Practice Aptitude Quiz

Printing Industry

Part 1: About this Printing Resource

QUIZ

Guidance

This Practice Aptitude Quiz is intended to be a general illustration of some of the key learning standards required of people attempting an Australian Apprenticeships entry-level qualification in the Printing and Graphic Arts Industry.

This Practice Aptitude Quiz is neither a formal tool nor a direct pre-requisite for any job application.

The quiz focuses on literacy, numeracy, comprehension, mechanical and problem solving questions contextualised to the Printing industry.

The mathematical skills required to complete the questions contained within this document are equivalent to mathematics at the Year 10 level.

Different organisations and people such as careers practitioners can use the quiz with young people, Group Training Organisations and Job Services Australia providers with job seekers.

The Practice Aptitude Quiz can be:

- Used by careers practitioners with individuals or in a class setting to provide general guidance on the level of study involved in undertaking an entry level qualification in this industry;
- Provided to people to enable them to practice their skills before sitting an actual aptitude test;
- Used by Mathematics teachers as a guide to industry maths requirements at the entry point of this particular Australian Apprenticeship;
- Used by teachers as classroom based activities for students in Year 11.

Please note that rates quoted in this assessment for various items, including pay rates, are not meant to reflect today's values, but are used purely for mathematical purposes.

The quiz should be able to be completed in approximately 60 minutes.

Calculators may be used to complete this practice exercise.

Answers are located at the end of the quiz.

Important Note:

If you are colour blind you may not be suitable for some of the printing trades, especially those that deal with colour matching. If you are unsure about whether you are colour deficient it is recommended that you undertake a colour blindness test. Here is a link to a free online test. Use this as a guide only.

www.colour-blindness.com/colour-blindness-tests

See a professional for confirmation.

Printing Industry Career, Occupational Information and Job Hunting Resources

Information and links on the Printing Industry, careers, job prospects as well as career websites and job hunting resources can be found at www.aapathways.com.au/Career-Resources.

After the Quiz

There are a range of support services available to help you find out about courses that may help you improve your literacy and numeracy skills and also your readiness for work.

If you are still at school you should discuss any concerns you may have with your career adviser. Further information may also be provided by a Job Services Australia provider, an Australian Apprenticeships Centre, a Group Training Organisation or a training provider.

Useful Contacts

Here are some links to job seeker support services:

- Search for your local Australian Apprenticeships Centre - www.aapathways.com.au/aac
- Find a local Group Training Organisation - www.grouptraining.com.au/Find/find_gto.html
- Job Services Australia providers work with eligible job seekers to develop an individually tailored Employment Pathway Plan. The plan maps out the training, work experience and additional assistance needed to find job seekers sustainable employment - www.jobsearch.gov.au/provider/default.aspx

Part 2: The Quiz

Section 1 - Literacy, Reading and Comprehension

Spelling

1. Write the following words or groups of words associated with the Printing industry in alphabetical order:

Software	
Print finisher	
Ink	
Folding	
Printing	
Lithography	
Graphic Pre Press	
Kerning	
Screen printing	
Computer to Plate	

2. The following text has 10 spelling errors. Correct those errors and list them in the order you find them in the table that follows.

Graphik Pre Press personell use computer software to create and edit images and graphics, layout pages and prepear files for print or other media.
Printers use traditonal or digital printing presses to print, mostly on different types of paper and boarrd.
Print finishers can use a combinnation of machinnery and hand techniques to finish a diverrse range of printed products.
Screen printers use different stencil methods and large fourmat printing machines to print on a huge range of different substrrates.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Comprehension

3. Read the following passage and answer the questions that follow.

The printing press is considered one of the most important inventions in history. This device has made it possible for books, newspapers, magazines, and other reading materials to be produced in great numbers.

In Europe in the mid 15th Century, a former goldsmith called Johannes Gutenberg created an alloy that was made up of tin, lead, and antimony. This alloy's main advantages were that it melted at low temperature, and it was excellent for die casting and durable in the printing press. It made it possible for separate type pieces to be used and reused. Instead of carving entire words and phrases, Gutenberg carved the mirror images of individual letters on a small block, allowing the letters to be moved easily and arranged to form words. This device was the printing press, and it revolutionized the printing industry.

In 1452, Gutenberg started printing his most famous project, the Gutenberg Bible. He managed to produce a total of two hundred copies of the bible.

Gutenberg's printing press led to a dramatic increase in the number of print shops throughout Europe.

