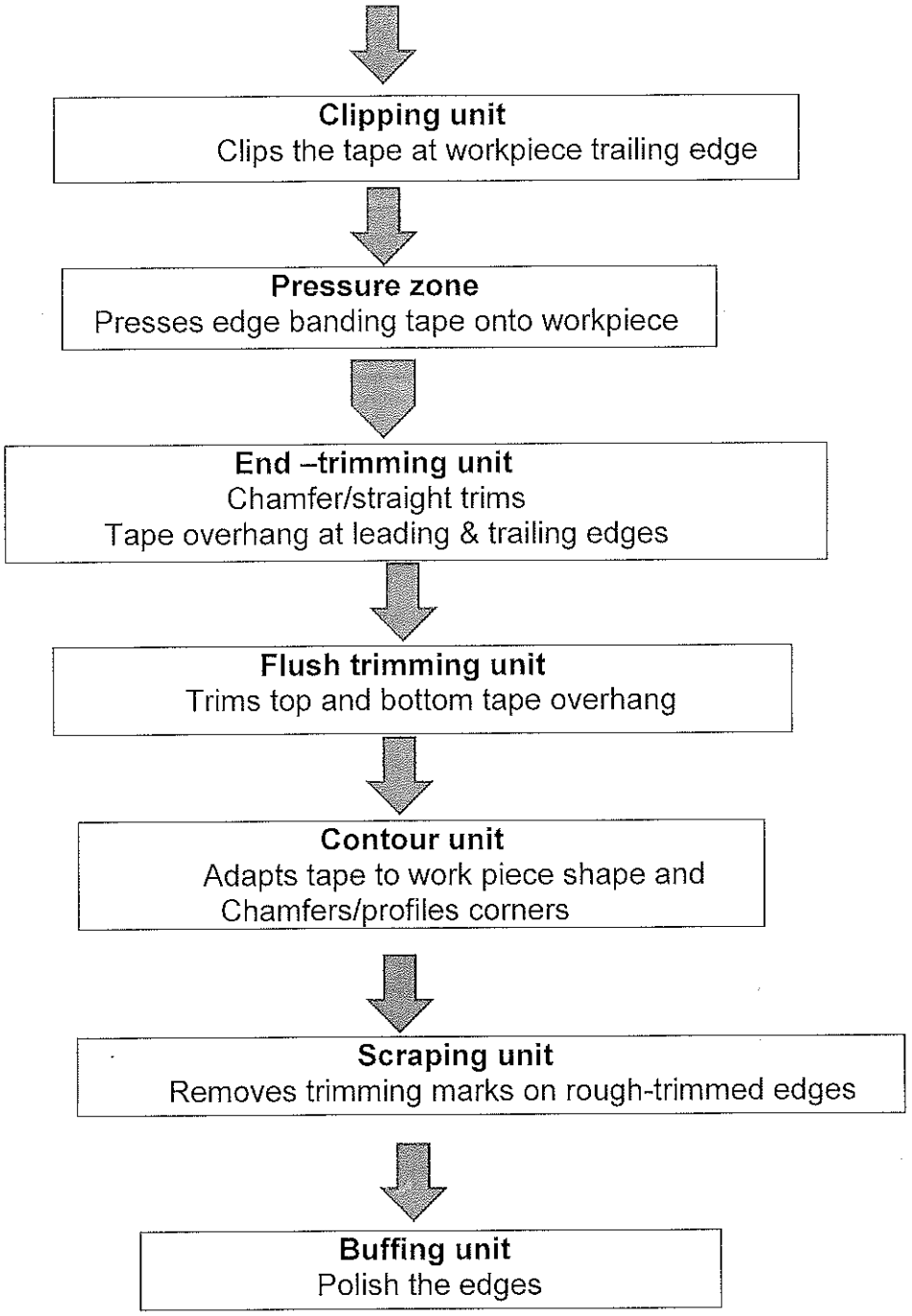
Section – C

04X06 = 24 Marks

Q.15 Describe the edge banding stages.

Ans: -

Glue application unit
Applies glue to workpiece



Q.16 Explain difference Between Standard machine and CNC machine

Ans: -

Standard machines	CNC machines
Manually working machines	It works automatically.
Manually tool changing.	Automatically tool changer.
Time consuming	Time saving
Require more man power	Require less man power.
No requirement of software for operation.	It require software for operation.

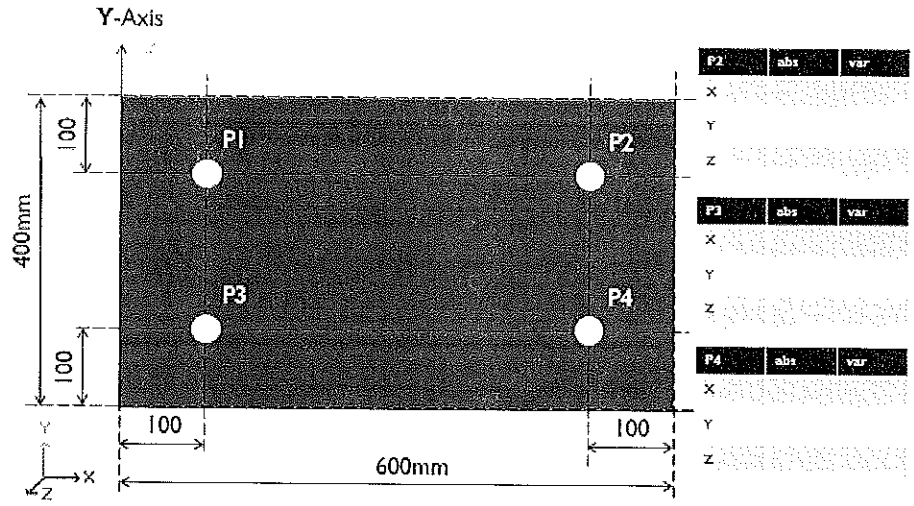
Low cost	High cost
Require less skill.	Require more skill.
It consumes less space.	It consumes more space.

Q.17 Explain the vacuum clamping in CNC Router?

Ans: - Tables with brackets, on which vacuum cups are placed arbitrarily, are used to clamp work pieces. Due to the adjustability of the brackets in the X-axis and the adjustability of the suction cups in the Y-axis different sized work pieces can be tensioned. Falling chips fall between the consoles and so hinder the operation a little. There are also plain tables with the corresponding vacuum blocks, grid tables and clamping templates.

Q.18 Write the coordinates of points given in attached sheet.

