BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SC1505 **Time: 1 Hour**

Course Name: Ad. Carpenter Mathematics (Set-A) **Max. Marks: 20**

Instruction: All question compulsory. Calculator without storage is permitted.

Section – A

05X01 = 05 Marks

1)Which of the following is not used for transmitting power:

a) Belt drive b) Chain drive c) Gear drive d) Electric Motor.

2) Power transmitted from belt drive is given by

a) Torque × Force

b) Torque × Tension

c) Torque × Speed

d) Tension × Mass

3) The prediction of future value of product is called as

a) JIT

b) Scheduling

c) Forecasting

d) None of the above.

4) A circular saw blade has a diameter of 400mm and a speed of 3000 1 / min. How big is its cutting speed?

a) 62.8 m/s

b) 226 m/s

c) 62.8 mm/s

d) 226 mm/s

5) EOQ is

(a) Enterprise order quantity

(b) Enterprise order quality

(c) Economic order quantity

(d) Economic order quality

Section – B

03X02 = 06 Marks

6) A new motor is installed for a band saw. This engine runs at 740 rpm and has a pulley with a diameter of 220mm. How big must the pulley for the band saw be if the band saw reel should have a speed of 920 1 / min?

7) A gearwheel with 36 teeth sits on the shaft of a motor. The driven wheel has 52 teeth. The engine speed is specified at 1450 rpm (n,). Find speed of driven gear wheel and gear ratio.

a) What speed does the circular saw shaft reach?

b) What is the drive ratio?

8) Define a) Demand forecasting b) MRP

Section – C 03X03 = 09 Marks

9) Explain the major principles of Just in Time technique.

10) An engine run at 150 rpm drives a line shaft by means of a belt. The engine pulley is 750mm diameter and pulley of line shaft 450 mm. A 900 mm diameter pulley on a line shaft drives a 150 mm diameter pulley keyed to dynamo shaft. Find the speed of dynamo shaft. When 1) there is no slip 2) there is slip of 2% at each drive.

11) Explain the factor required to be consider before selecting the belt drive.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Answer key

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SC1505 **Time: 1 Hour**

Course Name: Ad. Carpenter Mathematics (SET-A) **Max. Marks: 20**

Instruction: All question compulsory. Calculator without storage is permitted.

Section – A

05X01 = 05 Marks

1)Which of the following is not used for transmitting power:

a) Belt drive b) Chain drive c) Gear drive d) Electric Motor.

Ans: d)

2) Power transmitted from belt drive is given by

a) Torque × Force

b) Torque × Tension

c) Torque × Speed

d) Tension × Mass

Ans:c)

3) The prediction of future value of product is called as

a) JIT

b) Scheduling

c) Forecasting

d) None of the above.

Ans: c)

4) A circular saw blade has a diameter of 400mm and a speed of 3000 1 / min. How big is its cutting speed?

a) 62.8 m/s

b) 226 m/s

c) 62.8 mm/s

d) 226 mm/s

Ans: a)

5) EOQ is

(a) Enterprise order quantity

(b) Enterprise order quality

(c) Economic order quantity

(d) Economic order quality

Ans: c)

Section – B

03X02 = 06 Marks

6) A new motor is installed for a band saw. This engine runs at 740 rpm and has a pulley with a diameter of 220mm. How big must the pulley for the band saw be if the band saw reel should have a speed of 920 1 / min?

Solution: $d_2 = \frac{d_1 \times n_1}{n_2}$ Ans: 176.95

7) A gearwheel with 36 teeth sits on the shaft of a motor. The driven wheel has 52 teeth. The engine speed is specified at 1450 rpm (n,). Find speed of driven gear wheel and gear ratio.

a) What speed does the circular saw shaft reach?

b) What is the drive ratio?

Solution:

$$n_2 = \frac{z_1 \times n_1}{z_2}$$

$$i = \frac{z_2}{z_1}$$

Ans: 1003.8 rpm, and 1.4:1

8) Define a) Demand forecasting b) MRP

Ans: a) Demand forecasting is the art and science of forecasting customer demand to drive holistic execution of such demand by corporate supply chain and business management. It involves techniques including both informal methods, such as educated guesses, and quantitative methods, such as the use of historical sales data and statistical techniques or current data from test markets. Demand forecasting may be used in production planning, inventory management, and at times in assessing future capacity requirements, or in making decisions on whether to enter a new market.

