

Question

Influenza pandemics are a great concern for the public health sector and are primarily the results of the development of a new strain most likely occurring through antigenic shift. What characteristic of influenza viruses make them a concern in regard to antigenic shift?

- They are an enveloped virus
- Point mutations occur frequently
- They are a RNA virus
- They are a non-enveloped virus
- They have a segmented genome

Explanation - The correct answer is they have segmented genomes. Because of segmented genomes, when a single cell is infected with two or more different influenza viruses, genetic exchange of segments can result in the creation of a completely new virus with different antigenic characteristics. Although the influenza virus is an enveloped RNA virus, these characteristics do not contribute to antigenic shift.

Question

The balance sheet for a veterinary practice shown below is complete except for the value of the business's "buildings, furniture and equipment" and "total assets". Based on the information provided, what is the value of the practice's "buildings, furniture and equipment"? Assume all values are in US dollars.

Balance sheet for December 31st 2009 (per FTE veterinarian)	
ASSETS	
Cash	20,000
Accounts Receivable	10,000
Total Current Assets	30,000
Buildings, Furniture and Equipment	????
TOTAL ASSETS	????
LIABILITIES AND EQUITY	
Payroll Taxes Payable	10,000
Current Liabilities	30,000
Long-term Debt	40,000
TOTAL LIABILITIES	80,000
EQUITY	50,000

- 70,000
- 190,000

- 210,000
- 130,000

Explanation - The ability to read and understand a balance sheet of a veterinary practice is something that may be tested on board examinations. The most critical formula to know for a balance sheet is:

Assets = Liabilities + Shareholder's Equity

Here, Total Liabilities = \$80,000 and Equity = \$50,000. Therefore, the liabilities + equities = \$130,000.

From the formula above, this means the total assets must also equal 130,000. The value of the other assets listed is $(20,000 + 10,000 + 30,000) = 60,000$.

If the total value of all assets is \$130,000, and the remaining assets are \$60,000, the value of the practice's "buildings, furniture, and equipment" must be:

$$130,000 - 60,000 = 70,000$$

Question

A 3 year old male neutered Maltese who was recently adopted from the shelter presents for kennel cough. He is currently on doxycycline. You would also like to send a cough suppressant and write a prescription for hydrocodone. In order to prescribe this medication, what does the law require?

- A current DEA license
- A signed written consent form from the owner acknowledging this is a controlled substance
- A current premise license
- A list of side effects of this medication provided to the owner

Explanation - Hydrocodone is a controlled substance. Controlled substances cannot be prescribed unless the veterinarian holds a **current DEA license**. Pharmacists require a DEA number in order to process these prescriptions.

A premise license is held by the owner of the building of the veterinary hospital.

A conversation with the owner of possible side effects of any medications sent with the pet should occur, but a written list is not required by law.

Question

Which of the following will decrease the perceived value of veterinary services by a client?

- Seeking client input by inviting clients to share their opinions about the hospital
- A clean and attractive hospital

- Services are provided after extended waiting periods
- Use of printed materials such as client education handouts
- Providing comprehensive pet healthcare services such as nutrition counseling, behavior consultations, grooming, and training classes

Explanation - A significant amount of value that is perceived by veterinary clients has nothing to do with the quality of medicine you are practicing.

Clients appreciate practices that provide services in a timely manner that do not keep them waiting for extended periods. They enjoy a clean, attractive hospital that is free of clutter and odors. They perceive value in printed materials from the practice and the ability to receive comprehensive care for their pet from a single location. They also appreciate having the opportunity to offer their opinions.

Question

While state practice acts vary in regard to requirements for medical record keeping, there are common principles. Which of the following medical records would be unacceptable based on these practice acts?

