

Chittagong Veterinary and Animal Sciences University, Chittagong  
Faculty of Fisheries

B.Sc. Fisheries (Hons.), Year-01, Semester-2 (July–December), Final Examination' 2017

Course Code: ICH-102 (T); Course Title: Ichthyology (Theory)

Full Marks: 70; Time: 3 hours

Figure in the right margin indicates the full mark. Answer any 05 (five) questions from each section. Use separate answer script for each section.

**Section -A**

1. a) Define Ichthyology and Pisces. 1  
b) Write an example of an anadromous fish. Write down the identifying characters of its respective Order. 3  
c) Compare the evolutionary changes in rayfin fishes (Actinopterygii). 3
2. a) Differentiate Chondrichthyes from Osteichthyes. 2  
b) Write at least three most notable features and two examples of each of the following orders: i) Torpediniformes; ii) Synbranchiformes; iii) Pleuronectiformes; iv) Tetraodontiformes; v) Perciformes. 5
3. a) What do you mean by skeleton of fish? 1  
b) Discuss appendicular skeleton of fishes with figures. 5  
c) Draw labeled diagram of trunk and first caudal vertebra of bony fish. 1
4. a) What do you mean by digestion and digestive system? 1  
b) Classify fish on the basis of feeding habit with examples. 2  
c) Explain the feeding adaptation found in lip, teeth and stomach with figures. 4
5. a) Define cardiovascular system and mention the constituents of it. 1  
b) Diagrammatically show the generalized scheme of heart in shark and bony fish. 1  
c) Describe arterial blood circulation in bony fish with diagram. 5
6. a) What is respiration? Write the names of respiratory organs found in fishes. 1  
b) Briefly mention about the structure of gill in bony fishes. 4  
c) Write about the accessory respiratory organs found in fishes. 2
7. a) What do you understand by streamlined body? 1  
b) Distinguish between the following pairs: i) Physostomous and physoclistous 6  
ii) Kidney of freshwater fish and kidney of marine water fish iii) Oviparous and viviparous.

**Section B**

8. a) Classify chondrichthyes upto order level with examples. 3  
b) Give an example of lobe finned fishes. Why fish belonging to this group are unique. 2  
c) What do you know about extinct fishes? 2
9. a) Define and classify fish muscle with figure. 2  
b) Describe the skeletal musculature of the head of bony fish. 4  
c) Differentiate between cyclostomine and piscine. 1
10. a) Define excretion. Write the names of excretory organs in fishes with their secreted products. 2  
b) Differentiate between pronephric and mesonephric kidneys. 2  
c) Show the schematic diagram of a glomerular nephron in a fish kidney. 3
11. a) Differentiate between air bladder and air sac. 1  
b) Write down the mechanisms of filling and emptying of air bladder. 4  
c) "The gas bladder is a hydrostatic organ"- explain. 2
12. a) Define respiration and mention the morphological types of gill found in fishes. 2  
b) Explain the variations in fish gills with examples. 2  
c) How do O<sub>2</sub> get carried to the cells or tissues in fish? 3
13. a) What do you know about spinal nerves? 1  
b) Diagrammatically show the position of endocrine glands in fishes. 2  
c) Enlist the cranial nerves of fishes with their functions. 4
14. Write notes on **any 02 (Two)** of the followings: 3.5×2 =7  
i) Derivatives of fish skin; ii) Rheoreceptor; iii) Electric organs iv) Holocephali.

Chittagong Veterinary and Animal Sciences University, Chittagong  
 Faculty of Fisheries  
 B. Sc. Fisheries (Hons.) Year – 01 Semester – 02, Final Examination 2017  
 Course No: HPF-102 (T), Course Title: Handling and Preservation of Fish (Theory)  
 Total Marks: 70, Time: 3 hours

Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) What do you mean by fish preservation? State the fundamentals of fish preservation. 3
- b) Do you think marine fishes are more beneficial for human health over their freshwater counterparts? Why? 2
- c) Why knowledge of chemical composition is important to a fish processor? 2
2. a) What is shelf life? Why fish is regarded as much more perishable than any other flesh foods? 2
- b) Illustrate the structure of fish and shrimp muscle. 5
3. a) Why freezing point for fish is far lower than freezing point of pure water? 2
- b) What do you mean by thermal arrest period? Show using a simple mathematical example that “during fish freezing, more than 50% of the heat is removed from fish in thermal arrest period”. 3
- c) What do you mean by glazing? Write down its purposes. 2
4. a) How to minimize cross contamination during handling of fish? 3
- b) Discuss briefly about good handling practices of harvested fish on the deck of a fishing vessel. 4
5. a) What is rigor? Briefly discuss the stages of rigor in fish. 2
- b) Enumerate the factors influencing rigor in fish. 3
- c) How does rigor affect the quality of frozen fillet? 2
6. a) Write down briefly what are the major points do you consider while planning and designing of fish working premises? 4
- b) Draw and layout of a typical shrimp processing plant. 3
7. Write notes on **any two** of the followings: 3.5×2= 7
- a) Dry ice
- b) Ideal fish box
- c) Fish supply chain