Ans: b) Material Requirements Planning is primarily related to the inventory of raw materials and components which are required to produce the products in a facility. Their demand is usually termed as secondary demand that totally depends upon the demand of finished product. MRP is a time phased priority-planning technique that estimates material requirements and schedules supply to meet demand across all products and parts in one or more plants. Now- a- days, information technology plays a major role in designing and implementing Material Requirements Planning systems and processes as it

provides information about manufacturing needs (linked with customer demand) as well as information about inventory levels.

Section – C 03X03 = 09 Marks

9) Explain the major principles of Just in Time technique.

Ans:

a) Elimination of waste
b) Waste of overproduction
c) Waste of waiting
d) Waste of movement
e) Waste of inventories
f) Waste of making defects

10) An engine run at 150 rpm drives a line shaft by means of a belt. The engine pulley is 750mm diameter and pulley of line shaft 450 mm. A 900 mm diameter pulley on a line shaft drives a 150 mm diameter pulley keyed to dynamo shaft. Find the speed of dynamo shaft. When 1) there is no slip 2) there is slip of 2% at each drive.

Solution:

1. *When there is no slip*

We know that $\frac{N_4}{N_1} = \frac{d_1 \times d_3}{d_2 \times d_4}$ or $\frac{N_4}{150} = \frac{750 \times 900}{450 \times 150} = 10$

$\therefore$ $N_4 = 150 \times 10 = 1500$ r.p.m. **Ans.**

2. *When there is a slip of 2% at each drive*

We know that $\frac{N_4}{N_1} = \frac{d_1 \times d_3}{d_2 \times d_4}\left(1 - \frac{s_1}{100}\right)\left(1 - \frac{s_2}{100}\right)$

$\frac{N_4}{150} = \frac{750 \times 900}{450 \times 150}\left(1 - \frac{2}{100}\right)\left(1 - \frac{2}{100}\right) = 9.6$

$\therefore$ $N_4 = 150 \times 9.6 = 1440$ r.p.m. **Ans.**

11) Explain the factor required to be consider before selecting the belt drive.

Ans:

1. Amount of power to be transmitted
2. Peripheral and angular speeds
3. Speed ratio
4. Efficiency
5. Centre distance between staffs
6. Space available
7. Working environment

Practical P

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SCS1504 **Time: 1:30 Hour**

Course Name: Project planning specialist in Cabinetmaking and Joinery (Set-A) **Max. Marks: 20**

Instruction: All the questions are compulsory.

Exam is to be conducted in computer lab.

Section – A

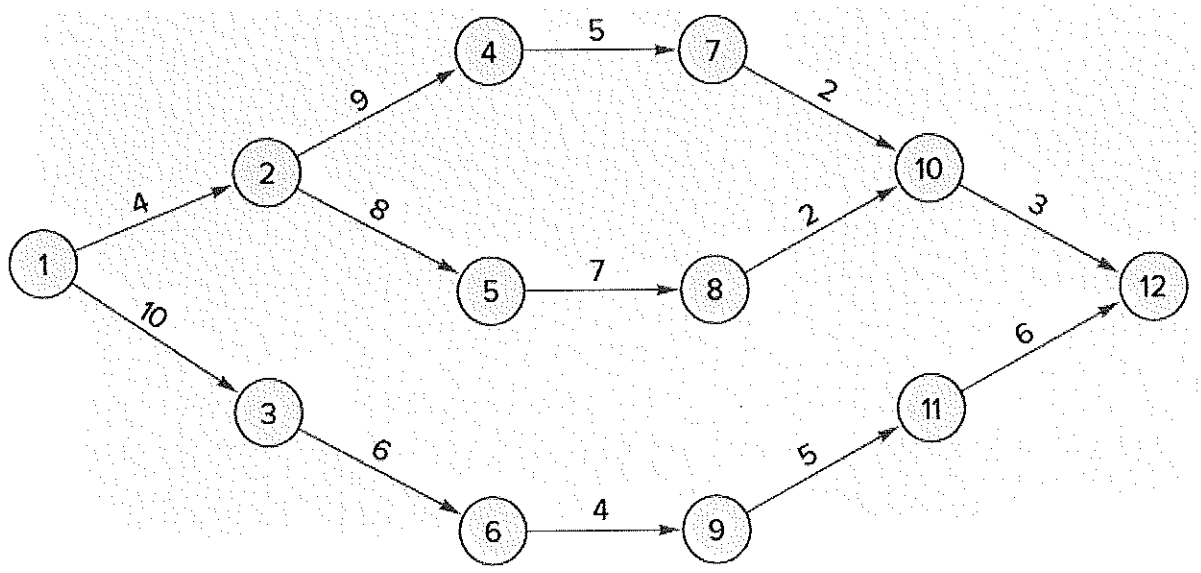
02X05 = 10 Marks

Q1. A project has the following information:

