edexcel
advancing learning, changing lives

Principal Moderator Feedback

Summer 2010

GCE

GCE Engineering: 6934 01
Applied Engineering Systems

Edexcel Limited. Registered in England and Wales No. 4496750
Registered Office: One90 High Holborn, London WC1V 7BH

A PEARSON COMPANY

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Examiners' Report that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

Ask The Expert can be accessed online at the following link:

http://www.edexcel.com/Aboutus/contact-us/

Summer 2010

Publications Code UA023450

Principal Moderator Report GCE Engineering

Unit 4: Applied Engineering Systems

Overall, the candidates' performance covered the full spectrum of achievement. Some almost achieved full marks, and some were very low in single figures. Some provided their work for moderation, several still insist on presenting it as if for an open day or university entrance portfolio, with ring binders, plastic presentation wallets, folders, etc. However, most are using a single treasury tag through the top left hand corner, and A4 paper, making moderation more straightforward .

Comments on Individual Questions:

Activity 1 (task (a))

(i) – a few centres carried out a demo of the tensile test and candidates worked with the data. Some visited universities or colleges to use their equipment. Some visited local engineering companies who have a tester and one of them used rubber samples to carry out the tests. As the results of this test are then required for the following sub-tasks, they did not perform very well with them. Some carried out tests on a range of materials and provided lots of results/data, which is not needed, but the majority carried out the required test and obtained reasonable results.

(ii) – the graphs of stress versus strain seemed to cause few problems, although some very weak candidates, who did not perform as level 3 candidates, struggled with this. Calculations were treated in a similar manner, many were good, but some struggled to make sense of what was required. All compared their values, but quite a few didn't really seem to know what they were comparing. SI Units continue to be a problem in many centres. They have been in the UK for around 40 years.

(iii)– the structure supporting a load was solved reasonably well by most candidates, but the weak ones had problems with it and didn't seem to know where to start. Some used software to do the analysis, which technically fits the bill with a question starting with 'determine.....' and that's how it would be done at work.

(iv)– the calculations for this section were OK if the preceding section had gone well. Several left it out or guessed and some found that the steel rods used to make up the crane had to be between 350mm and 1400mm diameter – to hold 3 tonnes.

(v) – SI units were a constant issue here, but many did well – with a few saying that the member most under compression would extend by more than a foot.

(vi)

Activity 2

(b) – many explained what each component was, and what it did in general but not in the circuit. Many forgot about the motor, when this is actually representing an 'electro-mechanical' device.

(c) – some good answers were provided for the energy transfers, but a few just described the circuit again, without mentioning energy and without using a block diagram.

(d) – disappointingly, but not surprisingly, many just changed a component or two, which answers the question, but doesn't really show understanding. SR flip-flops or

other logic solutions were used. A handful suggested a bi-metal strip, which is the intended alternative, but there is never any accounting for intelligence.

Activity 3

(e) – A few candidates read the first couple of sentences at the start of the task and provided systems which monitored light, as well as temperature. The majority performed well with this, as they usually do, but some were poor. Many designed it around a PIC, a PC or the original circuit given in activity 2, with and without their suggested changes. Many made no mention of the physical arrangements required for the ventilation of the greenhouse, but some provided detailed sketches of levers, motor controls, etc.
This was the first time that a circuit had been used for activity 2 – usually being a electric drill, hair drier or electric scooter type of device, and last year's was a pneumatic cylinder, which was not electrical . Something to bear in mind for future exams.

(f) – generally straightforward, but some made hard work of this by writing lots of words without saying anything.

Statistics

Grade Boundaries 6934 Applied Engineering Systems

Grade	Max. Mark	*	A	B	C	D	E
Raw Boundary Mark	60	55	51	44	37	31	25
UMS	100	90	80	70	60	50	40

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467
Fax 01623 450481

Email publications@linneydirect.com

Order Code UA023450 Summer 2010

For more information on Edexcel qualifications, please visit www.edexcel.com/quals

Edexcel Limited. Registered in England and Wales no.4496750
Registered Office: One90 High Holborn, London, WC1V 7BH