- The medical record states that the heart and lungs were not auscultated on an exam
- The medical record is in someone's handwriting other than the veterinarian
- One medical record is used for a client that brings in 3 of her dogs
- Medical records are discarded 5 years after the patient was last seen

Explanation - The common requirements among almost all states are the following:

- 1) Separate record for each patient
- 2) Accurate record
- 3) Complete record- what was normal, abnormal, and not examined
- 4) Legible- Can be dictated to someone else
- 5) Unalterable
- 6) Easily accessible
- 7) **Retained** for 3-5 years

Question

Which of the following are listed on a balance sheet of a practice?

- Sources and uses of cash over a period of time
- Income and expenses over a period of time
- Assets, liability, and owner(s) equity
- Salary of each employee of the company

Explanation - A balance sheet is a report on the financial condition of the practice. It lists practice assets, liabilities and owner(s) equity at a specific point in time. It does not track income or cash flow over a period but is more of a snapshot of the company's condition.

A **profit and loss statement** is the document which reports on income and expenses over a period of time. A cash flow statement is the document which reports on sources and uses of cash over a period of time.

Question

A diagnostic ratio is the ratio of income from diagnostic procedures relative to income from goods (i.e. drugs). Which of the following types of veterinarians usually has the lowest diagnostic ratio?

- Companion animal veterinarian
- Livestock veterinarian
- Avian veterinarian
- Veterinary specialist

Explanation - Diagnostic ratio is often used as a measure to evaluate productivity. Companion animal veterinarians often have a ratio near 1:1. Avian practitioners often have higher diagnostic ratios and livestock veterinarians usually dispense many more drugs relative to the number of diagnostic procedures they perform and therefore have a low diagnostic ratio (approximately 1:4). The diagnostic ratio of veterinary specialists varies widely by specialty.

Question

Out of all the medications you frequently prescribe, which does not fall under the FDA's regulatory control?

- Interceptor (milbemycin oxime) oral heartworm and parasite control
- Non-steroidal anti-inflammatories (carprofen, deracoxib, etc.)
- Frontline topical flea and tick medication
- Gentamycin betamethasone topical spray
- Compounded generic oral medication

Explanation - Preparations used as topical insecticides are regulated by the **Environmental Protection Agency, or EPA**. This regulation is provided by the Federal Insecticide, Fungicide and Rodenticide Act which was amended and updated in 1972. This only applies to topical applications. If any product in this group is to be given systemically, the regulation goes back to the FDA.

Oral medications such as Interceptor, NSAIDs, and even generics are regulated by the FDA. Topical antibiotics and corticosteroids such as the gentamycin betamethasone spray are regulated by the FDA.

Question

Most veterinary practices now accept credit cards as a convenience to their clients. Approximately what percentage of revenue collected by credit card is lost by the practice due to fees paid to the credit card company?

Most credit card services charge a flat monthly rate to the practice; therefore, the percentage of revenue paid varies widely depending on the total dollar amount of credit card transactions per month

- 5%
- 1%
- 7%
- 3%

Explanation - The rate paid to credit companies is known as the 'discount rate' and can vary depending on the credit card company. However, the rate is nearly always a percentage and is usually near 3% (approximate range of 2-4%)

Question

You are doing paperwork in your office when a dog who has been hit by a car is rushed to the back treatment area. You are told by the receptionist that the owner has no money with them. What should you do?

- Start basic life saving measures such as oxygen, IV catheter, and fluids for hypovolemic shock. While these things are started you perform a brief exam and evaluation of the pet prior to discussion with the owners.
- Recommend they take the dog to the emergency clinic.
- Do everything necessary to assess and treat the dog (including radiographs, chest tube if needed, etc.) as long as the owner signs a promissory note prior to you speaking to them.
- Have the receptionist put the owner in a room and go in to discuss treatment and cost prior to providing an exam or care while a technician sits with the dog in the back monitoring vital signs.

Explanation - While there is no mandated law that requires a veterinarian to provide emergency care, it is the general consensus of the professional community that it is a veterinarian's duty to provide at least basic life stabilizing care on presentation. In a critical situation, this should be initiated prior to contact with owner.

