

**BRITISH FLUID POWER
ASSOCIATION
QUALIFICATIONS
PRE-PROGRAMME
QUESTIONNAIRE – PNEUMATICS &
CONTROL (P3)**

NAME:

COMPANY:

DATE:

EMAIL ADDRESS:

The purpose of this questionnaire is to enable you and the staff at the National Fluid Power Centre to:

- (i) Identify your existing knowledge level
- (ii) Provide us with sufficient information to enable us to give you guidance and recommendations towards the best routes of study, enabling you to successfully complete the written examination.
- (iii) Enables us to formulate the content and subject areas for the one-day modules held at the NFPC throughout the year.
- (iv) Choose the option which best fits your workload and lifestyle.

PLEASE RETURN THIS COMPLETED QUESTIONNAIRE TO THE DIRECTOR, NATIONAL FLUID POWER CENTRE 21 DAYS BEFORE THE INDUCTION DATE/S _____

SECTION 1

- 1) Give a brief outline of your existing qualifications.

- 2) Give a brief outline of your practical experience involving the use and application of Fluid Power Systems.

- 3) Have you studied the content of the Pneumatics & Control Programme P3 (BFPA/Q5)? (Tick accordingly) YES / NO

- 4) Have you read the National Fluid Power Centre INFORMATION SHEET BPPFA Industry Standard Qualifications? YES / NO

- 5) Do you have access to the Website? A great deal of technical information to support your studies is available through the web. YES / NO

- 6) Are you able to commit regular periods for study each week? YES / NO

- 7) Are you able to attend the technical 1-day modules provided by the NFPC throughout the year? (Normally 5 or 6 days is required to attend all) YES / NO

- 8) Are you aware that you have to attend the NFPC for practical task preparation and competence based assessment? (Normally up to 4 days depending upon your ability but we can be flexible.) YES / NO

SECTION 2 - Technical Knowledge Personal Assessment

It is important at this stage to give a realistic answer. The Level III programme is quite intense and the examination has a pass mark of 70%. With this in mind please consider your answers carefully and tick the necessary column. Many of the questions are formulated on the basis of “Can you explain” - YES / NO.

Fundamental Principles

- 1) Can you describe the basic elements used in a stationary air compressor installation? YES / NO
- 2) Can you name the preferred units for measuring:
 - a) Force
 - b) Pressure
 - c) Air consumption
 And convert from metric to Imperial units? YES / NO
- 3) If you were given the mass of a component in either SI or Imperial units, would you be able to calculate the required force to lift the component vertically? YES / NO
- 4) Following calculation of the required force above would you be able to select the nearest standard bore pneumatic cylinder to perform the lift operation given the system operating pressure? YES / NO
- 5) If a pneumatic system was unsuitable are you aware of other options that could be considered? YES / NO
- 6) If provided with the flow demand of a system at a specific pressure would you be able to select the nearest standard diameter supply pipe? YES / NO
- 7) Can you explain the difference between absolute and gauge pressure? YES / NO
- 8) Can you describe a simple method of generating a vacuum? YES / NO

Legal Regulations

- 1) Can you state the UK legal regulations for pressure systems? YES / NO

Pneumatic Circuit Components

- 1) Can you explain the difference between single-acting and double-acting pneumatic cylinders and provide two advantages for each type? YES / NO
- 2) Can you describe how adjustable end of stroke cushioning works in double-acting cylinders and why is it necessary? YES / NO
- 3) Can you provide two advantages of pneumatic air motors compared to electrical motors? YES / NO

- 4) Can you name two methods of achieving semi-rotary motion of an output shaft using pneumatic drive? YES / NO
- 5) Can you name three types of vacuum suction cups? YES / NO
- 6) Can you explain why the type of material being lifted has an effect on the selection of vacuum suction cup? YES / NO
- 7) Can you explain the difference between 4/2 and 5/2 directional control valves and give one advantage of each? YES / NO
- 8) Would you be able to name four different methods of directional control valve actuation? YES / NO
- 9) Can you explain how the speed of a double-acting cylinder can be controlled
- a) Reduce speed
b) Increase speed YES / NO
- 10) If a pneumatic cylinder is being used to lift a load, could you describe two methods of preventing the piston rod from falling should the air supply fail? YES / NO
- 11) Could you name six typical products used in an “Air Preparation System”? YES / NO
- 12) Can you explain the difference between “particulate” and “coalescing” methods of air filtration? YES / NO
- 13) Can you explain the difference between “oil mist” and “oil fog” type airline lubricators? YES / NO
- 14) Can you explain the difference between “self-relieving” and “non-relieving” types of pressure regulators? YES / NO

Electro-Pneumatic Components

- 1) Can you explain the difference between direct-acting solenoid valves and solenoid- pilot operated valves? YES / NO
- 2) Can you explain what effect the use of AC or DC switching would have on the operation of a solenoid valve? YES / NO
- 3) Can you explain how “end of stroke” electrical signals can be generated from pneumatic cylinders? YES / NO
- 4) Can you describe the difference between “reed” and “inductive” sensors and give two advantages of each? YES / NO

Circuit and Control Functions

1) Can you read and interpret circuit diagrams? YES / NO

TICK	POOR				GOOD
	1	2	3	4	5

2) Would you be able to draw a circuit diagram using current symbols? YES / NO

3) Could you name two methods of achieving control in an electro-pneumatic system? YES / NO

4) Can you name the three main logic functions used in pneumatic circuitry? YES / NO

5) Would you be able to explain the basic concept of field bus control? YES / NO

Maintenance, Monitoring and Fault Finding

1) If confronted with a machine breakdown are you familiar with the F.C.R. approach to fault diagnosis? YES / NO

FOR OFFICIAL USE

Reviewed by:

Date:

Comments:

Checked by Director:

Date:

Comments:

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