Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Carpenter Skills

3rd Semester, 1stIn-Sem. Examination

B. Voc. Program, Summer Semester (2018-19)

Course Code: SCS1301 **Time: 1 Hour**

Course Name: Advanced Handy Machines **Max. Marks: 20**

Instructions:

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

Section – A

05X01 = 05 Marks

Q.1.Which one of the following Diameter tool is used for 4×20 domino biscuit?

(a) 4 (b) 5

(c) 6 (d) 7

Q.2. Which one of the following is maximum depth of cut of circular saw without guide rail?

(a) 45 (b) 50

(c) 55 (d)60

Q.3. Which one of the following depth is set in zeta P2 machine while making climax P14?

(a) 0 (b) 10

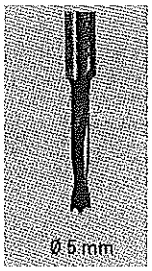
(c) 20 (d) Max

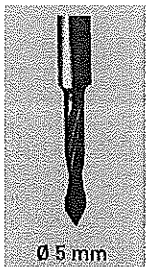
Q.4. Which one of the following is maximum depth of cut in hand planner?

(a) 4.5 (b) 5

(c) 4 (d) 10

Q.5. Which one of the following drill is used for throughout cutting?

(a) 

(b) 

(c) Both of these (d) None of these

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Section – B

03X02 = 06 Marks

Q.6. Explain the steps involved in making climax P15 by using zeta P2.

Q.7 Explain whole machine setting with tool, angle and depth in domino machine for a 25mm board with angle of 45^0 at the edge, 4×20 domino biscuit has to be placed at the edge of that board.

Q.8. Explain centering process of hand router on the drilling accessory while making multiple drill at the side of cabinet.

Section – C

03X03 = 09 Marks

Q.9. Which drill is used for throughout drilling and certain depth drilling? explain both the drills with line diagrams.

Q.10. How to change tool of edge router? Explain any 3 types of tools can be installed in edge router.

Q.11. Explain the entire process of install base board of a cabinet when surface is uneven of the place where cabinet has to be installed.

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School of Carpenter Skills

3rd Semester, 1stIn-Sem. Examination

B. Voc. Program, Summer Semester (2018-19)

Course Code: SCS1301 **Time: 1 Hour**

Course Name: Advanced Handy Machines **Max. Marks: 20**

Instructions:

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

Section – A

05X01 = 05 Marks

Q.1.Which one of the following Diameter tool is used for 4×20 domino biscuit?

(a) 4 (b) 5

(c) 6 (d) 7 **(a)**

Q.2. Which one of the following is maximum depth of cut of circular saw without guide rail?

(a) 45 (b) 50

(c) 55 (d)60 **(c)**

Q.3. Which one of the following depth is set in zeta P2 machine while making climax P14?

(a) 0 (b) 10

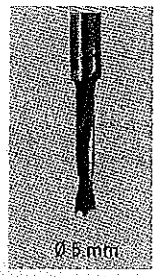
(c) 20 (d) Max **(d)**

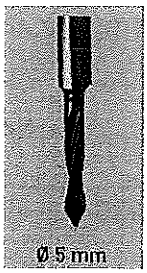
Q.4. Which one of the following is maximum depth of cut in hand planner?

(a) 4.5 (b) 5

(c) 4 (d) 10 **(c)**

Q.5. Which one of the following drill is used for throughout cutting?

(a) 

(b) 

(c) Both of these (d) None of these **(b)**

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Section – B

03X02 = 06 Marks

Q.6. Explain the steps involved in making climax P15 by using zeta P2.

Ans. – Making climax P15 by using zeta P2 following steps used:

1. Set the reference plane were machine supposed to work.
2. In bellow gauge set depth Max. and in upper gauge set depth on P15.
3. Switch on machine and put along reference plan and set it on line.
4. Push machine toward the piece carefully it should not move while making groove.

Q.7 Explain whole machine setting with tool, angle and depth in domino machine for a 25mm board with angle of 45^0 at the edge, 4×20 domino biscuit has to be placed at the edge of that board.

Ans. –

1. As mentioned in the question 4×20 domino biscuit has to be placed at the edge of board so very firstly we will have placed 4 diameter tool in domino machine.
2. As edge of the board is angled on 45^0 so machine needs to be set on 45^0 angle and as we are working on angle so not to go throughout we need to use spacer.
3. Depth should be set at 20 mm.
4. Now we can start making domino with one reference plane at both of the side of board.

Q.8. Explain centering process of hand router on the drilling accessory while making multiple drill at the side of cabinet.

Ans.- To make machine in center while doing drilling at the side of the cabinet machine needs to set on the center of the drilling template.