After initiating these measures whilst doing an exam, you will have a better picture of what type of further care and work-up this pet will need (i.e. chest radiographs, chest tube, antibiotics, surgery, etc.) at which point you can discuss care, prognosis, and costs with the owner. Then they are able to make an informed decision of whether or not to proceed.

The owner brought the dog into the hospital, thus, is expecting some level of care and evaluation. Once there is an implication that the veterinarian will render service (the pet was brought to the treatment area), the

veterinarian should continue to render service. While the dog may need transfer to an emergency or overnight facility, you should still attempt to stabilize the dog prior to any transfer.

Standard legal principles say that veterinarians who wish to discontinue medical services should not do so during a critical phase of treatment and must give the client time to find another veterinarian so that no harm occurs to the animal.

A promissory note is when a party makes an unconditional promise in writing to pay a determinate sum of money. It would be better to talk to the owner after providing the basics (oxygen, fluids) to discuss exactly which procedures you would like to do and why, and discuss cost, payment methods, etc. to see how they will be able to proceed financially.

Question

When building a successful practice, it is important to provide outstanding client service. Which of the following statements is true about how client service at a veterinary hospital is different from standard customer service in retail or other service industries?

- Customer service is more closely associated with value of the transaction than client service
- Retail establishments desire repeat customers but the client-veterinary relationship involves a single interaction or transaction
- Customers typically develop close relationships with employees whereas clients typically do not
- Client service involves a personal, long-term relationship whereas customer service typically involves a single transaction

Explanation - The most important difference between clients and customers is that client services involves a personal long-term relationship. In veterinary medicine, this includes a relationship with the veterinarian(s), but other staff members (technicians, receptionists, etc) are the primary providers of client service. Such relationships should span the lifetime of one or multiple pets.

Higher levels of client service result in perception of greater value. A lack of quality service is one of the most common reasons that clients switch veterinary practices.

Question

You are opening your own veterinary hospital and are trying to figure out which medications are prescription and which medications are over-the-counter. What is the difference?

- Prescription drugs have known side-effects while over-the-counter medications are generally safe and can be acquired without a prescription.
- Prescription drugs contain the label "For Veterinary Use Only" and over-the counter-medications do not.

- All prescription drugs must be logged in a hospital drug log and over-the-counter medications do not need to be logged.
- Prescription drugs may only be used by or under the supervision of a veterinarian.
- Prescription drugs may only be sent in a maximum 30 day supply and over-the-counter medications can be acquired without a prescription at any time.

Explanation - Veterinary over-the-counter drugs are labeled for animal use and may be dispensed without a prescription.

Veterinary prescription drugs are drugs that may not be dispensed without the prescription of a veterinarian.

Prescription and over-the-counter drugs may contain the label "For Veterinary Use Only." All medications have side-effects, regardless of whether they are prescribed or over-the-counter. Prescription drugs do not need to be logged unless they are a controlled substance. Prescriptions may be filled for any length of time as the veterinarian prescribes. In most states, however, the pet must have a current examination within the past year in order to prescribe a medication.

Question

The balance sheet for a veterinary practice shown below is complete except for the "Equity" value. Based on the information provided, calculate the equity? Assume all values are in US dollars.

Balance sheet for December 31st 2009	
(per FTE veterinarian)	
<u>ASSETS</u>	
Cash	20,000
Accounts Receivable	40,000
Total Current Assets	80,000
Buildings, Furniture and Equipment	60,000
TOTAL ASSETS	200,000
<u>LIABILITIES AND EQUITY</u>	
Payroll Taxes Payable	10,000
Current Liabilities	30,000
Long-term Debt	40,000
TOTAL LIABILITIES	80,000
EQUITY	????

- 120,000
- 80,000

- 40,000
- 200,000

Explanation - The ability to read and understand a balance sheet of a veterinary practice is something that may be tested on board examinations. The critical formula to know for a balance sheet is:

Assets= Liabilities + Shareholder's Equity

Here, Assets= \$200,000 and Liabilities= \$80,000. All of the other numbers on the balance sheet are not needed to answer this question as they are just components of the total assets or total liabilities.