Drilling: Vertical single drilled holes G81
The drilled holes should be 10 mm deep with a diameter of 35mm.
Please enter the coordinates first absolute and then with variables.



Ans: -

P2	Absolute	Variable
X	500	X-100
Y	300	Y-100
Z	-10	-10

P3	Absolute	Variable
X	100	100
Y	100	100
Z	-10	-10

P4	Absolute	Variable

X	500	X-100
Y	100	100
Z	-10	-10

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set - A

Registration No_____

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1307 | **Time: 2 Hour**

Course Name: Advance carpenter materials | **Max. Marks: 50**

Instruction:

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

Section A

10x1=10 marks

Q. 1 Which part in given option is hardest in tree trunk

(A) Pith (B) Heartwood

(C) Sapwood (D) None of them

Q. 2 A material is ductile and hard is said to be

(A) Tough (B) Hard

(C) Soft (D) None of these

Q. 3 Thin sheets of Veneer are stick together called as

(A) Plywood (B) Particle board

(C) MDF (D) None of these

Q. 4 What is the SI unit of Specific Gravity

(A) Kg/m^3 (B) Unit Less

(C) kg/m^2 (D) none of these

Q. 5 Which one is the Artificial abrasive

(A) Silicon carbide (B) Aluminum oxide

(C) Both A & B (D) None of these

Q. 6 Which stress group adhesive is suitable for bathroom doors

(A) D1 (B) D2

(C) D3 (D) D4

Q. 7 The Bonding strength between two material joined by glue is provided by

(A) Gravitational force
(B) Adhesive force
(C) Cohesive force
(D) none of these

Q. 8 Which is best for oiling

(A) Wiping with cloth
(B) Sponge
(C) Both A & B
(D) None of them

Q. 9 Corrosion resistance in metal can be achieved by

(A) Filleting sharp edges
(B) Galvanizing
(C) Both A & B
(D) None of them

Q. 10 Float process for making glass is used for

(A) Flat Sheet
(B) Containers
(C) Dishes
(D) None of them

Section B

04X04 = 16 Marks

Q. 11 Define Following
(a) Hardness
(b) Tensile Strength

Q. 12 What do you mean by seasoning. Write down its different methods

Q. 13 Discuss the angiosperms and gymnosperms in detail

Q. 14 Discuss the following with diagram
a.) Sapwood
b) Cambium

Section C

04X06 = 24Marks

Q. 15 Explain the Float Process for making the glass

Q. 16 Explain different types of protective layer in surface treatment of wood

Q. 17 Explain the following with respect to adhesives
a. Setting time
b. Flash off time
c. Press time

Q. 18 What are the selection criteria for abrasive? Discuss in detail.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set - A

Answer Key

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1307 | Time: 2 Hour

Course Name: Advance carpenter materials | Max. Marks: 50

Instruction:

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

Section A

10x1=10 marks

Q. 1 Which part in given option is hardest in tree trunk

(A) Pith (B) Heartwood

(C) Sapwood (D) None of them Ans. A

Q. 2. A material is ductile and hard is said to be

(A) Tough (B) Hard

(C) Soft (D) None of these Ans. A

Q. 3 Thin sheets of Veneer are stick together called as

(A) Plywood (B) Particle board

(C) MDF (D) None of these Ans. A

Q. 4 What is the SI unit of Specific Gravity

(A) Kg/m^3 (B) Unit Less

(C) kg/m^2 (D) none of these Ans. B

Q. 5 Which one is the Artificial abrasive

(A) Silicon carbide (B) Aluminum oxide

(C) Both A & B (D) None of these Ans. C

Q. 6 Which stress group adhesive is suitable for bathroom doors

(A) D1 (B) D2

(C) D3 (D) D4 Ans. B

Q. 7 The Bonding strength between two material joined by glue is provided by

(A) Gravitational force
(B) Adhesive force
(C) Cohesive force
(D) none of these
Ans. B

Q. 8 Which is best for oiling

(A) Wiping with cloth
(B) Sponge
(C) Both A & B
(D) None of them
Ans. C

Q. 9 Corrosion resistance in metal can be achieved by

(A) Filleting sharp edges
(B) Galvanizing
(C) Both A & B
(D) None of them
Ans. C

Q. 10 Float process for making glass is used for

(A) Flat Sheet
(B) Containers
(C) Dishes
(D) None of them
Ans. A

Section B

04X04 = 16 Marks

Q. 11 Define Following

(a) Hardness
(b) Tensile Strength

Ans. **Hardness-**

Resistance to indentation or resistance to abrasion is called hardness

Tensile strength

The ability of a material to stretch at maximum limit or the ability of a material to bear maximum tensile force without fracture is called as tensile strength

Q. 12 What do you mean by seasoning. Write down its different methods

Ans. Seasoning is a process of removing the water contents or moisture content from wood

Methods of seasoning

1. Natural Seasoning
    a. Air Seasoning
    b. Water Seasoning
2. Artificial Seasoning
    a. Chemical
    b. Kiln
    c. Electrical
    d. Steaming or boiling

Q. 13 Discuss the angiosperms and gymnosperms in detail

Ans. **Within the gymnosperms** (softwoods), trees of North America that provide commercial softwood timber are classified into four families of the order *Coniferales*. The term conifer thus indicates softwood trees. These trees are characterized by needlelike or scalelike foliage (usually evergreen) and have an excurrent tree form (a straight and dominant main stem with subordinate lateral branching)

The angiosperms (hardwoods) include some 22 families in the United States. Hardwood trees are mostly deciduous, that is. their leaves drop in autumn. Their form tends to be dendritic or deliquescent (characterized by branching and rebranching of the main stem). The higher density ranges of some species and the attractive heartwood color and figure have earned them a favored place among woodworkers.

Q. 14 Discuss the following with diagram

a.) Sapwood

b) Cambium

Ans. **The sapwood (sapwood)** has the task of transporting water and nutrients from the roots to the leaves. Sapwood is less durable than heartwood. Sapwood can be lighter in color than the heartwood. This varies depending on the type of wood.

The cambium is the growth layer of the tree. It is a thin, sensitive layer. The cambium is responsible for the production of new wood during the growing season of the tree (spring and summer).