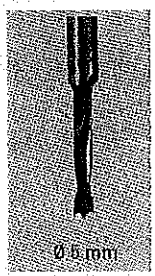
1. Place centering mandrel in machine collet.
2. Push machine down and set it in between the hole and lock machine there.
3. Now set machine straight on the template and lock it on template from four of the sides.
4. Now unlock machine take out centering mandrel and set required drill bit.
5. Set machine on drilling template and now we can start work.

Section – C

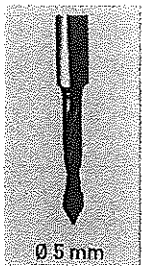
03X03 = 09 Marks

Q.9. Which drill is used for throughout drilling and certain depth drilling? explain both the drills with line diagrams.

Ans. – Blind drill - This drill bit is used to drill certain depth but not throughout depth because at the end of the edge, this drill bit is equally distributed at the corners as we can see in figure, if we try to drill throughout by using this drill it will make a lot of chip outs there.



Throughout drill - This drill bit is used to make throughout drills because of its geomatry, it will not make any chip outs while drilling. If this drill used for certain depth, it will not drill exactly till the depth we want to drill.



Q.10. How to change tool of edge router? Explain any 3 types of tools can be installed in edge router.

Ans. – To change tool of edge router first we need to lock spindle, to lock spindle press spindle lock switch inside and move tool it will get stuck in to holder. Now by using screw driver you can open screw which is mounted on the top of tool. After loosing that screw take out tool and placed another tool which required to be there and fasten screw.

3 types of tool which can be installed in machine: -

1. Chamfer tool
2. Radius tool
3. Profile tool.

Q.11. Explain the entire process of install base board of a cabinet when surface is uneven of the place where cabinet has to be installed.

Ans. –

1. Place base board exactly on the position at floor.
2. Mark a parallel line by using parallel marker.
3. If there is a lot material to cut, we will use jig saw first to cut extra material.
4. To cut remaining of less material we use hand planer.
5. By using hand planer cut all the material till the line.
6. Now we can set this base board exactly on the place it was.

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BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Carpenter Skills

3rd Semester, 1stIn-Sem. Examination

B. Voc. Program, Summer Semester (2018-19)

Course Code: SCS1302 **Time: 1 Hour**

Course Name: Advanced Standard Machines **Max. Marks: 20**

Instruction:

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

Section – A

05X01 = 05 Marks

Q.1.Which one of the following is maximum one-time sanding depth of costa wide belt sander while working with Acacia wood?

(a) 0.4 (b) 0.5

(c) 0.6 (d) 0.3

Q.2. Which one of the following measuring tool is suitable to take measurement of work piece while sanding with costa wide belt sander?

(a) Double meter (b) Steel ruler

(c) Vernier caliper (d) Roll meter

Q.3. Which one of the following machines is used for rough cutting?

(a) Panel saw (b) Bend saw

(c) Thicknesser (d) Surface planer

Q.4. Which one of the following is working table width of planer Nova F 520?

(a)450 (b) 520

(c) 1040 (d) 200

Q.5. Which one of the following is maximum one-time depth of cut of Thicknesser machine?

(a)4 (b) 5

(c) 3 (d) 6

Section – B

03X02 = 06 Marks

Q.6. Explain use of sensors which stays in between belts of costa wide belt sander machine.

Q.7 Which are the safety precautions to be kept in mind while working with machines.

Q.8. Explain Crosscut fence and Extraction hood in Panel saw.

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Section – C

03X03 = 09 Marks

Q.9.Differentiate between main saw and scoring saw. Why do we need scoring saw in panel saw machine?

Q.10.How to change sanding belt in costa wide belt sander?

Q.11. Explain blade changing of panel saw.

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School of Carpenter Skills

3rd Semester, 1stIn-Sem. Examination

B. Voc. Program, Summer Semester (2018-19)

Course Code: SCS1302 **Time: 1 Hour**

Course Name: Advanced Standard Machines **Max. Marks: 20**

Instruction:

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

Section – A

05X01 = 05 Marks

Q.1.Which one of the following is maximum one-time sanding depth of costa wide belt sander while working with Acacia wood?

(a) 0.4 (b) 0.5

(c) 0.6 (d) 0.3 **(b)**

Q.2. Which one of the following measuring tool is suitable to take measurement of work piece while sanding with costa wide belt sander?

(a) Double meter (b) Steel ruler

(c) Vernier caliper (d) Roll meter **(c)**

Q.3. Which one of the following machines is used for rough cutting?

(a) Panel saw (b) Bend saw

(c) Thicknesser (d) Surface planer **(b)**

Q.4. Which one of the following is working table width of planer Nova F 520?

(a)450 (b) 520

(c) 1040 (d) 200 **(b)**

Q.5. Which one of the following is maximum one-time depth of cut of Thicknesser machine?