Activity	Immediate Predecessor	Duration
A	-	7
B	-	3
C	-	5
D	A	8
E	B, F	4
F	C	7
G	F	6

Find the critical path and project duration using ***ProjectLibre*** software.

Q2. An AOA network for the project is given as below.



Find the critical path and project duration using ***ProjectLibre*** software.

Section – B

01X10 = 10 Marks

Q3. Consider a project of making a cabinet and do the following using ***ProjectLibre*** software:

(a) Make the work breakdown structure and determine the project duration.

(b) Assign the resources to each activity (renewable resources only).

Assume the renewable resources availability and their cost suitably.

Answer key

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SCS1504 **Time: 1:30 Hour**

Course Name: Project planning specialist in Cabinetmaking and Joinery (Set-A) **Max. Marks: 20**

Instruction: All the questions are compulsory.

Exam is to be conducted in computer lab.

Section – A

02X05 = 10 Marks

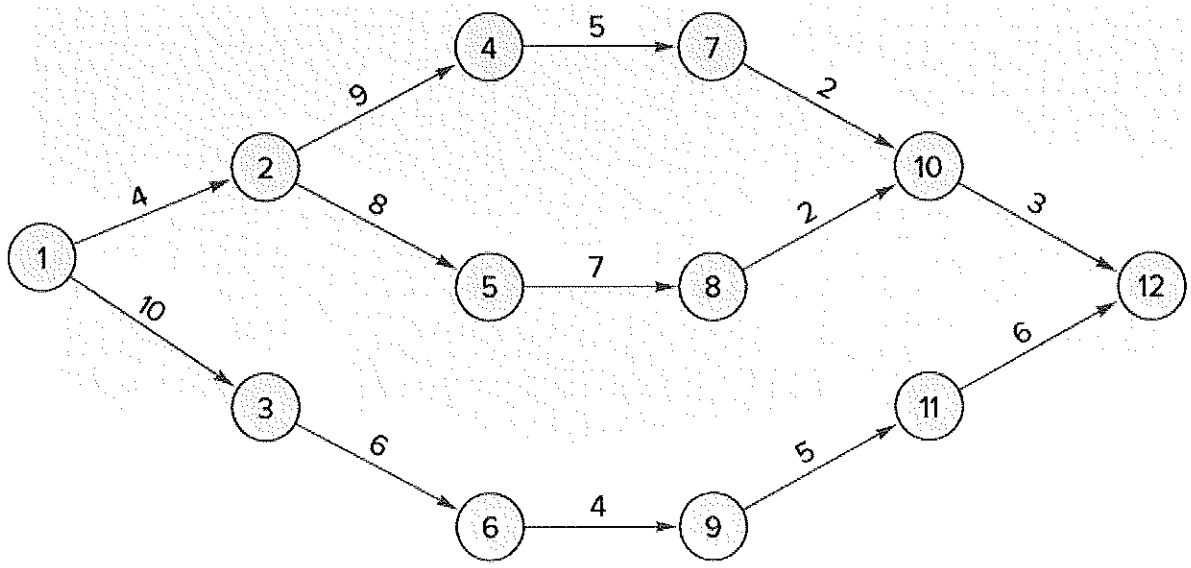
Q1. A project has the following information:

Activity	Immediate Predecessor	Duration
A	-	7
B	-	3
C	-	5
D	A	8
E	B, F	4
F	C	7
G	F	6

Find the critical path and project duration using ***ProjectLibre*** software.

Ans. Critical Path = Start-C-F-G-End
Project Duration = 18

Q2. An AOA network for the project is given as below.



Find the critical path and project duration using ***ProjectLibre*** software.

Ans. Critical Path = 1-3-6-9-11-12
Project Duration = 31

Section – B

01X10 = 10 Marks

Q3. Consider a project of making a cabinet and do the following using ***ProjectLibre*** software:

(a) Make the work breakdown structure and determine the project duration.