Nonetheless, as the demand for printed materials increased over time, there was a need for a printing press that could produce higher quality prints at a faster rate.

In the year 1800, Earl Stanhope from England invented a cast iron printing press that was capable of producing cleaner and more vivid impressions.

Today, printing is mostly done with the use of computers, and modern printing presses and devices can produce prints at a much faster rate than those that were used in the past.

The use of digital printing applications and integration of these applications into traditional print markets is rapidly expanding.

Digital, unlike the traditional print processes, is a direct to output device process so it doesn't employ a "pre-press" operation as would be associated with traditional commercial printing technologies such as screen or lithographic printing. Instead, the image is created on the computer and transmitted directly to the output device.

The other distinct difference between the use of digital applications and traditional print is the relationship between the equipment and ink delivery system.

Output devices such as inkjet printers, are developed with specific ink and ink delivery system in place which is unique to each digital press.

Even though digital saves time by taking out operations, determining when to use digital printing instead of a traditional printing process is highly dependent on the number of prints needed as well as the production speed of the output device.

Did you know, more printing is done in one second today than in an entire year during the 15th and 16th centuries?

Answer the following questions:

a. **Name the three materials contained in the alloy that Gutenberg created.**

b. **What were the alloy's main advantages?**

c. **What was Gutenberg's most famous project?**

d. **In 1800, who invented the cast iron printing press?**

e. **There are two main differences between digital printing and traditional printing processes. What are they?**

Workplace Health and Safety

Manual Handling

4. The Printing industry presents many challenges with regards to manual handling.

Read the following procedure and answer the questions that follow.

Safe lifting procedures
To minimise the incidents of manual handling injuries staff should follow this procedure.
Before you lift anything, assess the load so you know if it is very heavy.
If you must lift and carry heavy loads, use the following correct techniques:
✦ Keep the load close to the body to ensure you will not have to reach out to pick up;
✦ Lift with the thigh and leg muscles and have your feet well balanced so you do not overbalance;
✦ Lift with your legs, not your back. Keep your back as straight as possible;
✦ Get a firm grip with both hands so the load does not slip when lifting;
✦ When you pick up or set down a load, do not reach more than 10 inches away from your body;
✦ Lower your body without bending your back;
✦ Do not twist your body;
✦ Use two people to lift and move a heavy load;
✦ Use lifting hooks or fitting handles to loads to reduce reaching when lifting and carrying;
✦ Only do tasks you are trained to do;
✦ If you are not sure about how to lift any load, speak to your supervisor immediately for assistance.

a. Why do you need to get close to the load before picking it up?

_____

_____

_____

QUIZ

b. Are the people in the pictures lifting safely according to the procedures? Why or why not (explain below)?

i.

ii.

i.

_____

_____

_____

ii.

_____

_____

_____

c. What should staff do if they are not sure about how to lift a load?

_____

_____

_____

Personal Protective Equipment

5. Read the following item about Personal Protective Equipment (PPE).

Personal protective clothing, overalls, hand protection and foot protection are often necessary and respiratory protective equipment may be required when dangerous gases and dusts are present. Personal Protective Equipment (PPE) includes clothing, equipment and substances designed to be worn by a person to protect them from risks of injury or disease.

PPE is only to be used in the workplace where it is not reasonably practicable to control hazards by other means.

The following information describes some PPE used to guard workers against specific hazards. Look at the Signs or Photos, read the information and then answer the questions that follow**.**

Gloves

Photo A

Breathing mask

Photo B

Goggles

Photo C

Sign A

Sign B

Sign C

Sign D

Part of Body	**Some Potential Hazards**
Head	Falling objects
Face & Eyes	Fluids, ultraviolet light, chemical splashes, fumes
Hearing	Excessive noise
Respiratory	Dust, fumes, vapours
Hands:	Abrasion, sparks, irritant substances, vibration, electric shock
Feet:	Crushing, slipping, abrasion, irritant substances, wetness, electric shock, static electricity, puncture, cold/heat

Questions

a. **You are cleaning a printing machine using a chemical that has the potential to damage eyes. What PPE could be used to guard against this hazard? (Note: there may be more than one PPE that can be used in this case).**

b. **If you are lifting heavy objects there is a risk of dropping the load on your feet. What PPE offers protection if this were to happen?**

c. **Some workplaces use chemical agents to maintain or clean equipment. What two PPE could be used to protect you from inhaling chemical fumes and prevent contact between the chemicals and your hands?**

d. **Some machinery operates at high noise levels. What PPE helps protect a worker's hearing in these types of situations?**