Therefore, Equity= \$120,000

Question

An owner is holding her 4 year old male intact Bichon while you are examining a rash on the abdomen. The dog reaches back and bites her on the arm. She had insisted on holding the dog for examination despite the sign posted (see image). This dog has been known to be aggressive in the past. Who is liable for her injury?



- This would be considered an accident and fault of both parties, therefore no one is liable.
- The dog
- The veterinarian
- The owner

Explanation - Even though the owner of the dog insisted on holding for the exam, the veterinarian is still liable for her injury. While most clients would not pursue damages for an incident such as this, the veterinarian would be found liable should the client pursue litigation.

The best solution to prevent this from occurring is to have a technician or assistant who is trained to restrain animals hold the patients for examination. It is a good idea to post a sign in each exam room stating that

owners please not ask to restrain pets during exam. If they insist, let them know that due to liability reasons, the technician will be holding their pet but they are welcome to stand near and talk to the pet, etc. while exam is taking place. In animals that are known to be aggressive, a muzzle should be placed prior to the exam for the safety of all involved.

Question

According to the FD&C Act under Title 21 of the United States Code, who has been given authority to govern the manufacturing, distribution, and use of veterinary drugs that are distributed between states?

- Drug Enforcement Agency
- Congress
- Each individual state has its own authority
- Environmental Protection Agency

Explanation - The Drug Enforcement Agency, or DEA, has the sole authority over drugs distributed between states.

Question

A 5 year old male intact Rottweiler is brought into your clinic by his owner who states that he bit a neighbor child in the face yesterday. He wants the dog immediately euthanized and wants to bury the dog on his ranch property. He said he had all his shots as a puppy. What is the best course of action?

- Have the owner sign the euthanasia form and euthanize the dog, but keep the body in case the dog needs to be tested for rabies.
- Collect a blood sample from the dog to submit to the laboratory for rabies testing prior to euthanasia.
- Contact your local public health authorities to determine if this animal needs to be quarantined prior to euthanasia and what procedures need to be followed.
- Have the owner sign the euthanasia form and euthanize the dog; because this is an owned pet and not a stray, quarantine is not required.

Explanation - Potential rabies exposure constitutes a significant public health concern. Because we know this animal bit someone, it is important to ascertain what the state law is where you practice.

Most states require that the animal be quarantined for 10 days prior to euthanasia, EVEN IF IT IS CURRENT on its rabies vaccination. If the euthanasia is performed before the 10 day quarantine, the refrigerated (not frozen) head must be submitted for rabies testing. A blood sample is not a proper specimen for testing.

Because this animal bit someone, quarantine will likely be needed. If the euthanasia is performed, the head must be submitted (not just saved "in case").

Question

You are working on a canine anesthetic protocol that you plan to use for the majority of your patients. You will be giving hydromorphone or morphine as a premedication, diazepam just before induction with propofol, and for major procedures plan to use a fentanyl patch in addition to carprofen for pain control. Which of these mentioned drugs does not need to be logged as a controlled substance?

- Morphine
- Diazepam
- Hydromorphone
- Fentanyl patch
- Propofol

Explanation - Propofol is not a controlled substance and is not required to be recorded in a drug log by DEA regulations. Any controlled substances such as morphine, hydromorphone, butorphanol, ketamine, diazepam, phenobarbital, fentanyl, buprenorphine, hydrocodone, etc. must be logged in a drug log.

Drug logs should include the name of the pet owner, date, prescribing doctor, name and amount of drug used.

Tramadol is a drug that is currently not controlled but often abused, and has been recently considered for controlled status. This will likely be controlled in the future and you should consider treating it as such.

Question

You are being sued for malpractice when a dog under your care for a gastric dilatation volvulus dies post-operatively. What will the examining board try to determine?

