

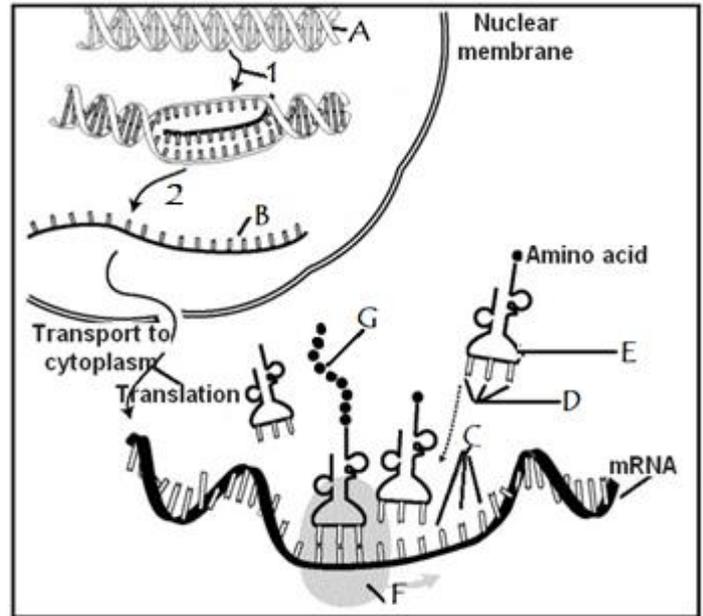
**MINISTRY OF EDUCATION, HERITAGE AND ARTS**  
**YEAR 13 BIOLOGY**  
**REVISION WORKSHEET 3**

Write the answers to the following questions in your exercise/activity books.

**Protein synthesis**

1. Write on the following topics using 100 words. (10 marks)
  - a. Central Dogma Theory of (Molecular) Biology.
  - b. Types of RNA and their roles.

2. Study the diagram below of protein synthesis to answer the questions that follow.
  - a. Name the structures A-G. (7 marks)



Source: <https://www.pedagogie.ac-nantes.fr/>

- b. Name and describe the process labelled 1. (3 marks)
- c. Name and describe the process labelled 2. (3 marks)
- d. Describe the events that take place during the process of **translation**, and state the result of this process. (3 marks)
- e. A section of mRNA has the following bases:  
 C-G-A-G-U-A-C-U  
 List the bases that will correspond to this mRNA section in the DNA and tRNA. (4 marks)

3. The diagram given below is of the Genetic Code.

		Second Letter					
		U	C	A	G		
1st letter	U	UUU   Phe UUC UUA   Leu UUG	UCU   Ser UCC UCA UCG	UAU   Tyr UAC UAA   Stop UAG   Stop	UGU   Cys UGC UGA   Stop UGG   Trp	U C A G	
	C	CUU   Leu CUC CUA CUG	CCU   Pro CCC CCA CCG	CAU   His CAC CAA   Gln CAG	CGU   Arg CGC CGA CGG	U C A G	
	A	AUU   Ile AUC AUA AUG   Met	ACU   Thr ACC ACA ACG	AAU   Asn AAC AAA   Lys AAG	AGU   Ser AGC AGA   Arg AGG	U C A G	
	G	GUU   Val GUC GUA GUG	GCU   Ala GCC GCA GCG	GAU   Asp GAC GAA   Glu GAG	GGU   Gly GGC GGA GGG	U C A G	

- a. One feature of the Genetic Code is that it is degenerate. Use examples to explain what this means. (2 marks)
- b. Name the amino acid that is the exception to the feature of (a) above. (1 mark)
- c. List the 3 codons for the STOP signal. (3 marks)
- d. Give the codon for the Start signal represented by the amino acid (1 mark)

(Source: <https://en.ppt-online.org/>)

4. Differentiate between the following:
  - a. globular and fibrous proteins. (2 marks)
  - b. alpha and beta (secondary) proteins. (2 marks)
5. Describe **two** roles of proteins. (4 marks)

**The End**