Section 2 - Mathematics

Numbers (Conversions, Percentages, Time)

1. Convert the following measurements:

a. 3.53 centimetres to millimetres _____

b. 393 millimetres to centimetres _____

c. 464 centimetres to metres _____

d. 1.7 kilograms to grams _____

e. 29.6 grams to kilograms _____

f. 256 millilitres to litres _____

2. Round these numbers:

a. 27.9583 to two decimal places _____

b. 43.6421 to two decimal places _____

c. 425.8 to the nearest ten _____

d. 247 to the nearest hundred _____

3. Divide:

a. 4.45 by 10 _____

b. 3,098 by 14 _____

c. 65.9 by .02 _____

4. Multiply:

a. 7.76 by 10 _____

b. 59.9 by 3 _____

c. 34.7 by 7.4 _____

5. Match the numbers to their descriptions. Write your answers in the table below.

¼ 45° 76% 3:1 34.37

percentage	
decimal number	
fraction	
ratio	
angle	

6. Write as a number:

a. One thousand and fifty seven. _____

b. Six thousand seven hundred and eighty five. _____

c. Twenty seven thousand and three. _____

Percentages

7. Evaluate the following:

a. 10% of $256 _____

b. 3.75% of 76.75 _____

c. 45% of 4,560 _____

d. 3% of 5,000 _____

8. Bisma scored 80% in an exam. There were 30 questions.

a. How many questions did Bisma get right? _____

b. How many questions did Bisma get wrong? _____

9. John, a qualified printer, earns $1,050 a week. He receives a pay rise of 3.5%. What is his new wage? _____

10. Michaela has just completed her apprenticeship in Graphic Pre-Press. She will now receive a pay increase from $850 a week to $952. What percentage was her increase?

_____

11. **In an order of 1,500 business cards, 150 have been found to be below standard.**
What percentage were:

a. Below standard _____

b. Required standard _____

12. **In an order of 25,000 books, 40% need to be delivered in 3 days.**
How many books are required? _____

Ratios

13. **What is the ratio of the number of circles to squares?**

_____

14. **To produce the colour Pantone 104C, Joe the Printer needs to mix up the ink.**

To mix the colour he needs to mix 94.10 parts of Pantone Yellow and 5.90 parts of Pantone Black to produce 100 grams. How much of each colour would he need to mix to produce one kilogram of ink?

Pantone Yellow _____

Pantone Black _____

15. **Two gears have 12 and 15 teeth respectively. What is the ratio of the number of teeth on the first gear to the number of teeth on the second gear in lowest terms?**

_____

Problem Solving

16. **How many pieces of paper, 205 mm x 125 mm in size could be cut from a large sheet 640mm x 510 mm in size?**

_____

17. Robert is a Screen Printer and earns $30 an hour plus 'time and a half' (or one and half times the normal hourly pay rate) for any hours over 38 hours. If he worked 42 hours, what was his pay for:

a. the first 38 hours work? _____

b. the overtime work only? _____

c. The entire week? _____

18. A folding machine folds 6,500 leaflets an hour. How many will be folded in 3.5 hours?

_____

19. If a 25 litre container of glue costs $165, how much does it cost per litre?

_____

20. Camella is Production Manager at a printing company, and receives a yearly salary of $75,000.

Calculate her:

a. Monthly salary _____

b. Fortnightly salary _____

21. If pallets are stacked with boxes (see diagrams), 4 layers high with each box containing 150 books, calculate how many books are on each pallet.

Top View (aerial)

a.  _____

Top View (aerial)

b.  _____

Mechanical

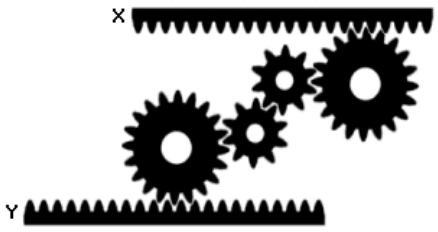
22. If gear X turns in a clockwise direction, in which direction does gear Y turn?