- If you complied with the standard of care
- If you had previous experience treating gastric dilatation volvulus successfully
- If the dog had a high lactate prior to surgery, the prognosis was poor and you are not liable
- If you performed the most up to date surgical procedure for treating this condition

Explanation - The goal of the veterinary examining board is to determine if a veterinarian meets the standard of care. This is defined as the degree of prudence and caution required of an individual who is under a duty of care. A breach of the standard is necessary for a successful action in negligence.

The board looks to see that the practitioner acted in a reasonable manner. It doesn't mean that one's surgical technique or treatment cannot vary from that provided by average veterinarians, as long as one's practice is not extremely inferior or outdated.

Question

When valuing a veterinary practice, "practice goodwill" can be one of the most significant assets. Which of the following is NOT considered part of a practice's goodwill?

- Brand awareness
- Technical skill
- Client base
- Owner's equity
- Practice reputation

Explanation - A practice's goodwill refers to its reputation, client base, knowledge, technical skill, research, brand awareness, and associations that the practice maintains.

Owner's equity is a different asset that would be reported on a company's balance sheet and is not lumped under "goodwill".

Question

You are developing a template for the drug labels at your new hospital. Every prescription drug label should legally include the following statement:

- Caution: Federal law restricts this drug to use by the order of a licensed veterinarian
- Shake well for liquid medications
- Give as directed by your veterinarian
- Stop this medication and contact your veterinarian should any adverse reactions occur
- Off-label use of this product is not recommended

Explanation - Federal regulation requiring labels to bear statements such as "For veterinary use only" represent a sales policy and hold no legal basis. Every label should include the **Caution label** (as indicated in the correct answer), **dosage, route of administration, quantity of ingredient, and a lot or control number**. While the other choices may be of value, they are not legally required.

Question

A ferret arrives at your clinic after being attacked by a skunk. This ferret is unvaccinated; what should you do?

- Euthanize immediately, if owner declines vaccinate immediately and quarantine for 60 days
- Euthanize immediately, if owner declines, quarantine for 6 months, and vaccinate 1 month before release
- Submit rabies titer. If negative, there is no need to worry

- Vaccinate immediately and quarantine for 45 days

Explanation - The correct answer is to euthanize immediately, and if the owner declines, the ferret must be quarantined for 6 months and vaccinated 1 month before release. You could vaccinate the ferret immediately and have the ferret quarantined for 45 days only if the ferret's rabies vaccination is current.

Question

Severe combined immunodeficiency is a lethal autosomal recessive trait in Arabian foals. Heterozygotes are clinically normal. If the heterozygote carrier rate for the genetic mutation is 8%, what is the expected frequency of Arabian foals that are homozygous for the mutated allele?

- 0.16%
- 0.064%
- 2%
- 25%

Explanation - You do not need to know anything about the disease in this question in order to get the correct answer. You are told that the disease is recessive and has a carrier rate of 8%

Because the trait is recessive, homozygotes will be the only individuals affected. In order for a foal to be born homozygous for the trait, BOTH parents MUST be carriers. The chances of both parents being carriers is $8\% \times 8\%$ (or 0.08×0.08) = 0.0064 or 0.64%. If both parents are carriers, the offspring has a 1 in 4 chance of inheriting two mutant alleles (50% chance for each allele from each parent).

Since the chances of both parents being carriers is 0.64% and the chance of having a homozygous offspring in that case is 1 in 4, the overall expected frequency of diseased foals is $0.64\% \times 0.25 = 0.16\%$.

Question

Technicians often assist you with your procedures and would like to be more involved. You have several procedures planned for the following week. Which of these should not be performed by a licensed veterinary technician?

- Esophagostomy tube placement
- Joint taps
- Lymph node aspiration
- Anesthetic induction and intubation
- Nasogastric tube placement

Explanation - Veterinary technicians are prohibited from performing surgical procedures, prescribing medications, and making diagnoses. Surgery is defined in most states as any procedure in which the skin or tissue of the patient is penetrated, pierced, or severed for therapeutic purposes, other than giving injections.