Section C

04X06 = 24Marks

Q.15 Explain the Float Process for making the glass

Ans. The Float Glass Process is used to make high-quality, flat glass for the construction and automotive industry. Developed in 1959, this highly-technical manufacturing process involves. In the float glass process, a continuous strip of molten glass, heated to more than 1000 degrees Centigrade is poured from a furnace on to a large shallow bath of molten metal, usually tin. The glass floats and cools on the tin and spreads out to form a flat surface. The speed at which the controlling glass ribbon is drawn determines the thickness of the glass. The glass is now perfectly flat and parallel. Rollers are used across the top of the glass, pulling or stretching it out to achieve a thinner finished product. Float process As the glass continues through the process, it begins its cooling down phase. To complete this, the temperature is slowly cooled from 1100 degrees Fahrenheit to 200 degrees. This temperature change is accomplished in the length of approximately 800 feet. After the glass is cooled, it is trimmed down and any excess glass removed. These glass remains are reused as glass cullet in later batches.

Q. 16 Explain different types of protective layer in surface treatment of wood

Ans. **Protective layers** - The protective layer protects the wood surface against dirt and abrasion. Most protective coatings are made with oils, waxes, soaps and paints. They are made of natural and artificial materials.

A. **Oils** - Oxidative drying oils penetrate the wood and do not form a layer on the wood surface. They are therefore not film-forming. Oxidative drying oils are mostly made from natural materials and therefore environmentally friendly.

Hard oils and UV-drying oils form a layer on the wood surface and are therefore film-forming. They are thus water-resistant than oxidative drying oils.

Depending on the product, different work steps are required to create an oiled surface. Always read the instructions on the packaging. You can orient yourself according to the following steps:

- Rich oil application on the nicer side
- Rich oil application on the worse side
- Let the oil absorb for a few minutes
- Remove excess oil with a rag and polish the surface with a clean rag until the surface stops draining oil.
- Polish again after a few minutes

Attention: cloths soaked in oil and wax can ignite themselves! Therefore, you must soak the rags with water, spread and dispose of in metal containers.

B. **Waxes / soaps** - Wood waxes and soaps work the same way as oxidative drying oils, but offers more protection that most other wood coatings. When given a light coating of wood wax on the wood, they form a thin layer on the wooden surface the entire surface of wooden objects is protected from moisture, and it holds the color of the wood for a long time. Waxes and soaps are thus easily film-forming. They are mostly made of natural materials and therefore environmentally friendly. Wood wax will produce a deep shine, which is sometimes hard to attain with other products. Wood wax can be used on non-painted wood. Not only can it be used to

treat and seal wood, but it is sometimes used as a light lubricant, as well. Pull-out drawers and wooden bench screws can benefit from a light coating of wood wax.

C. **Paints** - Paints consist of solids which are dissolved in a solvent, as water or thinner are solved. After applying the paint, the solvent evaporates slowly. The remaining solids form a closed, resistant paint film on the wooden surface. They are thus film-forming and do not penetrate the wood.

The disadvantage of a paint coating is that it consists of plastics and therefore is not natural and environmentally friendly. In addition, a damaged paint layer cannot be repaired, but must be completely removed and reapplied.

Depending on the product, different work steps are required to create a painted surface. Always read the instructions on the packaging. In general, the following steps apply:

- Primer on the nicer side
- Let dry, primer on the worse side
- Let dry, finely grind (grain size at least 220)
- Paint application on the worse side
- Let it dry, apply varnish on the more beautiful side

Paint is usually applied with spray guns. In principle, however, this can also be done with brushes or rollers. When spraying, note the following points to get a good result:

- Move the spray gun pa1rallel to the wooden surface
- Squirt at a steady pace
- Always keep the spray gun moving - never stand still

Q. 17 Explain the following with respect to adhesives
a. Setting time
b. Flash off time
c. Press time

Ans. **Setting time**

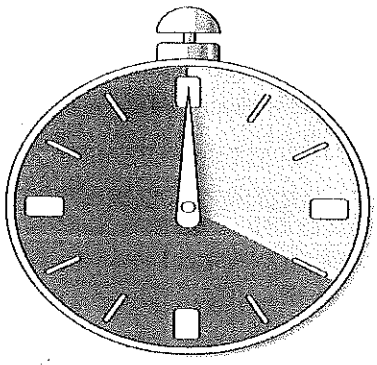
Setting time is the time until the final strength is reached depending on the temperature, wood and air humidity.

Flash-off time for contact adhesives

The flash-off time describes the waiting time after applying the adhesive on both parts before they can be put together. With contact adhesive, the solvent must evaporate before the parts are put together.

Press time

The press time is the min. Time during which the parts must remain pressed. The pressing may only be released when this time has been exceeded. Then the adhesive inside is so firm that the joint no longer shifts. Previously, the slightest force can still lead to adhesion breaks.



The pressing time must always be exceeded!

Q. 18 .What are the selection criteria for abrasive? Discuss in detail.

Ans.

a. **Particle shape.**
The shape of an abrasive may be angular, blocky, semi-round or spherical. Angular particles cut and strip away surface material on impact. Spherical particles do not have any cutting edges and are used to pound or peen a surface. Grain shape is important as rounded and angular grains behave differently when they impact a substrate such as steel. Angular, sharp particles produce the greatest cutting action and the deepest profile. Round or semi-round particles will cut much more slowly and will produce a shallower profile.

b. **Hardness**. The hardness of an abrasive is measured using the Mohs scale. Harder particles will be more aggressive in removing surface material.

c. **Particle size.** A larger particle removes material faster and it tends to produce a heavier texture or rougher surface on the base material.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set - B

Registration No_____

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1307 **Time: 2 Hour**
Course Name: Advance carpenter materials **Max. Marks: 50**
Instruction:

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

Section A

10x1=10 marks

Q. 1 Which part of the trunk is responsible for transporting the nutrients from core to its other part
(A) Pith (B) medullar rays
(C)Sapwood (D) Bast

Q. 2. Resistance to indentation means
(A) Toughness (B) Strength
(C) Hardness (D) None of these

Q. 3 Which property of wood is responsible for heat transfer
(A) Thermal Conductivity (B) Density
(C) Specific gravity (D) None of these

Q. 4 What is the SI unit of Specific Gravity
(A) Kg/m^3 (B) Unit Less
(C) kg/m^2 (D) none of these

Q. 5 What are spermatophytes
(A) Angiosperm (B) Gymnosperm
(C) Both A & B (D) None of them

Q. 6 Feldspar is the raw material for
(A) Glass (B) Adhesive
(C) Veneer (D) None of them

Q. 7 Blow molding is used for making

(A) Flat Sheet (B) Containers

(C) Dishes (D) None of them

Q. 8 The veneer obtained by boiling or steaming is

(A) Sliced veneer (B) Peeled veneer

(C) Both A & B (D) Sawn Veneer

Q. 9 Surface Treatment on wood is achieved by

(A) Priming (B) Oiling

(C) Sanding (D) All of these

Q. 10 Which adhesive is used for edge banding

(A) Fevicol (B) Marine

(C) Hot Melt (D) Sawn Veneer

Section B

04X04 = 16 Marks

Q. 11 What do you mean by glass discuss its properties

Q. 12 Discuss the term adhesion and cohesion

Q. 13 Write any three types of wood defects.

Q. 14 Write shorts notes on

a.) Sliced veneer

b) Sawn veneer

Section C

04X06 = 09 Marks

Q. 15 Discuss any three mechanical property of wood.

Q. 16 Explain various layer or component of trunk with diagram.

Q. 17 Discuss the Hardwood and softwood producing tree.

Q. 18 What is the Purpose of seasoning? Discuss its various methods in brief.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Set - B