_____

23. If gear X turns in a anti-clockwise direction, in which direction does gear Y turn?

_____

24. If bar Y moves left at a constant speed, in which direction and speed does bar X move?



_____

Computers

25. Circle which file extension would be used for an image file?

a. .pdf

b. .docx

c. .jpg

d. .xlsx

QUIZ

26. How many 500 MB files can be stored on a hard drive with a capacity of 2 gigabytes?

_____

27. Which size image file would be suitable for emailing? Circle the correct answer.

150 k 2g b

28. List two ways to transfer files from one computer to another.

_____

_____

29. Which of the following are internet browsers? Circle the correct answer/s.

YouTube Facebook Firefox Explorer Google Twitter

ANSWERS

ANSWERS

Section 1 - Literacy, Reading and Comprehension

1. Computer to Plate
Folding
Graphic Pre Press
Ink
Kerning
Lithography
Printing
Print finisher
Screen Printing
Software

2. Graphic, personnel, prepare, traditional, board, combination, machinery, diverse, format, substrates

3.
a. tin, lead, antimony
b. melted at low temperature, excellent for die casting, durable in the printing press
c. The Gutenberg bible
d. Earl Stanhope
e. Digital has no 'pre press' operation, digital has specific ink systems unique to each machine.

4.
a. So you do not have to reach out.
b. i. No. The person is reaching out and lifting without bending their knee**s**.
Ii. No. The person does not have a straight back and is not bending with their knees.
c. Speak to your supervisor immediately for assistance.

5.
a. Goggles and Face Shield
b. Foot protection
c. Breathing mask and Gloves
d. Hearing protection

Section 2 - Mathematics

1. **a.** 35.3 mm **b.** 39.3 cm **c.** 0.464 m **d.** 1700 g
e. 0.0296kg **f.** 0.256 litres

2. **a.** 27.96 **b.** 43.64 **c.** 430 **d.** 200

3. **a.** 0.445 **b.** 221.285 **c.** 3,295

4. **a.** 77.6 **b.** 179.7 **c.** 256.78

5. percentage 76% decimal no. 34.37 fraction ¼ ratio 3:1 angle 45°

6. **a.** 1,057 **b.** 6,785 **c.** 27,003

7. **a.** $25.60 **b.** 2.88 **c.** 2,052 **d.** 150

8. **a.** 24 **b.** 6

9. $1,086.75

10. 12%

11. **a.** 10% **b.** 90%

12. 10,000

13. 3:2

14. 941 parts yellow, 59 parts black

15. 4:5

16. 12

17. **a.** $1,140 **b.** $180 **c.** $1,320

18. 22,750

19. $6.60

20. **a.** $6,250 **b.** $2,884.61

21. **a.** 4,200 **b.** 4,800

22. anti-clockwise

23. clockwise

24. left, same speed as Y

25. **c.** .jpg

26. 4

27. **a.** (150k)

28. cd, dvd, memory stick, email, external hard drive, Drop Box, Cloud

29. Firefox, Explorer

Contributions

This Practice Aptitude Quiz was developed by:

Australian Apprenticeships Pathways Website - www.aapathways.com.au
This website, part of the Australian Apprenticeships and Traineeships Information Service, provides sample Australian Apprenticeships job descriptions and links to more Australian Apprenticeships information and resources. The service is funded by the Department of Industry.

TAFE SA - www.tafesa.edu.au
TAFE SA are leaders in Print Industry Training, offering truly flexible training solutions in most parts of Australia. With the ability to train apprentices in the workplace, at our specialised training centre, on-line or a combination of all, TAFE SA can provide tailor made training to suit small or large companies.

Printing Industries Association of Australia - www.printnet.com.au
The Printing Industries Association of Australia is an independent, specialist member-based not-for-profit national organisation representing large, medium and small businesses. Its membership covers all imaging and communication sectors. These include print, prepress and design, publishing, distribution, software and hardware, paper and paper board, print consumables, packaging and flexible packaging, paper converting, binding and finishing, communication and marketing media services. It is the leading support organisation for all businesses in the Print, Packaging and Visual Communication industry in Australia.

The Career Education Association of Victoria - www.ceav.vic.edu.au
The CEAV is the Victorian peak body for secondary school career practitioners, work experience coordinators, VET coordinators and MIPS coordinators. The CEAV provides professional development opportunities for members and also works with business, industry, and the education and training sector.

Industry Training Australia P/L - www.itaust.com.au
Industry Training Australia (ITA) delivers consultancy services to government and non-government organisations in the education and training sector. ITA develops and delivers information and communication services, including the Australian Apprenticeships Pathways website, for service provider networks and the general public.

For enquiries about this Practice Aptitude Quiz contact the Australian Apprenticeships and Traineeships Information Service on 1800 338 022.