Esophagostomy tube placement requires an incision through skin and esophagus to place the feeding tube. This constitutes surgery and should not be performed by a technician, even with supervision.

The other procedures could be performed by a licensed veterinary technician if delegated and supervised by a veterinarian. Veterinarians should only delegate those tasks commensurate with the education, training, and demonstrated abilities of the person being supervised.

Even though tissue is penetrated during blood draws, lymph node aspirations, joint taps, etc; these constitute non-surgical sample collection and are allowed in most states.

Question

Employees in your veterinary clinic are discussing measures to prevent disease transmission between employees and between patients. One of them asks you if using Purell hand sanitizer will prevent transmission of most pathogens. You remember reading on the label that Purell is a 65% ethyl alcohol based antiseptic. Which of these agents would be most effectively killed by such a product?

- *Isospora canis*
- Influenza virus
- Parvovirus
- *Bacillus anthracis*

Explanation - Hand sanitizing, alcohol based products are effective at killing many types of Gram positive and negative bacteria, including methacillin resistant *Staphylococcus aureus* (MRSA), tuberculosis, and *E. coli*. It is also effective against many types of fungi and enveloped viruses such as influenza viruses, HIV, and hepatitis virus (one exception is rabies virus).

They are not effective against non-enveloped viruses (parvovirus), bacterial spores (Anthrax, *C. difficile*), and protozoan oocysts (*Giardia*, *Isospora*, *Cryptosporidium*).

Question

Which organization is responsible for regulating the food safety of egg products in the United States?

- FDA (Food and Drug Administration)
- EPA (Environmental Protection Agency)
- FAO (Food and Agricultural Organization)
- USDA (United States Department of Agriculture)

Explanation - The correct answer is USDA. The USDA Food Safety and Inspection Service (FSIS) is responsible for meat and poultry products including egg products, whereas the FDA regulates all other foods, including eggs themselves, seafood, food labels, and use of veterinary drugs. The EPA is responsible for pesticides and water standards. The FBI is responsible for food counter-terrorism. The FAO is a United Nations entity.

Question

You are reviewing a practice's balance sheet in preparation to buy the practice. For most practices, the single largest asset never shows up on the balance sheet. What is this asset?

- Practice's accounts receivable
- Practice's land
- Practice's goodwill
- Practice's cash
- Practice's equipment and inventory

Explanation - All of the items listed here are practice assets. The only item that typically is not on a balance sheet is the **practice's goodwill**. Assets on a balance sheet represent cost, not current value. Therefore, unless the practice's goodwill was purchased from someone else, it does not appear on the balance sheet.

The practice's goodwill is its reputation, client base, knowledge, technical skill, research, brand awareness, and associations that the practice maintains.

Question

One of your colleagues is being sued for malpractice due to the negligent administration of ivermectin to a show turtle resulting in its death. Which of the following is an example of a "non-economic damage" that may be sought in a lawsuit?

- The market value of the turtle
- The turtle's potential earnings as an award winning show animal
- The cost of the turtle's medical care
- Pain and suffering

Explanation - Economic damages are generally compensation for medical bills and the aggregate future lost income caused by death or injury. Because animals are considered personal property under the law, the fair market value of the animal is also awarded.

In order for non-economic damages such as pain and suffering or emotional distress to be awarded, the plaintiff usually must show that the death or injury was caused by an intentional act. Courts have been inconsistent in how non-economic damages are awarded for negligence but currently, there are relatively few examples of veterinary malpractice cases resulting in an award of non-economic damages.

Question

A payroll service will typically perform all of the following EXCEPT which of these choices?

- Track vacation and sick time

- Directly deposit money into employee accounts
- Sign checks
- File and send tax returns to the IRS
- Generate payroll reports

Explanation - A payroll service will typically perform direct deposit or sign checks to employees. They will also track vacation and sick time and generate payroll reports. Payroll services do perform tax withholding but they do not file actual tax returns; this is the responsibility of each individual employee.