(a)4 (b) 5

(c) 3 (d) 6 **(b)**

Section – B

03X02 = 06 Marks

Q.6. Explain use of sensors which stays in between belts of costa wide belt sander machine.

Ans. –

1. sensors control sanding belt oscillation system.
2. Stop the machine in case of misalignment or breakage of the abrasive belt.
3. Keep sanding belt in between both of the rollers.

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Q.7 Which are the safety precautions to be kept in mind while working with machines.

Ans. –

1. Always Wear shoes.
2. Always Wear short sleeves.
3. wear hearing protection, eye protection, Nose protection always.
4. Know where the emergency 'off' button is located.
5. Do not stand behind the machine while working.
6. Always switch on dust collector while working.
7. Always use safety stick when planning short and small pieces.

Q.8. Explain Crosscut fence and Extraction hood in Panel saw.

Ans. – Crosscut fence: - The robustly mounted crosscut fence enables precise cutting of 90° angles. All settings are 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 315 mm with a maximum cutting height of 82 mm.

Section – C

03X03 = 09 Marks

Q.9.Differentiate between main saw and scoring saw. Why do we need scoring saw in panel saw machine?

Main saw blade	Scoring saw blade
It is used to cut material.	It prevent chip outs.
Second cut made by main saw.	First cut made by scoring saw
Diameter is 350 mm	Diameter is 120mm.
Teeth thickness 3.5	Teeth thickness 3.7
It rotate in clock wise direction	It rotates in anti-clock wise direction
It will cut entire work piece.	It will cut work piece till certain depth.

We need scoring saw blade to prevent the chip out while cutting pre laminated boards.

Q.10.How to change sanding belt in costa wide belt sander?

Q.11. Explain blade changing of panel saw.

Ans. –

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

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School of Carpenter Skills

3rd Semester, 1stIn-Sem. Examination

B. Voc. Program, Summer Semester (2018-19)

Course Code: SCS1304 **Time: 1 Hour**

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

Instructions:

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

Section – A

05X01 = 05 Marks

Q.1.Which one of the following is the area of trapezoid?

(A) $\frac{b(a+h)}{2}$ (B) $\frac{h(a-b)}{2}$

(C) $\frac{h(a+b)}{2}$ (D) $\frac{a(b+h)}{2}$

Q.2. How many inches are there in 2.6 meter?

(A)60.80 inch (B)58.9 inch

(C) 102.36 inch (D)61 inch

Q.3. Which one of the following is the Conversion Scientific notation conversion of 0.00001?

(A)10^5 (B)10^{-5}

(C)10^6 (D)10^{-6}

Q.4. Which one of the following is the Area of cylinder, were "r" is radius and "h" is height of the cylinder?

(A) $V = 2\pi r(r + h)$ (B)$V = \pi R^2 h$

(C)$V = \pi r^2 h2$ (D) $V = \pi r^2 h$

Q.5. How many meters are there in 65 millimeters?

(A) 0.065 (B) 0.0065

(C) 0.00065 (D) 0.000000065

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Section – B

03X02 = 06 Marks

Q.6. Find out the density of Walnut wood of 100 mm^3 piece with mass 200 gm.

Q.7. A door having length 4 feet and height 75 inch is going to be laminated on both the sides. Calculate the lamination area in millimeter.

Q.8. A cabinet having total height of 2000mm having 3 shelfs inside with equal space. Calculate distance between shelfs when whole cabinet is made by 18 mm thickness MDF board.

Section – C

03X03 = 09 Marks

Q. 9. Define Moisture absorbent fraction, find out moisture absorption fraction for a pine of volume 80 mm^3 that is dipped in to water for 1 hour with increment in mass of 10% of original mass. (Given Density of pine – 6.03 g/mm^3)

Q. 10. What do you mean by thickness swelling in timber? Calculate thickness swelling fraction for teak wood of 18 mm with increment of 5% in thickness as of original thickness?

Q. 11. A force of 100 N is applied on circular timber with cross section of 15 mm radius find out stress generated in timber and calculate strain develop in circumference with 5% elongation in radius of timber.

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School of Carpenter Skills

3rd Semester, 1stIn-Sem. Examination

B. Voc. Program, Summer Semester (2018-19)

Course Code: SCS1304 **Time: 1 Hour**

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

Instructions:

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

Section – A

05X01 = 05 Marks

Q.1.Which one of the following is the area of trapezoid?

(A) $\frac{b(a+h)}{2}$ (B) $\frac{h(a-b)}{2}$

(C) $\frac{h(a+b)}{2}$ (D) $\frac{a(b+h)}{2}$ (C)

Q.2. How many inches are there in 2.6 meter?

(A)60.80 inch (B)58.9 inch

(C) 102.36 inch (D)61 inch (C)

Q.3. Which one of the following is the Conversion Scientific notation conversion of 0.00001?