(b) Assign the resources to each activity (renewable resources only).

Assume the renewable resources availability and their cost suitably.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SCS1504 **Time: 1:30 Hour**

Course Name: Project planning specialist in Cabinetmaking and Joinery (Set-B) **Max. Marks: 20**

Instruction: All the questions are compulsory.

Exam is to be conducted in computer lab.

Section – A

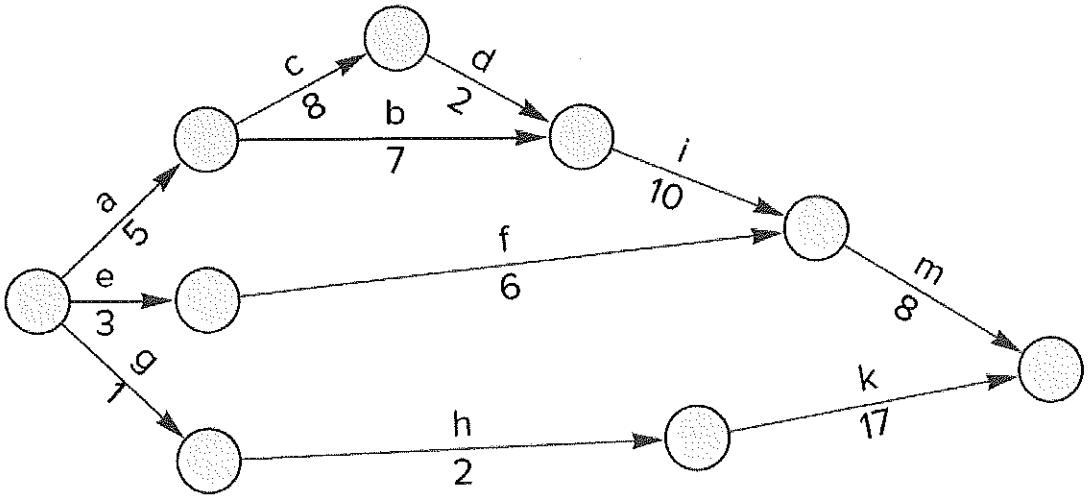
02X05 = 10 Marks

Q1. A project has the following information:

Activity	Immediate Predecessor	Duration
1	-	5
2	1	18
3	1	13
4	2	3
5	2	10
6	4, 5	4
7	3,5	11
8	6, 7	9
9	8	2

Find the critical path and project duration using ***ProjectLibre*** software.

Q2. An AOA network for the project is given as below.



Find the critical path and project duration using ***ProjectLibre*** software.

Section – B

01X10 = 10 Marks

Q3. Consider a project of making a study table and do the following using ***ProjectLibre*** software:

(a) Make the work breakdown structure and determine the project duration.

(b) Assign the resources to each activity (renewable resources only).

Assume the renewable resources availability and their cost suitably.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SCS1504 **Time: 1:30 Hour**

Course Name: Project planning specialist in Cabinetmaking and Joinery (Set-B) **Max. Marks: 20**

Instruction: All the questions are compulsory.

Exam is to be conducted in computer lab.

Section – A

02X05 = 10 Marks

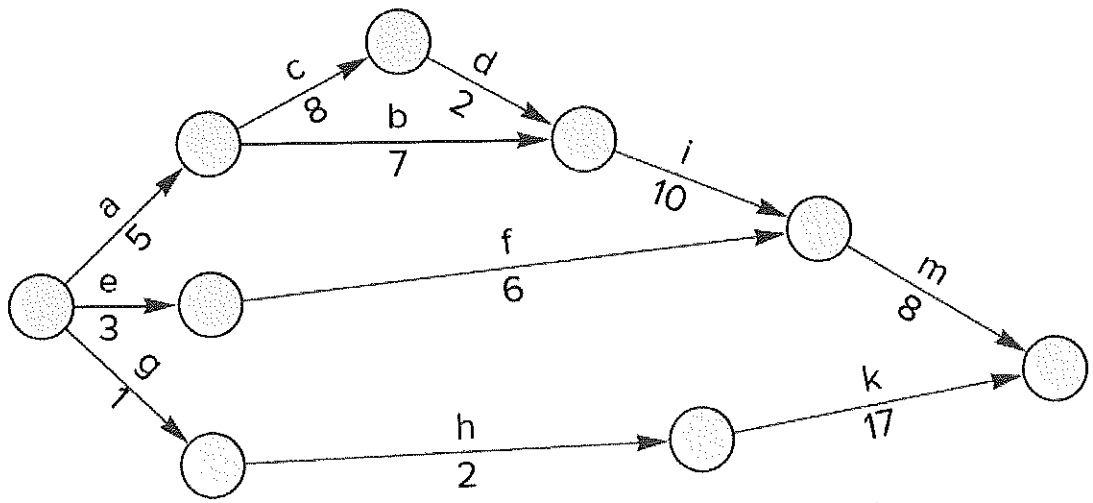
Q1. A project has the following information:

Activity	Immediate Predecessor	Duration
1	-	5
2	1	18
3	1	13
4	2	3
5	2	10
6	4, 5	4
7	3, 5	11
8	6, 7	9
9	8	2

Find the critical path and project duration using ***ProjectLibre*** software.

Ans. Critical Path = 1-2-5-7-8-9
Project Duration = 55

Q2. An AOA network for the project is given as below.



Find the critical path and project duration using ***ProjectLibre*** software.

Ans. Critical Path = a-c-d-i-m
Project Duration = 33

Section – B

01X10 = 10 Marks

Q3. Consider a project of making a study table and do the following using ***ProjectLibre*** software:

(a) Make the work breakdown structure and determine the project duration.

(b) Assign the resources to each activity (renewable resources only).

Assume the renewable resources availability and their cost suitably.

Practical A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SCS1506 **Time: 2 Hour**

Course Name: CAD 3D Drawing **Max. Marks: 20**

Instruction:

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

Section – A

04X01 = 04 Marks

Q.1 Which one of the following is the short key for Cube function?

a) Ctrl+Q b) C

c) Q d) Ctrl+C

Q.2 Which one of the following could be a PYTHA drawing file?

a) Dwg.pytha b) Dwg.pth

c) Project.poy d) Plan.pyo

Q.3 Which one of the following is not from Parts function?

a) Cone b) Cylinder

c) Cube d) Auxiliary Line

Q.4 Which one of the following function is used for 2D & 3D production?

a) Radiolab b) Model

c) Module d) Central

Section – B

02X2 = 04 Marks

Q.5 Define the need of Auxiliary lines in PYTHA, and list out any four-line parameter from Auxiliary Menu.

Q.6 Explain Following –

a) Menu Bar b) Icon Bar

c) Graphics Bar d) Input Prompt

Section – C

02X06 = 12 Marks

Q.7 Draw all possible views required and show details of an Open Cabinet with following aspects-

a) Length – 500

b) Depth – 421

c) Height – 820
d) Board material thickness – 17 mm & 8 mm (back wall)
e) Follow 32 hole drilling system for shelves
f) 2 shelves inside cabinet
g) Shelves depth is 10 mm short (less) from front edge of side wall
h) Back wall placement from back edge should be 12 mm
i) 8 mm groove in sides for back wall fixing
j) Diameter of drills is 5 mm & depth 12 mm.

Q.8 Generate part list and final drawing output file of drawn objects (Refer to question 7).

A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Woodworking Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5th Semester,

2nd In-Sem. Examination

Course Code: SCS1506 **Time: 2 Hour**

Course Name: CAD 3D Drawing **Max. Marks: 20**

Instruction:

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

Section – A

04X01 = 04 Marks

Q.1 Which one of the following is the short key for Cube function?

a) Ctrl+Q b) C

c) Q d) Ctrl+C (c)

Q.2 Which one of the following could be a PYTHA drawing file?

a) Dwg.pytha b) Dwg.pth

c) Project.poy d) Plan.pyo (d)

Q.3 Which one of the following is not from Parts function?

a) Cone b) Cylinder

c) Cube d) Auxiliary Line (d)

Q.4 Which one of the following function is used for 2D & 3D production?

a) Radiolab b) Model

c) Module d) Central (b)

Section – B

02X2 = 04 Marks

Q.5 Define the need of Auxiliary lines in PYTHA, and list out any four-line parameter from Auxiliary Menu.

Ans. For 2D construction and for the support of the 3D Modelling PYTHA offers you auxiliary lines. These are much easier tools to use. The functioning is similar to constructing at a drafting board, with thin pencil lines (the auxiliary lines) you draft the object and trace it. Tracing the auxiliary lines you directly create common PYTHA objects like chains of edges, faces or 3D parts. With the help auxiliary lines you can also produce points of intersection.