**Section-B**

8. a) What do you mean by chilling and super chilling? 1
- b) Write down the principles and methods of fish chilling. 2
- c) What is dry ice? Write down its pros and cons with its applications. 2
- d) Differentiate between CSW and RSW. 2
9. a) What do you mean by spoilage of fish? 1
- b) Discuss the mechanism of microbial and non-microbial spoilage of fish. 4
- c) What do you mean by histamine poisoning in fish? How does it take place? Mention its control measures. 2
10. a) What are the changes take place in fish during chilling? 3
- b) “For every hour fish is kept at ambient temperature the equivalent of 1 day’s shelf life is lost”-justify with examples. 3
- c) Enlist the substances used to prepare bactericidal ice. 1
11. a) How does ice retard spoilage? 2
- b) Briefly describe the changes occur in fish body during freezing. 3
- c) Why fish is frozen at -40°C, but stored at -18°C. 2
12. a) How does packaging enhance the shelf life of fish? 2
- b) What do you mean by air freight packaging? What are the requirements of air freight packaging? 2
- c) What do you mean by MAP? How does it extend the shelf life of fish? 3
13. a) What are the purposes of using anesthetics during live fish transportation? 2
- b) Suppose you have to transport 100 Kg of *Labeo rohita* fry from Mymensingh to Chittagong. Which method of transportation you will choose and why? Describe the pre-requisite and overall procedure for the successful transportation of your fish fry. 5
14. a) What do you mean by putrefaction? 1
- b) Suppose your community does not have a refrigerator to keep fish safely. What traditional fish preservation method (s) would you recommend to keep it safe for many days? How? 3
- c) Illustrate *sous vide* technology for packaging of fish with advantages and disadvantages. 3

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
**B. Sc. Fisheries (Hons.) Year -01 Semester-02, Final Examination' 2017**  
**Course No: EME-102 (T), Course Title: Estuarine and Marine Ecology (Theory)**  
**Total Marks: 70, Time: 3 hours**

*Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section-A**

- |    |    |  |       |
|----|----|--|-------|
| 1. | a) | Define and draw a typical estuary.   | 2.0   |
|    | b) | Classify estuaries on the basis of origin and salinity gradient.   | 4.0   |
|    | b) | What do you mean by stratification?  | 1.0   |
| 2. | a) | Write down the names of at least five estuaries of Bangladesh.   | 1.0   |
|    | b) | Differentiate between osmoregulators and osmoconformers with examples.   | 2.0   |
|    | c) | Describe different physiological adaptations found in estuarine organisms.   | 4.0   |
| 3. | a) | Define food chain and food web.  | 1.0   |
|    | b) | Draw a generalized diagram of estuarine food web.  | 3.0   |
|    | c) | What is keystone species. How keystone species maintain the stability of marine ecosystem?   | 3.0   |
| 4. | a) | What do you mean by intertidal communities? How can you classify the intertidal communities of marine ecosystem?                             | 3.0   |
|    | b) | Describe the rocky shore communities in relation to its zonation in marine ecosystem.  | 4.0   |
| 5. | a) | Differentiate between hard coral and soft coral?   | 1.0   |
|    | b) | What is zooxanthellae? Describes the role of zooxanthellae in coral reef ecosystem.  | 2.0   |
|    | c) | What are the conditions needed for coral development in marine ecosystem? Why corals are not abundantly distributed in our marine ecosystem? | 4.0   |
| 6. | a) | What do you know about benthic fish and benthopelagic fish with examples?  | 2.0   |
|    | b) | What is marine snow? Why is it very important for the nutritional requirement of deep sea fishes?  | 2.0   |
|    | c) | Discuss about the diversity of different organisms found in the hadal zone of marine environment.  | 3.0   |
| 7. |    | Write short notes on any Two (02) of the following   | 3.5×2 |
|    | a) | Estuarine circulation  |       |
|    | b) | Marine food web  |       |
|    | c) | Marine benthic community   |       |

