

*University of the Aegean
Dept. of Product and Systems Design Engineering*

EXAMINATION IN ENGLISH

Extra Exam: FEBRUARY 2011

LEVEL IV

Name: _____

A.M. : _____

Date : _____

Time : 1.5 hours

- A. **Read the following text titled “*Smart fabrics make for enhanced living*” and answer the question in your own words, as briefly as possible:**

Explain in what way a sensor module in your bag’s handle can notify you that you may have forgotten to take some basic items with you:

[N.B.: Mere copying of part(s) of the text will NOT take ANY credits!! Also, any irrelevant or unnecessary information in your answer will be penalized!]

2 ps.

Smart fabrics make for enhanced living

Imagine a handbag that warns you if you are about to forget your umbrella or wallet, and which you can later turn into a scarf that displays today's pollution levels. Or how about creating a wall hanging that glows if someone tries to use your home's wireless internet connection?

All these bizarre objects could soon be possible thanks to a system of computerized fabric patches developed by engineers at the Massachusetts Institute of Technology. Each patch contains a functional unit of the system - a microcomputer and a memory plus either a radio transceiver, a sensor, a microphone, batteries or a display. Put the patches together in different ways and you can create a variety of information-providing or environmentally-sensing objects, say developers Adrian Cable, Gauri Nanda and Michael Bove at MIT's Media Lab.

To keep it waterproof, the circuit board inside a patch is coated with a hard transparent resin. It is then padded with a layer of foam and encapsulated in the chosen fabric. It can be populated with a variety of components, from Bluetooth transmitters to a cut-down PC motherboard.

The patches can be joined using Velcro which has been modified to enable electrical as well as physical connections. Wires from the circuit board are attached to silver-coated contacts in Velcro. In this way, data and power can flow from one module to the next. Using square or triangular patches the user can fashion, and refashion, useful objects such as bags, curtains or scarves. "You could wear a system as a scarf today and a belt tomorrow."

To make a bag that prevents people forgetting things, Nanda and Cable have equipped a module with a radio antenna and receiver. The unit is programmed to listen for signals from radio frequency identification (RFID) tags on objects like cell phones, keys and wallets.

A sensor module in the bag's handle detects when the bag has been picked up, indicating the owner might be leaving. This triggers the reader to check through the objects the computer module has been programmed to look for. If

it does not detect a required item, it uses a voice synthesizer module in another patch to warn: "Cell phone, yes! Wallet, yes! Keys, no!"

B. Fill in the blanks in the following sentences with a suitable word or phrase from the text above in the right form. Add any necessary words (such as prepositions, etc.).

1. The leaking fuel pipes need to be _____ [= encased, enclosed] lead in order to stop the leaking and protect them against further damage.
2. He sewed leather _____ onto the elbows of his jacket.
3. Rayon is used extensively to make furnishing _____.
4. The Minister's statements _____ a massive public reaction.
5. All the family enjoys the _____ flavor of my dishes ever since I started using herbs in my cooking. They do give much better taste, indeed!

5 ps.

C. Find a suitable word or phrase in the text above for the definitions below.

1. [n.] A thick sticky substance that is produced by some trees or chemically:

2. [n.] An area inside a piece of electrical equipment that uses thin lines of metal to conduct (=carry) electricity between different points:

3. [adj.] Having a special purpose; making it possible for sb. to do sth. or for sth. to happen; working or able to work correctly:

3 ps.

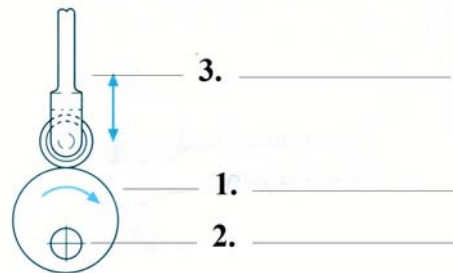
D. Find the words for the following definitions. They refer to technological issues and advances. The first letter is given.

1. [adj.] (of a mechanism) moved or operated by the pressure of water or other liquid:
h _____
2. [n.] sth artificial that is put into someone's body in a medical operation, e.g. *silicone breast* ~:
i _____

3. [n.] a piece of equipment that measures and shows the level, speed, temperature, etc of sth, e.g. *a heart ~/ a noise ~*.
m _____

3 ps.

E. Below is a diagram of a common type of a cam. Label the parts indicated.



1. _____
2. _____
3. _____

3 ps.

F. Find the words for the following definitions. They either refer to types of metals or other materials, or describe certain properties of metals and other materials. Give a noun or an adjective form according to what is indicated in the beginning. (Note: the first letter is given for some of them)

1. [adj.] Describes materials which are not destroyed by chemical action caused for example by acids, salt, etc., e.g. *stainless steel, aluminium, copper*:
c _____ - r _____
2. [n.] A substance that we use to make things stick together; any kind of glue:
an a _____
3. [n.] The type of plastic which remains rigid and retains its shape at high temperatures; however, it can NOT undergo treatment more than once or it will be damaged; e.g. *resin, melamine, urea formaldehyde*:
a(n) _____
4. [n.] A substance or material which will not transmit electricity or heat (i.e. a material which does not allow heat or current to flow easily), e.g. *urea formaldehyde*:
a(n) _____

4 ps.

G. Match the following *technical terms* with the most appropriate synonym or description on the right.

TERM		SYNONYM / DESCRIPTION	
		a)	to measure
		b)	measure [n.]
		c)	to swing backwards and forwards
		d)	electrification, electric line
1.	to reciprocate	e)	movement
		f)	to tighten
2.	to oscillate	g)	effort
		h)	pressure
3.	to rotate	i)	to press
		j)	to exercise, to place, to put on
4.	to have a linear motion	k)	to go in a line
		l)	to change
5.	to convert	m)	to go up and down
		n)	to twist in
6.	an escalator	o)	twist [n.]
		p)	moving stairs
7.	motion	q)	fastener, bracket, connector
		r)	load
8.	a sheet	s)	a large, thin, flat piece (of metal or any other material)
		t)	screw [n.]
9.	a fulcrum	u)	to screw
		v)	part, element
10.	a lever	w)	support, (centre) turning point
		x)	force, crash, collision
		y)	to go round and round
		z)	a bar or handle which moves around a fixed point

5 ps.