Answer Key

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, 3rd Semester,

End Sem. Examination

Course Code: SCS1307 | **Time: 2 Hour**

Course Name: Advance carpenter materials | **Max. Marks: 50**

Instruction:

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

Section A

10x1=10 marks

Q. 1 Which part of the trunk is responsible for transporting the nutrients from core to its other part

(A) Pith (B) medullar rays

(C)Sapwood (D) Bast Ans. B

Q. 2. Resistance to indentation means

(A) Toughness (B) Strength

(C) Hardness (D) None of these Ans. C

Q. 3 Which property of wood is responsible for heat transfer

(A) Thermal Conductivity (B) Density

(C) Specific gravity (D) None of these Ans. A

Q. 4 What is the SI unit of Specific Gravity

(A) Kg/m^3 (B) Unit Less

(C) kg/m^2 (D) none of these Ans. B

Q. 5 What are spermatophytes

(A) Angiosperm (B) Gymnosperm

(C) Both A & B (D) None of them Ans.(C)

Q. 6 Feldspar is the raw material for

(A) Glass (B) Adhesive

(C) Veneer (D) None of them Ans.(A)

Q. 7 Blow molding is used for making

(A) Flat Sheet (B) Containers

(C) Dishes (D) None of them Ans.(B)

Q. 8 The veneer obtained by boiling or steaming is

(A) Sliced veneer (B) Peeled veneer

(C) Both A & B (D) Sawn Veneer Ans.(C)

Q. 9 Surface Treatment on wood is achieved by

(A) Priming (B) Oiling

(C) Sanding (D) All of these Ans.(D)

Q. 10 Which adhesive is used for edge banding

(A) Fevicol (B) Marine

(C) Hot Melt (D) Sawn Veneer Ans.(C)

Section B

04X04 = 16 Marks

Q. 11 What do you mean by glass discuss its properties

Ans. Glass

One of the most extensive answers is: "Glass is an inorganic melting product that cools down without crystallization and assumes a solidified state."

properties

- Impermeability to liquids, gas tightness
- Resistance to most chemicals
- Odorless and tasteless, no loss of aroma
- hygiene, sterility
- high light transmission
- good recycling possibility

Q. 12 Discuss the term adhesion and cohesion

Ans. **Adhesion (attachment force)**

The adhesive adheres to the surface to be bonded due to electromagnetic binding forces. Parts of the molecules of the adhesive and the material to be bonded are attracted by the different charges. This force arises from the polarity of the molecules of both substances. In order for these forces to work, the adhesive must come very close to the atoms of the materials to be bonded. The adhesive must completely cover the surface. This perfect contact between the adhesive and the material is achieved through the use of liquid adhesives.

Cohesion (internal strength)

The internal strength of the adhesive is based on the binding forces of the basic building blocks. Please note the atomic bond and the structure of the plastics in the chapter «Chemical basics».

Q. 13 Write any three types of wood defects.

Ans.

1. Blue Stain

Discoloration of wood caused by Mold that grow in warm and moist area

2. **Dead or loose Knot**
   Usually caused by dead branches which is fully integrated into tree before it is cut down.
3. **Burn Marks**
   Usually caused by Improper machining or heating of the workpiece and tool and due to blunt edges of the tool

Q. 14 Write shorts notes on
a.) Sliced veneer
b) Sawn veneer

Ans. Sawn veneer

The oldest veneer manufacturing process is sawing. To do this, the veneer sheets are separated from the tree trunk using a saw. With this process, there is a lot of wood loss from sawdust and waste. The sawn veneer has therefore largely been replaced by other manufacturing processes

Sliced veneer

In this manufacturing process, the tree trunks must first be steamed or boiled and made pliable for cutting. Then the tree trunk is clamped and pressed against a knife. With each cut, a veneer sheet is lifted, which is between 0.3 to 1.2mm thick.

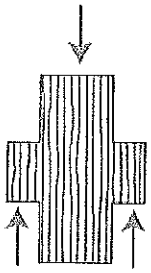
Section C

04X06 = 09 Marks

Q. 15 Discuss any three mechanical property of wood.

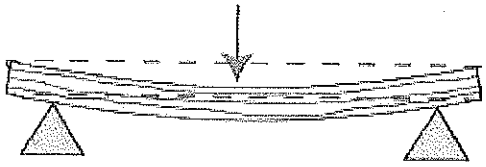
Ans. *Shear strength*

Shear or shear strength is the resistance that the wood offers to loads that the wood fibers want to shift in the longitudinal direction.



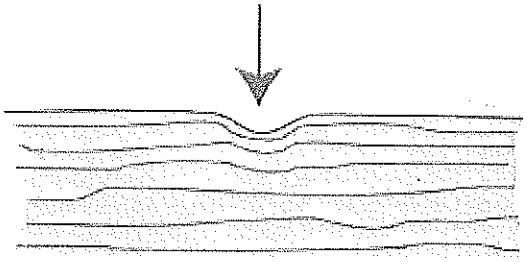
Elasticity

Elastic materials do not retain their deformation caused by stress, but return to their original shape. Particularly elastic woods are: ash, hickory, wenge.



Hardness

The hardness is the resistance that the wood offers to local impressions. The harder a material, the smaller the trace left by the pressed-on body (Brinell hardness), or the greater the effort required to achieve the same impression (Janka hardness).



Q. 16 Explain various layer or component of trunk with diagram.

Ans.

The tribe

The base layers

If you look at the cross-section of a trunk, you will see that it consists of different zones or layers.

The marrow / marrow tube lies at the center of the trunk and is responsible for the tree growing tall.