**Section-B**

- |     |    |  |       |
|-----|----|--|-------|
| 8.  | a) | Compare and contrast among the terms bay, ocean and gulf with examples?  | 2.0   |
|     | b) | Draw a schematic diagram of the benthic environment of the marine habitat.   | 3.0   |
|     | c) | What is turbidity current? What are the impacts of turbidity current on ocean bottom topography?   | 2.0   |
| 9.  | a) | What do you know about salt marshes? What are the basic requirement for the development of salt marshes communities in estuarine ecosystem?                                | 3.0   |
|     | b) | Describe the communities found in the salt marshes food web of estuarine ecosystem.  | 4.0   |
| 10. | a) | How the ocean acidification through climate changes are influencing the abundance and distribution of marine primary production?   | 2.0   |
|     | b) | Discuss the adaptation of phytoplankton to the changing of light intensity in marine environment.  | 3.0   |
|     | c) | What are the ecological significance of marine coccolithopores and radiolarians in marine environment?   | 2.0   |
| 11. | a) | What do you know about the aphotic zones of marine environment? Discuss the generalized adaptation of marine organisms to live in the aphotic zones of marine environment. | 3.0   |
|     | b) | “Deep sea fishes need special type of adaptations”-Justify.  | 2.0   |
|     | c) | “Continental shelf area is rich in biodiversity”-Explain the statement.  | 2.0   |
| 12. | a) | What do you mean by biogeochemical cycle? Discuss about the carbon cycle of marine environment.  | 4.0   |
|     | b) | Briefly explain the five steps of nitrogen cycle of marine environment.  | 3.0   |
| 13. | a) | What do you mean by coral bleaching? How climate change affecting coral bleaching in marine ecosystem?   | 2.0   |
|     | b) | How coral reefs are formed in marine ecosystem?  | 2.0   |
|     | c) | Describe classical reef formation procedure with figure in marine environment.   | 3.0   |
| 14. |    | Write short notes on any Two (02) of the following:  | 3.5×2 |
|     | a) | Large marine ecosystem   |       |
|     | b) | Chemosynthesis   |       |
|     | c) | Zoogeographical distribution of Hilsha   |       |

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

B.Sc. Fisheries (Hons.), Year-01, Semester-2 (July–December), Final Examination' 2017

Course Code: FWA-102 (T); Course Title: Freshwater Aquaculture (Theory)

Full Marks: 70; Time: 3 hours

Figure in the right margin indicates the full mark. Answer any 05 (five) questions from each section. Use separate answer script for each section.

Section –A

1. a) Write down the site selection criteria for pond construction. 2  
b) How will you prepare a pond for aquaculture practices? 5
2. a) What is the importance of wild fry? 2  
b) Write down the merits and demerits of hatchery fry. 3  
c) How will you recognize a ideal hatchery? 2
3. a) Differentiate between freshwater aquaculture and coastal aquaculture. 2  
b) Discuss different types of aquaculture systems. 5
4. a) What is carp polyculture? 2  
b) Show the difference between indigenous and exotic species? 2.5  
c) Justify the popularity of Tilapia culture in Bangladesh. 2.5
5. a) Classify aquatic weeds. 3  
b) Write down the problems associated with aquatic weeds. 2  
c) How can you control them? 2
6. a) What is creek aquaculture? 2  
b) Discuss the problems and prospects of creek aquaculture in Bangladesh. 5
7. Write short notes on any 02 (Two) of the followings: 3.5×2=7  
a) Backyard hatchery; b) Ornamental fishes; c) Bundh spawning

Section B

8. a) What do you mean by algal bloom? 1  
b) What are the causes of algal bloom? 3  
c) Give some recommendations to prevent algal bloom. 3
9. a) What are the causes of fry mortality during transportation? 3  
b) Describe the use of anesthetics, antiseptics and antibiotics in live fish transportation. 4
10. a) Differentiate between artificial propagation and induce breeding. 2  
b) Enlist some inducing agents used for induce breeding of freshwater fishes. 1  
c) Briefly describe the induce spawning of carps. 4
11. a) Enlist some freshwater fish species suitable for cage culture. 1  
b) Write down the advantages and disadvantages of cage culture. 2  
c) How can you set up a cage culture system? 4
12. a) Distinguish between monoculture and polyculture. 2  
b) Which factors you should consider during transportation of live fish? 2  
c) How can you control predators in aquaculture? 3
13. a) What are the fishes suitable for culture in aquarium? 2  
b) Describe the operation and management of a freshwater shrimp culture farm. 5
14. Write short notes on any 02 (Two) of the followings: 3.5×2=7  
a) Use of anesthetics in aquaculture; b) Culture of climbing perch; c) Importance of aquaculture. 3.5×2