(A)10^5 (B)10^{-5}

(C)10^6 (D)10^{-6} (B)

Q.4. Which one of the following is the Area of cylinder, were "r" is radius and "h" is height of the cylinder?

(A) $V = 2\pi r(r + h)$ (B)$V = \pi R^2 h$

(C)$V = \pi r^2 h2$ (D) $V = \pi r^2 h$ (D)

Q.5. How many meters are there in 65 millimeters?

(A) 0.065 (B) 0.0065

(C) 0.00065 (D) 0.000000065 (A)

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Section – B

03X02 = 06 Marks

Q.6. Find out the density of Walnut wood of 100 mm^3 piece with mass 200 gm.

Ans given - Volum = 100 mm^3 mass = 200 gm

$$\text{density } (\rho) = \frac{\text{mass}}{\text{volum}}$$

$$\text{density } (\rho) = \frac{200}{100} \frac{gm}{mm^3}$$

$$(\rho) = 2\ gm/mm^3 \quad \text{Ans}$$

Q.7. A door having length 4 feet and height 75 inch is going to be laminated on both the sides. Calculate the lamination area in millimeter.

Ans length = 4 feet
= 4 × 12 inch (1 feet = 12 inch)
= 4 × 12 × 25.4 mm (1 inch = 25.4 mm)
= 1219.2 mm
height = 75 inch ⇒ 75 × 25.4 mm = 1915 mm
One Side Area = length × height
Both Side Area = 2 (length × height)
= 2 (1219.2 × 1915) ⇒ 1334768.0 mm^2

Q.8. A cabinet having total height of 2000mm having 3 shelfs inside with equal space. Calculate distance between shelfs when whole cabinet is made by 18 mm thickness MDF board.

Ans Total Cabinet height = 2000 mm
3 Shelf total thickness = 18 + 18 + 18 = 54 mm
Bottom and top panel thickness = 18 + 18 = 36 mm
So remaining height = 2000 − 54 − 36
= 1910 mm
So equal distance b/w each Shelf = $\frac{1910}{4}$ mm
= 477.5 mm

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Section – C

03X03 = 09 Marks

Q. 9. Define Moisture absorbent fraction, find out moisture absorption fraction for a pine of volume 80 mm^3 that is dipped in to water for 1 hour with increment in mass of 10% of original mass. (Given Density of pine – 6.03 g/mm^3)

Ans Moisture Absorption fraction = $\frac{M_{(t)} - M_{(a)}}{M_{(a)}}$

Here - $M_{(t)}$ = Mass after 1 hour

$M_{(a)}$ = Mass in Starting time

given = Volume = 80 mm^3

density of pine = 6.03 gm/mm^3

Mass = volume × density

M_a = 80 × 6.03 = 482.4 gm

After 1 Hour =

$M_t = M_a + M_a \times \frac{10}{100}$

$= 482.4 + \frac{482.4}{10}$

$M_t = 482.4 + 48.24$

Moisture Absorption fraction

$\Rightarrow \frac{M_{(t)} - M_a}{M_a}$

$\Rightarrow \frac{482.4 + 48.24 - 482.4}{482.4}$

$\Rightarrow \frac{48.24}{482.4} \Rightarrow 0.1$ Ans

Q. 10. What do you mean by thickness swelling in timber? Calculate thickness swelling fraction for teak wood of 18 mm with increment of 5% in thickness as of original thickness?

Ans when any timber come in contact of moisture it increse its thickness, this is called thickness Swelling

thickness Swelling fraction = $\frac{T_{(t)} - T_{(a)}}{T_{(a)}}$

given = $T_{(a)}$ = 18 mm

Increment = $18 \times \frac{5}{100} = \frac{90}{100} = 0.9$ mm

Thickness after time = $T_{(t)} = 18 + 0.9$

$= 18.9$ mm

Thickness Swelling fraction = $\frac{T_{(t)} - T_{(a)}}{T_{(a)}}$

$\Rightarrow \frac{18.9 - 18}{18} = \frac{0.9}{18} \Rightarrow 0.05$ Ans

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Q. 11. A force of 100 N is applied on circular timber with cross section of 15 mm radius find out stress generated in timber and calculate strain develop in circumference with 5% elongation in radius of timber.

Ans $r_T = 15\ mm$

A_1 area $= \pi r_1^2$

$= \frac{22}{7} \times 15 \times 15 = 707.14\ mm$

$\text{Stress} = \frac{f}{A} = \frac{100 \times 7}{22 \times 15 \times 15} = 0.14\ N/mm^2$

Elongation in radius $= 5\% = \frac{15 \times 5}{100} = 0.75$

$r_2 = 15.75$

$\text{Strain} = \frac{2\pi r_2 - 2\pi r_1}{2\pi r_1} = \frac{99.1 - 94.2}{94.2}$

$\Rightarrow 0.05\ mm$ Ans