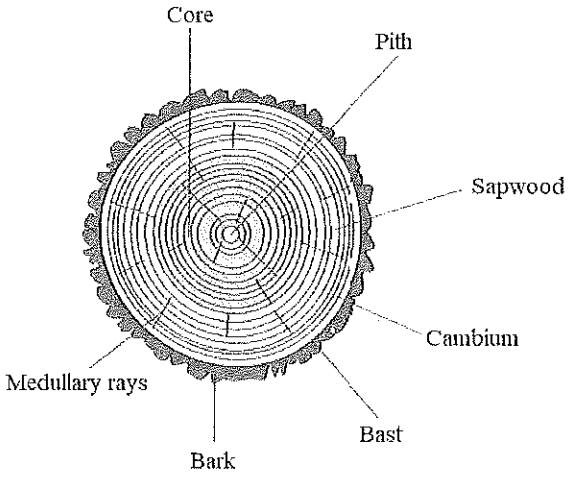
The core (the heartwood) lies in the inner part of the trunk. Heritage comes from old wooden cells that store nutrients. Most of the wood you use as a carpenter comes from this part of the tree because heartwood is more resistant than sapwood. Heartwood can be a darker color than sapwood. This varies depending on the type of wood.

The sapwood (sapwood) has the task of transporting water and nutrients from the roots to the leaves. Sapwood is less durable than heartwood. Sapwood can be lighter in color than the heartwood. This varies depending on the type of wood.

The cambium is the growth layer of the tree. It is a thin, sensitive layer. The cambium is responsible for the production of new wood during the growing season of the tree (spring and summer).

The bast is under the bark. It transports the nutrients produced in the leaves into the tree trunk.

The bark is the outermost layer of the tree. Their function is to protect the tree against extreme temperatures, pests and diseases. The bark is called bark together with the bast.



Q. 17 Discuss the Hardwood and softwood producing tree

Ans. The plant kingdom is composed of several major divisions. The one that includes all seed plants, spermatophytes, is further divided into two broad groups (separated according to how the seeds are borne). The gymnosperms (naked seeds) include all trees producing softwood lumber, and the angiosperms (covered seeds) include all trees yielding hardwood lumber.

Within the gymnosperms (softwoods), trees of North America that provide commercial softwood timber are classified into four families of the order *Coniferales.* The term conifer thus indicates softwood trees. These trees are characterized by needlelike or scalelike foliage (usually evergreen) and have an excurrent tree form (a straight and dominant main stem with subordinate lateral branching)

The angiosperms (hardwoods) include some 22 families in the United States. Hardwood trees are mostly deciduous, that is. their leaves drop in autumn. Their form tends to be dendritic or deliquescent

(characterized by branching and rebranching of the main stem). The higher density range of some species and the attractive heartwood color and figure have earned them a favored place among woodworkers.

Q. 18 What is the Purpose of seasoning? Discuss its various methods in brief

Ans. Seasoning is a process of removing the water contents or moisture content from wood

Methods of seasoning

1. Natural Seasoning
    a. Air Seasoning
    b. Water Seasoning
2. Artificial Seasoning
    a. Chemical
    b. Kiln
    c. Electrical
    d. Steaming or boiling

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

Set - A

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: GEN1309 **Time: 3 Hour**

Course Name: Woodworking CAD **Max. Marks: 50**

Instruction:

1. Answer all question from section A, each question carries one mark.
2. Answer all question from section B, each question carries four marks.
3. Answer all question from section C, each question carries six marks.
4. Answer all question from section D, each question carries nine marks.

Section – A

01X10 = 10 Marks

Q.1 What is the minimum allowable number of layers in a drawing?
(a) 0 (b) 5
(c) 2 (d) 1

Q.2 What you cannot create from the Offset command?
(a) Vertical straight (b) Concentric circles
(c) Three parallel lines (d) Parallel arcs

Q.3 When the space is not interpreted as the enter key?
(a) When entering text
(b) When using the PEDIT command
(c) When selecting objects
(d) The space is always an alternative to the enter key

Q.4 What is the difference between command Plot and Print?
(a) plot command prints only big plans
(b) No difference
(c) The plot command for CNC
(d) Print command can print up to A3 size paper

Q.5 Traditional drafters need to be able to create several different line widths because ____.
(a) Different line widths convey different information
(b) The line width has to do with how dark it appears in the finished drawing
(c) They seem to transmit better in a fax machine
(d) It makes no difference

Q.6 Which key is used to obtain properties palette in AutoCAD?
(a) Ctrl + 1 (b) Ctrl + 2
(c) Ctrl + 3 (d) Ctrl + 8

Q.7 Which one symbol shows the snap point to the closest point?
(a) with circles and dots in the centre (b) With two triangle
(c) With three orthogonal (d) With Diamond

Q.8 Which one of the following is the effect of Stretch tool on circle?
(a) Circles can be stretched into ellipses
(b) The tool has no effect upon circles
(c) Be careful because circles can be erased
(d) Treat circles like any other part of the drawing being stretched

Q.9 What is the difference between the Scale command from the command Zoom?
(a) Scale for single object, while the Zoom whole plan
(b) No difference
(c) H Scale changes the size of objects, while the Zoom changes the visibility of the project
(d) H Scale can grow / shrink a shape up 10 times, while the Zoom has no limits

Q.10 The primary difference between the Model tab and the Layout tab is ____.
(a) The Model tab is used for drawing in 3D and a Layout is used for drawing in 2D
(b) The Model tab is where you create the drawing and a Layout tab represents the sheet that you will plot or print on
(c) The colour of the background
(d) The Model tab displays the drawing you are copying from and the Layout tab is where you lay out the new drawing

Section – B

04X04 = 16 Marks

Q.11 Explain any two difference between Measure & Divide with the help of an example and also write their short key.

Q.12 Write down the name of any four dimension parameters with their short key.

Q.13 Explain the geometry rectangle, discuss any two methods to construct it.

Q.14 Explain the followings tool and also mention their short key used in AutoCAD.
(a) Explode
(b) Extend
(c) Ellipse
(d) Polygon

Section – C

01X06 = 06 Marks

Q.15 Define layers, necessity of layers and how can you remove the empty layers from drawing?

Section – D

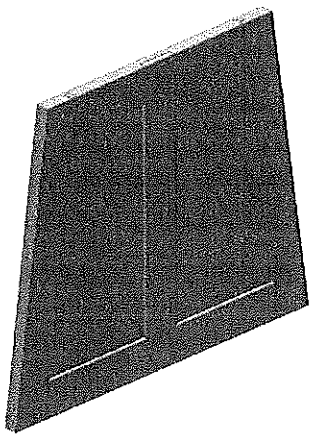
02X09 = 18 Marks

Q.16 Draw the title block with all necessary details in layout mode.