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**

**B.Sc. Fisheries (Hons.), Year-01, Semester-2 (July – December), Final Examination' 2017**

**Course Code: WQM -102 (T); Course Title: Water Quality Management (Theory)**

**Full Marks: 70; Time: 3 hours**

*Figure in the right margin indicates the full mark. Answer any 05 (five) questions from each section. Use separate answer script for each section.*

**Section -A**

1. a) What do you understand by water quality parameter? 1  
b) Shortly classify water quality parameters giving examples from each class. 3  
c) What is the importance of water quality management of aquaculture pond? 3
2. a) Define dissolved oxygen (DO). 1  
b) What are the possible sources of DO in a culture pond? 3  
c) Why anoxic condition is harmful for aquatic organisms? 3
3. a) What is water temperature? How will you measure it? 2  
b) How water temperature can influence the growth and survival of culture species? 3  
c) Explain the relationship between water temperature and dissolved oxygen? 2
4. a) Explain the effects of pH and temperature on ammonia toxicity. 3  
b) Write down the forms and toxicity of Total Ammonia Nitrogen (TAN)? 2  
c) What are sources of ammonia in fish pond? 2
5. a) Write down the characteristics of POPs? 3  
b) How does polluted water disrupt food chains? 2  
c) What are the differences between bioaccumulation and biomagnifications? 2
6. a) How do you decide whether to lime and fertilize a pond? 3  
b) When should you not fertilize in pond? 2  
c) What are the effects of phytoplankton bloom related to water quality in pond? 2
7. Write short note on **any 02 (two)** of the following: 3.5x2=7  
a) Eutrophication; b) Causes of water pollution; c) Feeding management to maintain water quality;  
d) Carbon buffer system.

**Section B**

8. a) What are the basic nutrients of pond water? 2  
b) Discuss the role of nutrients on pond water quality. 3  
c) What are the major sources of nutrients in aquaculture pond? 2
9. a) What are the causes of dissolved oxygen reduction in fish pond? 5  
b) What is "summer kill" and "winter kill"? 2
10. a) What are the effects of clay turbidity on other water quality parameters? 3  
b) Explain flocculation and coagulation. 2  
c) "Alum is the most effective coagulant" – justify. 2
11. a) How will you manage ammonia problem in fish pond? 5  
b) "Ammonia concentration tends to be greater during winter than during summer" – justify. 2
12. a) Briefly describe different water pollution. 3  
b) "Among liming materials limestone is recommended for aquaculture" – justify. 2  
c) "Lime is considered more than fertilizer in aquaculture" – explain. 2
13. a) How does overfeeding create water quality problem in aquaculture? 3  
b) "Nitrogen fertilizers are less important than phosphorus fertilizers" – justify. 2  
c) Write down the effects of aquatic vascular plants related to water quality in fish pond. 2
14. Write short note on **any 02 (two)** of the following: 3.5x2=7  
a) Phytoplankton bloom; b) Fertilization management; c) Water pollutants; d) Control of aquatic vascular plants.

# Chittagong Veterinary and Animal Sciences University, Chittagong

## Faculty of Fisheries

B.Sc. Fisheries (Hons.), Year-01, Semester-2 (July – December), Final Examination' 2017

Course Code: ASS -102 (T); Course Title: Aquatic Soil Science (Theory)

Full Marks: 70; Time: 3 hours

Figure in the right margin indicates the full mark. Answer any 05 (five) questions from each section. Use separate answer script for each section.