Question

A veterinary practice has an annual gross income of \$600,000. If it currently spends 17% of its income on inventory and it is able to decrease that to 14% without affecting sales, how much additional profit will the practice generate?

- \$9,000
- \$6,000
- \$18,000
- \$25,000

Explanation - Decreasing the amount spent from 17% to 14% of income means that the practice is spending 3% less of its gross income on inventory. Since sales are not changed, 3% of 600,000 is 18,000 which is the amount of additional profit.

Question

The role of a veterinarian in client communication and decision making is an important aspect of professional interaction. Three "styles" of communication have been described for such interactions:

- 1) Guardian (Paternalistic)
- 2) Teacher (Consultant)
- 3) Collaborator (Shared)

Which of these statements correctly describes how the style of a collaborator differs from the other 2 styles?

- In client communication, a veterinarian with a collaborator style presents all options with equal weight regardless of their treatment preference whereas a veterinarian with a teacher or guardian style does indicate their preference for treatment
- In client communication, a veterinarian with a collaborator style allows the client to be the primary decision maker whereas a veterinarian with a teacher or guardian style is the primary decision maker

- In client communication, a veterinarian with a collaborator style does not dominate the conversation while the veterinarian with either the guardian or teacher style does dominate the conversation
- In client communication, a veterinarian with a collaborator style is the primary decision maker whereas a veterinarian with a teacher or guardian style has the client be the primary decision maker

Explanation – The correct answer is In client communication, a veterinarian with a collaborator style does not dominate the conversation while the veterinarian with either the guardian or teacher style does dominate the conversation.

The guardian style of veterinarian dominate the conversation and provide all of the information to the client. They typically present only the treatment option they feel is best and are therefore, the primary decision maker.

The teacher style of veterinarian provides information to the client but may also encourage them to seek additional information on their own. They typically dominate the conversation and present all options without emphasis toward the veterinarian's own treatment preference.

The collaborator style of veterinarian shares decision making power and is approximately equal to the client in terms of doing most of the talking. They share medical information with the client that is relevant to the preferences provided by the client. All options are given and the client's and veterinarian's preferences are shared until a collaborative decision is made.

Any individual veterinarian can take on multiple roles depending on the situation and client but in general, the collaborator is viewed as the optimal choice for both veterinarian and client in the majority of situations.

Question

Many veterinary practices provide discounted goods or services to clients in certain instances. From a business standpoint, which of the following is always true about discounted services?

- An explanation of the available discounts should be clearly displayed in the reception or waiting area
- Discounts should be given based on the discretion of the attending veterinarian
- The client should be told that they are receiving discounted goods or services
- A discount provided to one client should be provided to all clients
- Discounts should only be given to clients on their first visit

Explanation - There are many reasons to give discounts and many types of discounts that a veterinary practice may offer depending on the practice philosophy and the types of clients that they are hoping to attract with such discounts. Examples might include discounts for **senior citizens, animal rescue organizations, first time clients, employees, or other veterinary professionals**. The only way to use discounts to the practice's advantage is to make sure that clients are aware that they are receiving the benefit of a discount. How a

practice may choose to market or advertise a discount may vary based on the practice philosophy. Practice managers or owners are typically responsible for choosing who to offer discounted services to; attending veterinarians often use different criteria when deciding what to discount that may not fit the business and practice interests.

Question

You are about to receive an offer from a veterinary hospital for employment. Which of the following is the most common pay package offered as a percentage of gross production, including wages (whether base or percent production) and benefits?

- 31-33%
- 26-30%
- 17-19%
- 20-25%

Explanation - Most general practice veterinarians are paid a total compensation between 20-25% including pay and benefits. For example, a veterinarian may be paid 19% of his production and receive health benefits and dues paid with other perks, or may receive a higher production pay such as 23% and no benefits. Some veterinarians choose to have a set salary and benefits. There are many acceptable offers but the most common offer is between 20-25% total production.