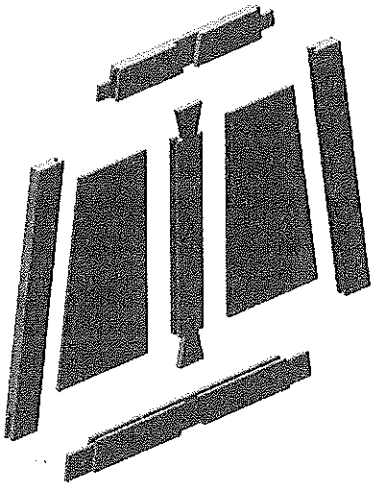
Q.17 Draw all required possible 2D views and show details of a Frame with following aspects-
Length – 600 (from bottom side)
Angle – Inner angle 82° (Towards Top)
Depth/Width – 24
Height – 500
Wood material thickness – 60 mm x 24 mm.

Note:

- Each corner has wooden Joinery.
- Top Left Side & Right Side – Haunched mortised (Male part dimensions– 40x50x8 mm)
- Bottom Right & Left Side - Bridle Joint (Male part dimensions– 60x50x8 mm)
- Middle part contain Half lap dovetail joint with 15 mm shoulder.
- Center panel MDF of 8 mm at both side.



3 D View



Exploded View

(For Your Reference)

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer key

School of Woodworking Skills

Session: 2021-22 (Winter Semester) Set-A

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: GEN1309 **Time: 3 Hour**

Course Name: Woodworking CAD **Max. Marks: 50**

Instruction:

1. Answer all question from section A, each question carries one mark.
2. Answer all question from section B, each question carries four marks.
3. Answer all question from section C, each question carries six marks.
4. Answer all question from section D, each question carries nine marks.

Section – A

01X10 = 05 Marks

Q.1 What is the minimum allowable number of layers in a drawing?
(a) 0 (b) 5
(c) 2 (d) 1 (d)

Q.2 What you cannot create from the Offset command?
(a) Vertical straight (b) Concentric circles
(c) Three parallel lines (d) Parallel arcs (a)

Q.3 When the space is not interpreted as the enter key?
(a) When entering text
(b) When using the PEDIT command
(c) When selecting objects
(d) The space is always an alternative to the enter key (a)

Q.4 What is the difference between command Plot and Print?
(a) plot command prints only big plans
(b) No difference
(c) The plot command for CNC
(d) Print command can print up to A3 size paper (b)

Q.5 Traditional drafters need to be able to create several different line widths because ____.
(a) Different line widths convey different information
(b) The line width has to do with how dark it appears in the finished drawing
(c) They seem to transmit better in a fax machine
(d) It makes no difference (a)

Q.6 Which key is used to obtain properties palette in AutoCAD?
(a) Ctrl + 1 (b) Ctrl + 2
(c) Ctrl + 3 (d) Ctrl + 8 (a)

Q.7 Which one symbol shows the snap point to the closest point?
(a) with circles and dots in the centre (b) With two triangle
(c) With three orthogonal (d) With Diamond (c)

Q.8 Which one of the following is the effect of Stretch tool on circle?
(a) Circles can be stretched into ellipses
(b) The tool has no effect upon circles
(c) Be careful because circles can be erased
(d) Treat circles like any other part of the drawing being stretched (b)

Q.9 What is the difference between the Scale command from the command Zoom?
(a) Scale for single object, while the Zoom whole plan
(b) No difference
(c) H Scale changes the size of objects, while the Zoom changes the visibility of the project
(d) H Scale can grow / shrink a shape up 10 times, while the Zoom has no limits (d)

Q.10 The primary difference between the Model tab and the Layout tab is ____.
(a) The Model tab is used for drawing in 3D and a Layout is used for drawing in 2D
(b) The Model tab is where you create the drawing and a Layout tab represents the sheet that you will plot or print on
(c) The colour of the background
(d) The Model tab displays the drawing you are copying from and the Layout tab is where you lay out the new drawing (b)

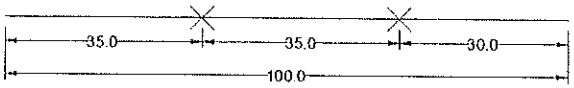
Section – B

04X04 = 16 Marks

Q.11 Explain any two difference between Measure & Divide with the help of an example and also write their short key.
Ans.

S. No.	Measure	Divide
1	Short Key – ME + Enter	Short Key – DIV + Enter
2	A line divided by no of segment	A line divided by length of segment
3	Length is automatic fixed according to segments	Length is define by user
4.	Example – If you have a 100 mm length and you required segment length 35, then it will start from left with 35 mm segment and cover it until there is margin as per desired length otherwise you have remain length segment as 30 mm	Example – If you have a 100 mm length and you required segments 4, it will start from left to right to divide, then total length divided in given 4 segment and no remain segment you get.

Major



Divide

Q.12 Write down the name of any four dimension parameters with their short key.

Ans.

S. No.	Dimension Parameter	Short keys
1	Dimension Angular	DAN + Enter
2	Dimension Arc Length	DAR + Enter
3	Dimension Radial	DRA + Enter
4	Dimension Diameter	DDI + Enter

Q.13 Explain the geometry rectangle, discuss any two methods to construct it.

Ans. A 4-sided flat shape with straight sides where all interior angles are right angles (90°). Also diagonals sides are parallel and of equal length.

1. **Corner Method** – In that we make rectangular by only click on two opposite corners.
   REC + Enter
   specify first corner point
   specify second corner point
2. **Dimension Method** – In that we make rectangular by the values of length and width of rectangular.
   REC + Enter
   specify first corner point
   D + Enter
   Specify length of rectangles
   Specify width of rectangles
   Click on right quadrant

Q.14 Explain the followings tool and also mention their short key used in AutoCAD.

(a) Explode (b) Extend
(c) Ellipse (d) Polygon

Ans.

(a) Explode - Explodes a compound object when you want to modify its component separately i.e. used for explode/brake a unit object to modify its component separately. This command can be used to explode objects like Polyline to simple lines, an array or a block to a simple geometry etc.

Short key - X + Enter

(b) Extend – Extend command allows to increase the length of an object within the limits of defined object. This can be used to extend a part of an object with respect to a boundary edge. Boundary edge can be any line, polyline, circle, arc, ellipse or any reference line.

Short key - EX + Enter

(c) Ellipse – Used to draw any oval shape by the parameter of major and minor axis. This shape formed when a cone is cut by an oblique plane which does not intersect the base.