### Section -A

1. a) What is a soil profile? 1  
b) Differentiate 'Illuviation' and 'Eluviation' process. 3  
c) Write down the functions of bottom soils. 3
2. a) Develop a comparison between different types of 'soil-colloids'. 3  
b) Briefly describe the buffering capacity of a soil. 4
3. a) Discuss the suitability of soil textural classes for fish culture, pond construction and fisheries management. 7
4. a) What is soil biota? 1  
b) Differentiate 'decomposition' and 'mineralization'. 2  
c) Discuss the processes of encouraging beneficial microorganisms. 4
5. a) What is Acid Sulphate Soils (ASS)? 1  
b) Why Acid Sulphate Soils (ASS) are concentrated in coastal basins? 2  
c) Write down the chemistry of ASS. 4
6. a) What is probiotics? 1  
b) Write down the significance of probiotics for health. 3  
c) Why bottom-mud is called nutrient store house? 3
7. Write notes on any 02 (two) of the followings: 3.5x2=7.0  
a) Soil temperature; b) Soil clay; c) Soil microorganisms; d) Soil-water interaction.

### Section B

8. a) What do you know about textural triangle? 1  
b) Discuss the suitability of different soils for aquaculture and fisheries management. 6
9. a) What is Cation Exchange Capacity (CEC)? 1  
b) Why exchange capacity of cations usually higher than that of anions? 2  
c) A 40g sample of soil is leached with 2N MgCl<sub>2</sub>. The adsorbed Mg<sup>2+</sup> is displaced in 800mL of 3N NaOH solution. The Mg concentration in the leachate is 145mg/L. Now calculate the CEC and identify the soil texture. 4
10. a) What is soluble salts? Classify salt affected soils. 3  
b) A soil test revealed that it has a Na<sup>+</sup>, K<sup>+</sup>, Fe<sup>2+</sup>, Ca<sup>2+</sup>, SO<sub>4</sub><sup>2-</sup>, H<sup>+</sup> and Mg<sup>2+</sup> concentrations of 32, 8, 17, 11, 21, 23 and 38 respectively in millimoles. The Electrical Conductivity (EC) of the soil was measured as 7.6 decisiemens/m<sup>2</sup>. Now perform essential calculations to classify the soil. 4
11. a) Differentiate between absorption and adsorption. 2  
b) Discuss the deficiency symptoms and fertilizer sources of the most three fertilizers for soil. 5
12. a) What are the optimum conditions for microbial growth in soils? 3  
b) "The biological properties of soil are an integral part in maintaining balanced aquatic ecosystem"- Justify. 4
13. a) What is bioturbators? Draw and label five groups of bioturbators. 3  
b) "Bottom mud is the store-house of nutrients."- Justify the statement. 4
14. Write notes on any 02 (two) of the followings: 3.5x2=7.0  
a) Mycorrhizae; b) Cation Exchange Capacity; c) Problems and management of very sandy soil; d) Soil permeability.

# Chittagong Veterinary and Animal Sciences University, Chittagong

## Faculty of Fisheries

B.Sc. Fisheries (Hons.), Year-1, Semester-02 (July – December), Final Examination' 2017

Course Code: LAN -102 (T); Course Title: Communicative English (Theory)

Full Marks: 35; Time: 2 Hours

*Figures in the margin indicate full mark. Answer ALL the questions.*

### Section –A

1. Use the right form of verbs in the following sentences: 5
  - a. Every pale tomato slice, wilted pickle, and brown lettuce leaf (cost) an extra 25 cents at the superstore.
  - b. My dog Daisy, together with all her puppies, (like) to play with money.
  - c. Neither the instructor nor the students (be) happy with the team's performance.
  - d. Mr. Lowry, our English teacher, believes that students who major in economics or physics (ruin) their imaginations.
  - e. If we'd seen you, we (stop).
  
2. Fill in the blanks with appropriate prepositions: 5
  - a. Please don't be late. Try to be here \_\_\_\_\_ time.
  - b. What would you like to have \_\_\_\_\_ your meal?
  - c. The children quarreled \_\_\_\_\_ themselves.
  - d. I was told to appear \_\_\_\_\_ the judge.
  - e. Would you mind \_\_\_\_\_ a cup of tea?
  
3. Suppose you bought a smartphone from a famous brand shop but unfortunately after a few day's use, the device has started to show different problems. Now, write a letter of complaint to the manager of the shop in this regard. In your letter, mention the terms and conditions with which you bought the device, detail the problems with it, and write what you want to be done with it. 7

### Section B

4. Change the following sentences as directed: 5
  - a. All his friends looked down at him. (Change voice.)
  - b. Rome was not built in a day. (Change voice.)
  - c. The teacher said, "If you want to learn English, you will have to read English more." (Change speech.)
  - d. We eat. Our intention is to live. (Join the sentences.)
  - e. He ran at top speed. He got out of breath. (Join the sentences.)
  