When drawing a new element, the points of intersection of the new element with all existing elements are calculated. If you delete an element, the points of intersection are also deleted.

Types of Auxiliary Lines –

a) Horizontal
b) Vertical
c) Line + Angle
d) Parallel

Q.6 Explain Following –

a) Menu Bar
b) Icon Bar
c) Graphics Bar
d) Input Prompt

Ans.

a) **Menu Bar** – This menu bar are located in the head board of PYTHA interface. This bar contains a pull down menus and these menu contains all available program functions.
b) **Icon Bar** – This icon bar are located in the head board of PYTHA interface. Headboard gives quick aces via icons to all main menus. The icons are grouped in containers according to their functionality which we can move in desktop.
c) **Graphics Bar** – The graphics bar contains similar to the icon bar buttons on head board. By this bar we can control 3D view of your scene with respect to model. It contains as XY, YZ, ZX, Axo, Persp, Zoom and Edge view.
d) **Input Prompt** – If you select a tool or function, then we need to feed some measurements and values for desired application. Then we use input prompt to feed these values.

Section – C

02X06 = 12 Marks

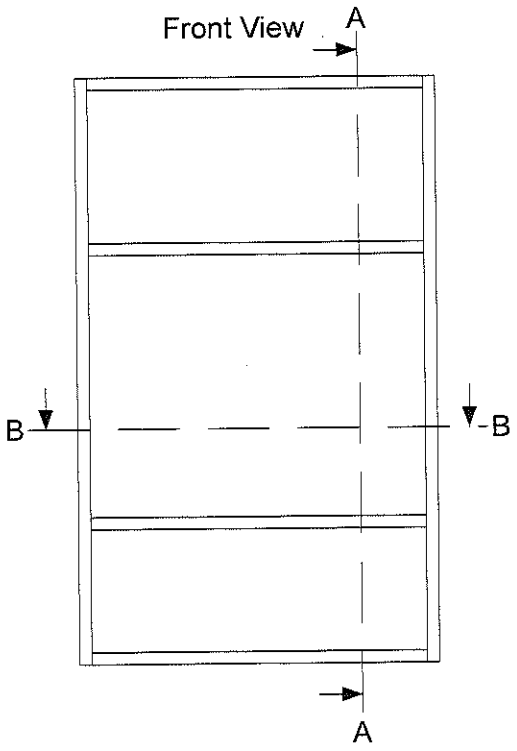
Q.7 Draw all possible views required and show details of an Open Cabinet with following aspects-

a) Length – 500
b) Depth – 421
c) Height – 820
d) Board material thickness – 17 mm & 8 mm (back wall)
e) Follow 32 hole drilling system for shelves
f) 2 shelves inside cabinet
g) Shelves depth is 10 mm short (less) from front edge of side wall
h) Back wall placement from back edge should be 12 mm
i) 8 mm groove in sides for back wall fixing
j) Diameter of drills is 5 mm & depth 12 mm.

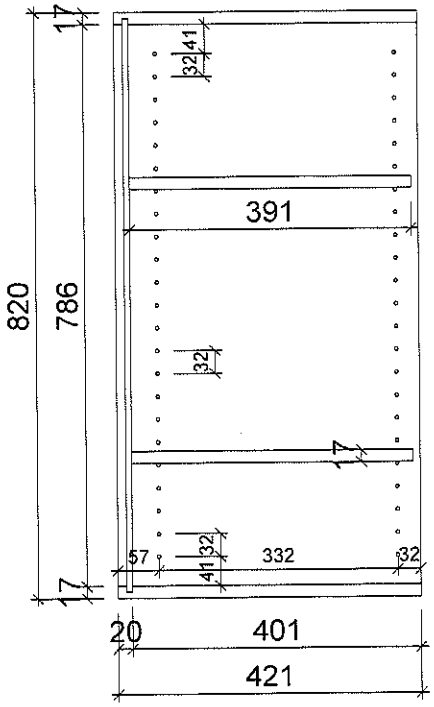
Q.8 Generate part list and final drawing output file of drawn objects (Refer to question 7).

Ans. Refer Attachment 1 & 2 For question 7 & 8.