Short key - EL + Enter

(d) Polygon – A polygon is bounded by close path with a finite sequence of straight line segments as chain. Used to draw any regular polygon (Closed chain of defined edges/sides) from 3 sides to 1024 sides.

Short key - POL + Enter

Section – C

01X06 = 06 Marks

Q.15 Define layers, necessity of layers and how can you remove the empty layers from drawing?

Ans. Layer is a concept that allow grouping of drawn geometry in separate categories according to similar features and a common theme. This allows control over drawing, by applying properties to the layers such as line type, line weight & colors etc.

Necessity –

- When a new AutoCAD drawing is created, everything which is drawn, is drawn on the one default layer, named 0. When creating drawings, the layer 0 shouldn't really be used.
- New layers should be set up with names corresponding to the desired properties.
- A user is entitled to create as many numbers of layers he requires in CAD software.
- Each layer can be defined to have its own line weight, line type, colour that is to be printed in the hard copy from drawing.
- Each layer created can be independently switched on and off in order to have a better visibility of the drawing and we can lock them to prevent editing.

Removal of empty Layers - We can delete only unreferenced layers. Referenced layers include layers 0 and defpoints. If you are working with a layer or you have some entity in drawing with same layer, that layer will not delete by anyway. For tht you have to remove that layer from all objects and also that was not current layer, then only you can delete that layer.06 essay type questions, each question carries 03 marks.

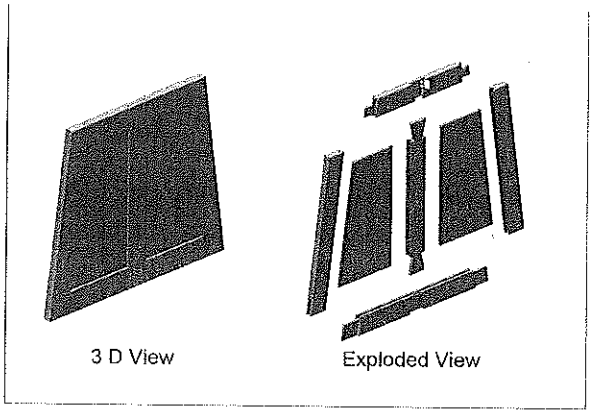
Section – D

02X09 = 18 Marks

Q.16 Draw the title block with all necessary details in layout mode.
Q.17 Draw all required possible 2D views and show details of a Frame with following aspects-

Length – 600 (from bottom side)
Angle – Inner angle 82° (Towards Top)
Depth/Width – 24
Height – 500
Wood material thickness – 60 mm x 24 mm.
Note:

- Each corner has wooden Joinery.
- Top Left Side & Right Side – Haunched mortised (Male part dimensions– 40x50x8 mm)
- Bottom Right & Left Side - Bridle Joint (Male part dimensions– 60x50x8 mm)
- Middle part contain Half lap dovetail joint with 15 mm shoulder.
- Center panel MDF of 8 mm at both side.



(For Your Reference)

Ans. Refer Attachment 1 & 2 For question 16 & 17.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer key

School of Woodworking Skills

Session: 2021-22 (Winter Semester) Set-B

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: GEN1309 **Time: 3 Hour**

Course Name: Woodworking CAD **Max. Marks: 50**

Instruction:

1. Answer all question from section A, each question carries one mark.
2. Answer all question from section B, each question carries four marks.
3. Answer all question from section C, each question carries six marks.
4. Answer all question from section D, each question carries nine marks.

Section – A

01X10 = 05 Marks

Q.1 In order to convert fractional inches into decimal inches _____.
(a) Look on a metric conversion chart
(b) Divide the numerator (top number) by the denominator (bottom number)
(c) Check the engineer's scale
(d) All of the above (b)

Q.2 Which of the following is not a property of an object?
(a) Line weight (b) Measure
(c) Hyperlink (d) Elevation (b)

Q. 3 Which one of the following is the right combination for joining by Join tool?
(a) Any two arcs
(b) Any two lines
(c) Any two objects can be joined to each other
(d) Only arcs or lines are linear with each other (d)

Q.4 Which one of the following function is toggled on/off by F9 key
(a) Grid on/off (b) Snap on/off
(c) Ortho on/off (d) Osnap on/off (b)

Q.5 The special character string that is used to print the diameter sign is.
(a) %%c (b) %%d
(c) %dia (d) c%% (b)

Q.6 When using the Rotate tool then angle of rotation is in the following direction?
(a) Clockwise
(b) Anticlockwise
(c) The direction in which the cursor is moved
(d) There is no fixed rotation direction (b)

Q.7 How much faces a Cuboid contain?
a) 6 b) 4
c) 8 d) 12 (a)

Q.8 The internal angle of regular pentagon is-

(a) 72^0 (b) 90^0
(c) 120^0 (d) 108^0 (d)

Q.9 An arbitrary point say 'B' is above horizontal plane and behind Vertical plane, the point lies in-

(a) 3rd quadrant (b) 2nd quadrant
(c) 1st quadrant (d) 4th quadrant (b)

Q.10 Once a drawing is determined to be complete, the title block is used to document the change from:

(a) A draft to a finished drawing
(b) A finished to a working drawing
(c) An assembly to a finished drawing
(d) A working drawing to a draft (a)

Section – B

04X04 = 16 Marks

Q.11 Discuss any two types of object selection method used in AutoCAD.

Ans. 1. Implied window selection method – Just click on the left upper corner and drag it down in opposite side, then a default blue window appears at the time of object selection. In this if object is not covered fully, but object will not select by this method.

2. Cross window selection method – Just click on the right upper corner and drag it down in opposite side, then a default green window appears at the time of object selection. In this if object is not covered fully, but object will select by this method.

Q.12 Write two differences between Line & Polyline with short key. Explain the conversion of a line object into polyline object.

Ans.

S. No.	line	Polyline
1	Short Key – L + Enter	Short Key – PL + Enter
2	Line object is multi selective by no. of sides & Line can't be edit	Polyline object is single selective by one entity & It is editable
3	Line object have equal width	Polyline object have equal and unequal width

By the Polyline edit tool, select join function, then select all lines for conversion as required, press enter, and Esc, then all the sides of line object can be convert into polyline object.

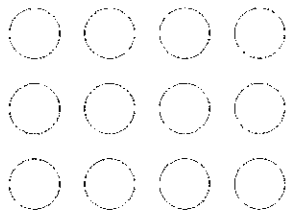
Q.13 Define Array with its short key and explain its types with neat sketch.

Ans. Array is the collection of similar object. Array creates copies of objects in a arranged pattern.

