## **Transport in Animals** Question Paper 3

Level	IGCSE
Subject	Biology
Exam Board	CIE
Торіс	Transport in Animals
Paper Type	(Extended) Theory Paper
Booklet	Question Paper 3

Time Allowed	l: 59 minutes
Score:	/49
Percentage:	/100

1 The liver is an organ with a large number of different functions.

Fig. 4.1 shows the liver, its blood supply and some other organs. The blood vessels are labelled P to R.



(a) A person eats a meal containing protein and carbohydrate.

Complete Table 4.1 to show the blood vessel that has the **highest** concentration of glucose, oxygen and urea as this meal is absorbed.

Use the letter, **P**, **Q** or **R** to identify each blood vessel.

Table 4.1

substance transported by blood	letter of blood vessel in Fig. 4.1
glucose	
oxygen	
urea	

Write the letters for the blood vessels with the **highest** concentration of each substance in the spaces on Table 4.1. [3]

(b) Amino acids are absorbed from the small intestine and transported to the liver.

Describe how the liver is involved in the metabolism of amino acids.

[3] (c) Describe the effects on the liver of the following. (i) insulin released from the pancreas [2] (ii) adrenaline released from the adrenal glands ..... \_\_\_\_\_ [2] ..... (iii) excessive long-term consumption of alcohol [2] ..... Dr. Asher Rana asherrana@chemistryonlinetuition.com www.chemistryonlinetuition.com

(d) Cholesterol can accumulate in the gall bladder to form gall stones. These gall stones may stop bile flowing from the liver through the bile duct and into the duodenum.

Explain the possible effect of gall stones on the digestion of fat.

	[4]

[Total: 16]



2 Blood flows through the hepatic portal vein from some organs to the liver.

Fig. 2.1 shows the hepatic portal vein and these organs.



(a) Blood in the hepatic portal vein is deoxygenated.

Explain why the blood in the hepatic portal vein is deoxygenated rather than oxygenated.

[2]

(b) Name four organs, other than the spleen, that are shown in Fig. 2.1 and from which blood flows into the hepatic portal vein.

	1
	2
	3
	4 [4]
(c)	Describe the role of the hepatic portal vein in the transport of absorbed nutrients.
	[3]
(d)	Explain how the liver is involved in regulating the composition of the blood <b>and</b> in protecting the body against toxic substances.
	[5]

(e) The spleen contains lymphatic tissue which is full of phagocytes and lymphocytes.

Describe how phagocytes **and** lymphocytes protect the body against the spread of disease-causing organisms.

phagocytes	 	
lymphocytes	 	
		[4]
		[Total: 18]



3 Heart surgeons may stop the heart beating during operations. While this happens blood is pumped through a heart-lung machine that oxygenates the blood.

Fig. 1.1 is a diagram showing a heart-lung machine in use.



(a) Name the structures labelled A to D.			
	Α		
	в		
	С	<u>CHEMISIKY ONLINE</u>	
	D		[4]
(b) Name the blood vessels E and F.			
	E		
	F		[2]

.....

(c) The heart-lung machine is used so that surgeons can operate on the arteries supplying heart muscle. These arteries may be diseased.

Name these arteries and explain how they may become diseased.

	name of arteries			
	explanation			
		7		
				[3]
(d)	Suggest why a pa	itient is put on a heart-lu	ing machine during su	uch an operation.
				[2]
Hur pre	mans have a doub ssure circulation.	le circulation system. T	here is a low pressu	re circulation and a high
(e)	Explain how the s different pressure	structure of the heart er s.	ables it to pump bloo	d into two circulations at
			100	
				[4]
				[Total: 15]