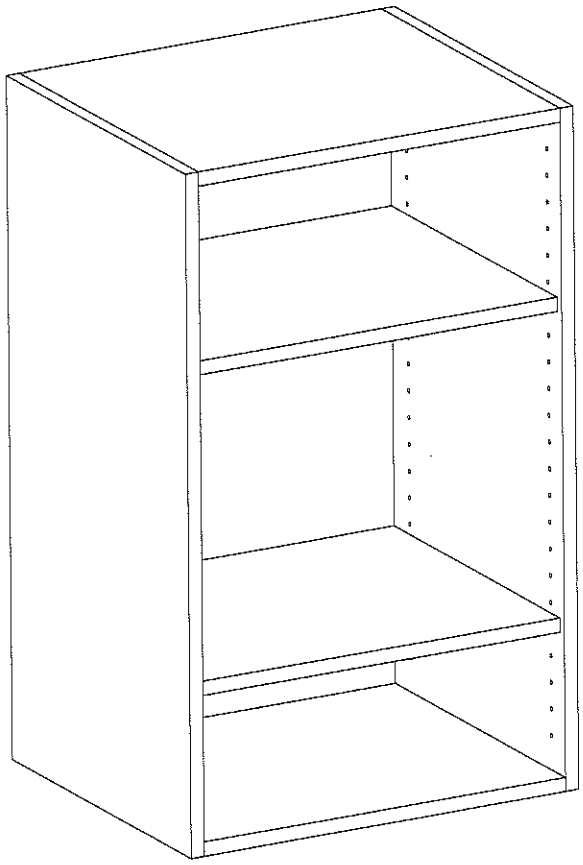
Front View



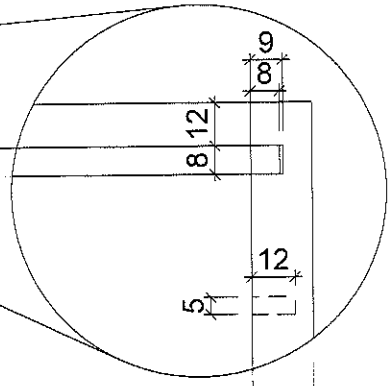
Section A-A



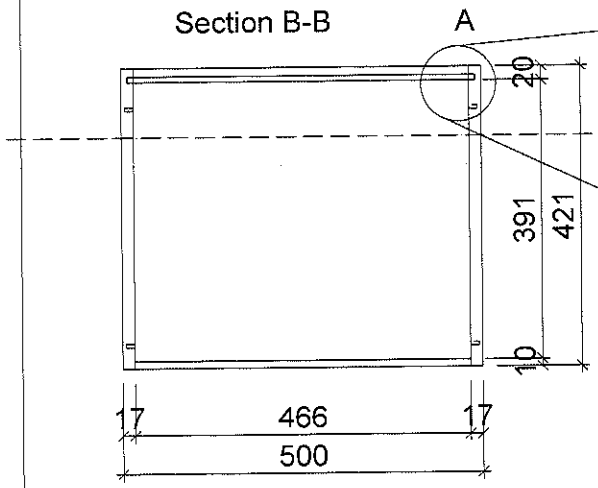
Axonometry view



Detal A



Section B-B



Name	:	XXXXX XXXXXX
Reg. No.	:	xxxxxxxxxxxx
Semester	:	V Sem.
Title	:	Open Cabinet
Scale	:	1:10 / 1:2
Subject	:	CAD 3D Drawing
Sub. Code	:	SCS1506
Date	:	Xx/xx/xxxx
School	:	School of Woodworking Skills

Attachment - 2

PYTHA Lab GmbH

Project : Open Cabinet

Customer : School of Woodworking Skills

Part List

Qty.	*Name (tree)*	*Length*	*Width*	*Thickness*
1	Back Panel	802.0	482.0	8.0
1	Bottom	466.0	421.0	17.0
1	Shelf 1	466.0	391.0	17.0
1	Shelf 2	466.0	391.0	17.0
1	Side - Left	820.0	421.0	17.0
1	Side - Right	820.0	421.0	17.0
1	Top	466.0	421.0	17.0

Submitted By -

Name : XXXXX XXXXXX
Reg. No. : xxxxxxxxxxxxx
Semester : V Sem.
Title : Open Cabinet
Scale : 1:10 / 1:2
Subject : CAD 3D Drawing
Sub. Code : SCS1506
Date : Xx/xx/xxxx
School : School of Woodworking Skills