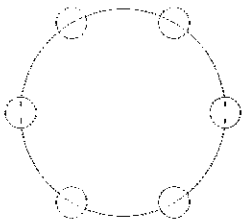
Short key - (AR + Enter)

Types of Array as follow-

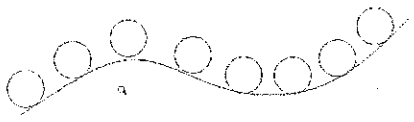
1. Rectangular Array – Evenly distributes object copies into any combination of rows, columns.
2. Polar Array – Evenly distributes object copies in a circular pattern around a center point.
3. Path Array - Evenly distributes object copies along a path



Rectangular Array



Polar Array



Path Array

Q.14 Explain six types of lines with sketch and also describe their applications.

Ans.

CONVENTIONS FOR VARIOUS LINES [ACCORDING TO B.I.S. S.P : 46 - 1988]

LINE	DESCRIPTION	GENERAL APPLICATION
A ———	CONTINUOUS THICK	A1 VISIBLE OUTLINE A2 VISIBLE EDGES
B ———	CONTINUOUS THIN STRAIGHT OR CURVED	B1 IMAGINARY LINES OF INTERSECTION B2 DIMENSION LINES B3 PROJECTION LINES B4 LEADER LINES B5 HATCHING B6 OUTLINES OF REVOLVED SECTIONS IN PLACE B7 SHORT CENTRE LINE
C ~~~	CONTINUOUS THIN FREEHAND	C1 LIMITS OF PARTIAL OR INTERRUPTED VIEWS AND SECTIONS, IF THE LIMIT IS NOT A CHAIN THIN
D ⌇⌇⌇	CONTINUOUS THIN (STRAIGHT WITH ZIGZAGS	D1 LINE
E — — —	DASHED THICK	E1 HIDDEN OUTLINES E2 HIDDEN EDGES
F - - -	DASHED THIN	F1 HIDDEN OUTLINES F1 HIDDEN EDGES
G ——— - ———	CHAIN THIN	G1 CENTRE LINES G2 LINES OF SYMMETRY G3 TRAJECTORIES

Section – C

01X06 = 06 Marks

Q.15 Explain the followings tool and also mention their short key used in AutoCAD.

(a) Hatch
(b) Offset
(c) Join
(d) Break
(e) Fillet
(f) Chamfer

Ans.

(a) Hatch - Repetitive patterns called hatching to fill regions in a drawing for various purpose. In general, used to show of object cutting view by a plane in 2D by different patterns.
Short key - H + Enter

(b) Offset - Used to create concentric circle, parallel lines, and parallel curves at a specified distance. You can offset an object at a specified distance or through a point. After you offset objects, you can trim and extend them as an efficient method to create drawings containing many parallel lines and curves. The OFFSET command repeats for convenience.
Short key - O + Enter

(c) Join - Used to join the end points of linear objects and curved objects. Combines a series of finite linear and open curved objects at their common endpoints to create a single 2D entity.
Short key - J + Enter

(d) Break - Used to erase the part of an object. It breaks the selected object between two points. You can create a gap between two specified points on an object, breaking it into two

objects. BREAK is often used to create space for a block or text. This command can be used to break 2D geometries at one or two points. It is helpful if you want to break a curve at the point of intersection with other curve or if you want to create a gap by breaking a part of the geometry.
Short key - BR + Enter
(e) Chamfer - Used to put a chamfer between two lines. This command can be used to add slant edges to the sharp corners, these slant edges are also called chamfers.
Short key - CHA + Enter
(f) Fillet - Used to put a fillet between two lines of a define radius. This command can be used to add rounded corners to the sharp edges of the geometry, these round corners are also called fillets.
Short key - F + Enter

Section – D

02X09 = 18 Marks

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Q.17 Draw all required possible 2D views and show details of a Frame with following aspects-

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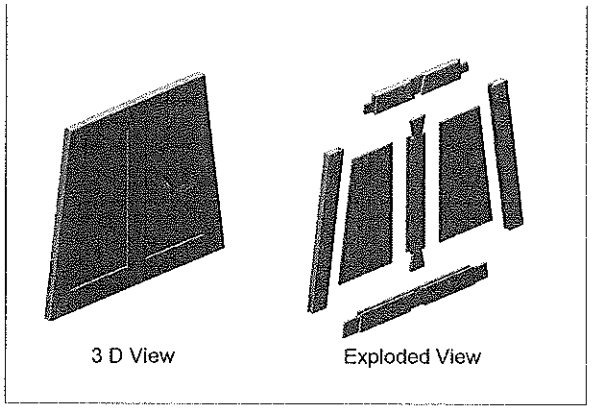

(For Your Reference)

Ans. Refer Attachment 1 & 2 For question 16 & 17.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.....

School of Woodworking Skills

Session: 2021-22 (Winter Semester)

Set - B

B. Voc. Program, 3rd Semester,

End -Sem. Examination

Course Code: GEN1309 **Time: 3 Hour**

Course Name: Woodworking CAD **Max. Marks: 50**

Instruction:

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2. Answer all question from section B, each question carries four marks.
3. Answer all question from section C, each question carries six marks.
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Section – A

01X10 = 10 Marks

Q.1 In order to convert fractional inches into decimal inches _____.
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(b) Divide the numerator (top number) by the denominator (bottom number)
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Section – C

01X06 = 06 Marks

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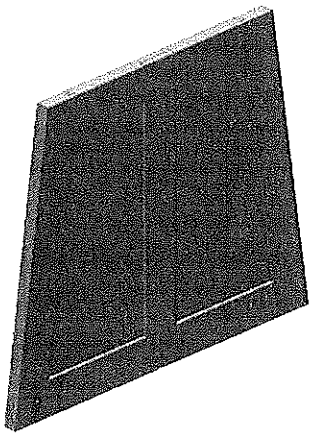
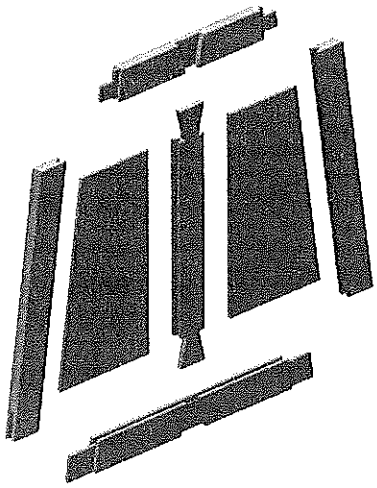


3 D View



Exploded View

(For Your Reference)