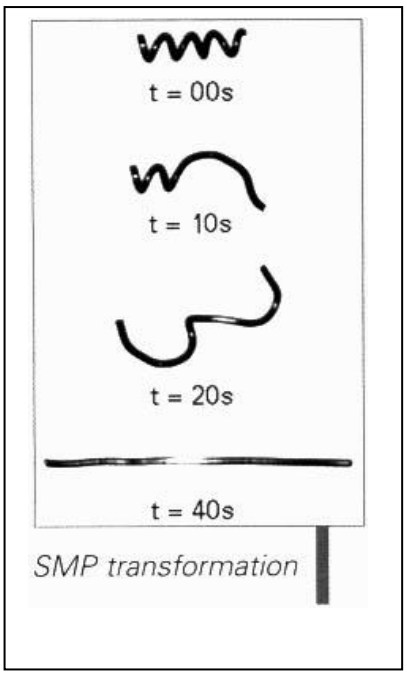
University Center Abdelhafid BOUSSOUF-Mila Duration: 1 hour

Date: 22/06/2022

Communication Skills Exam Name:
Group:

PART I : (10 marks)

▮ *Fill in the gaps with appropriate comparative and superlative forms or with synonyms.*



MNEMOSCIENCE, a German company specialising in polymer technology, has announced its intention to market "shape-memory polymers" (SMPs) in the near future. Dr Andreas Lendlein, of the *"German Wool Research Institute"* at Aachen, in collaboration with Prof. R. Langer of *MIT*, are currently developing a new family of **en** ..... *(improved)* SMPs providing ..... *(+ good)* performance and ..... *(+ versatility)*. The new process is based on polymers containing *oligo (e-caprolactone) dimethacrylate* which provides a "switching" segment, determining the temporary and the permanent shape of the polymer. The material is programmed by forming it into the required parent shape and then **ra** ..... *(increasing)* the temperature so that crystallisation of the "switching" segment occurs and cross links are formed. The material can then be bent into any other configuration and will switch back to the former parent form at the transient temperature.

Shape-memory substances are, in fact, not new. The ..... *(≠ worst)* known is "Nitinol", a nickel-titanium alloy that has been widely used for actuators in robotic applications and medical devices for a considerable time. However, SMPs have a considerable number of advantages over shape-memory alloys (SMAs) and offer a far wider range of applications. Their **fo** ..... *(main)* advantage is that they are much ..... *(+ easy)* to make and consequently ..... *(– expensive)*. This is because, **un** ..... *(in contrast to)* alloys, the programming of polymers can be carried out rapidly and at ..... *(+ low)* temperatures, about 70°C instead of several hundred degrees. Other advantages include:

- The reaction time after the transient temperature has been reached is much faster.
- By varying the proportions of the two monomers, the specification of deformations can be adjusted with ..... *(+ accuracy)*. This means that SMPs with predetermined mechanical strength and transient temperatures can be designed to **su** ..... (*match, correspond to*) specific functions.
- The deformation capability is ..... *(20 x > great)* SMAs.

B. Here are some answers to FAQs (Frequently Asked Questions) concerning the fetus. Write the corresponding questions.

1. It usually begins to beat in week 5-7.	→	At what stage ....
2. The fetus monitors its own temperature from 30 weeks onwards.	→	When ....
3. No they don't. The fetus of the male weighs more than that of the female.	→	Do ....
4. This happens at about 30 weeks (it can be checked by moving a light across the skin of the mother's abdomen. The fetus moves its head towards the light).	→	In which week ....

C. Make sentences using the following words.

1. **harden** / bones / begin / 13th week .....
.....

2. **lengthen** / femur / 4th week / considerably .....
.....

3. **thicken** / the wall / uterus / fertilisation .....
.....

Good luck