5. Write a paragraph of about 150 words on "Freedom of the Press". 5
  
6. Read the passage carefully and answer the questions that follow: 8

**Pharmaceuticals is one of the most profitable industries in North America. But do the drugs industry's sales and marketing strategies go too far?**

**A.** A few months ago Kim Schaefer, sales representative of a minor global pharmaceutical company, walked into a medical center in New York to bring information and free samples of her company's latest products. That day she was lucky- a doctor was available to see her. 'The last rep offered me a trip to Florida. What do you have?' the physician asked. He was only half joking.

**B.** What was on offer that day was a pair of tickets for a New York musical. But on any given day what Schaefer can offer is typical for today's drugs rep -a car trunk full of promotional gifts and gadgets, a budget that could buy lunches and dinners for a small county hundreds of free drug samples and the freedom to give a physician \$200 to prescribe her new product to the next six patients who fit the drug's profile. And she also has a few \$ 1,000 honoraria to offer in exchange for doctors' attendance at her company's next educational lecture.

C. Selling Pharmaceuticals is a daily exercise in ethical judgment. Salespeople like Schaefer walk the line between the common practice of buying a prospect's time with a free meal, and bribing doctors to prescribe their drugs. They work in an industry highly criticized for its sales and marketing practices, but find themselves in the middle of the age-old chicken-or-egg question - businesses won't use strategies that don't work, so are doctors to blame for the escalating extravagance of pharmaceutical marketing? Or is it the industry's responsibility to decide the boundaries?

D. The explosion in the sheer number of salespeople in the Reid- and the amount of funding used to promote their causes- forces close examination of the pressures, influences and relationships between drug reps and doctors. Salespeople provide much-needed information and education to physicians. In many cases the glossy brochures, article reprints and prescriptions they deliver are primary sources of drug education for healthcare givers. With the huge investment the industry has placed in face-to-face selling, sales people have essentially become specialists in one drug or group of drugs - a tremendous advantage in getting the attention of busy doctors in need of quick information.

E. But the sales push rarely stops in the office. The flashy brochures and pamphlets left by the sales reps are often followed up with meals at expensive restaurants, meetings in warm and sunny places, and an inundation of promotional gadgets. Rarely do patients watch a doctor write with a pen that isn't emblazoned with a drug's name, or see a nurse use a tablet not bearing a pharmaceutical company's logo. Millions of dollars are spent by pharmaceutical companies on promotional products like coffee mugs, shirts, umbrellas, and golf balls. Money well spent? It's hard to tell. I've been the recipient of golf balls from one company and I use them, but it doesn't make me prescribe their medicine,' says one doctor.' I tend to think I'm not influenced by what they give me.'

F. Free samples of new and expensive drugs might be the single most effective way of getting doctors and patients to become loyal to a product. Salespeople hand out hundreds of dollars' worth of samples each week-\$7.2 billion worth of them in one year. Though few comprehensive studies have been conducted, one by the University of Washington investigated how drug sample availability affected what physicians prescribe. A total of 131 doctors self-reported their prescribing patterns-the conclusion was that the availability of samples led them to dispense and prescribe drugs that differed from their preferred drug choice.

G. The bottom line is that pharmaceutical companies as a whole invest more in marketing than they do in research and development. And patients are the ones who pay-in the form of sky-rocketing prescription prices for every pen that's handed out, every free theatre ticket, and every steak dinner eaten. In the end, the fact remains that pharmaceutical companies have every right to make a profit and will continue to find new ways to increase sales. But as the medical world continues to grapple with what's acceptable and what's not, it is clear that companies must continue to be heavily scrutinized for their sales and marketing strategies.

Do the following statements agree with the views of the writer in Reading Passage?

In the answer sheet, write:

**YES** if the statement agrees with the views of the writer

**NO** if the statement contradicts the views of the writer

**NOT GIVEN** if it is impossible to say what the writer thinks

- a. Sales representatives like Kim Schaefer work to a very limited budget.
- b. Kim Schaefer's marketing technique may be open to criticism on moral grounds.
- c. The information provided by drug companies is of little use to doctors.
- d. Evidence of drug promotion is clearly visible in the healthcare environment.
- e. The drug companies may give free drug samples to patients without doctors' prescriptions.
- f. It is legitimate for drug companies to make money.

Match the following headings (i and ii) with the right paragraphs (A—G) and write beside question numbers g and h.

i Not all doctors are persuaded

ii The positive side of drugs promotion

g. \_\_\_\_\_ h. \_\_\_\_\_