Question

You are asked to interview an applicant for a veterinary technician job at your clinic. Which of the following is an acceptable interview question for you to ask the applicant?

- Do you have a high school diploma or equivalent?
- Do you wish to be addressed as Mr., Mrs., Miss, or Ms?
- What is your native language?
- How many children do you have?
- When did you graduate from college?
- Do you have any disabilities?

Explanation - When interviewing a potential employee, it is important to know what questions are not appropriate. In general, questions should focus on the requirements of the job and specific qualities that it takes to perform the job. In this case, a high school diploma may be a job requirement.

Discrimination laws prohibit questions based on gender, age, nationality, race, religion, sexual orientation, and disability. Questions about an individual's personal status that are not job-related are also inappropriate (i.e. do you have children?). While questions like this may seem like standard small-talk, they are not appropriate in a job interview. The other answer choices listed here all allude to such potentially discriminatory information.

Questions should be phrased in a way that is specific to the needs of the job...for example:

Do you have any responsibilities that may interfere with the hours you can work or your ability to do the job?

Question

Compare the productivity of the following 2 veterinary practices:

Practice 1: There are 2 veterinarians working at this practice. They each work 5 days per week, 12 hours per day (60 hours per week). The medical service income of the practice is \$900,000.

Practice 2: There are 5 veterinarians working at this practice. They each work 4 days per week, 8 hours per day (32 hours per week). The medical service income of the practice is \$1,600,000.

Which practice is more productive based on medical service revenue per full time equivalent (FTE) veterinarian? Assume technician and other expenses are proportional.

- Practice 2
- They are equally productive
- Practice 1

Explanation - First, calculate the number of full time equivalent (FTE) veterinarians at each clinic. Typically, a 40 hour work week is considered standard for 1 FTE.

At practice 1, there are 2 doctors working 60 hours per week or a total of 120 veterinary hours worked. 120 hours is the equivalent of three FTE veterinarians.

At practice 2, there are 5 veterinarians working 32 hours per week or a total of 160 hours. 160 hours is the equivalent of 4 FTE veterinarians.

To determine productivity based on this question, divide the medical service income by the number of FTE veterinarians at each practice.

Practice 1 - $\$900,000 / 3 \text{ FTE} = \$300,000 \text{ per FTE}$

Practice 2 - $\$1,600,000 / 4 \text{ FTE} = \$400,000 \text{ per FTE}$

Practice 2 is generating \$100,000 per FTE more than practice 1.

Question

Which of these options is true regarding worker's compensation insurance?

- It covers injuries that occur on and off the job
- It pays employees a portion of their salary if they are laid off or fired
- The cost can be deducted from the employee's paycheck
- It is legally required for veterinary practices to have it for full and part time employees

Explanation - It is legally required for veterinary practices to have it for full and part time employees. Worker's compensation insurance covers injuries sustained on the job. It is required in all states and is paid for by the practice.

Question

What is minimum gross annual income (excluding over the counter product sales) that a full time general practitioner in small animal practice must be able to generate in order to to be worth an average salary?

- \$400,000
- \$100,000
- \$300,000
- \$200,000

Explanation - By most estimates, a small animal veterinarian must generate \$180,000-\$250,000 per year to be worth their salary to a practice. This number may be 3-4 times higher for specialists.

Question

Which of the following bodies licenses veterinarians to prescribe a drug to a patient in the United States?

- Food and Drug Administration
- United States Department of Agriculture
- State veterinary medical associations
- State veterinary board
- American Veterinary Medical Association

Explanation - To prescribe drugs to a veterinary patient, the clinician must be licensed by the **state veterinary board**.

Question

You find yourself in a malpractice lawsuit for "omission of a diagnostic procedure" on a dog who died. The owner says the pet died because of this omission. Which of the following might you have done?

- Left a sponge inside a body cavity
- Failed to administer fluids in a dog who has recently been having vomiting and diarrhea
- Failed to administer anti-emetics to a vomiting dog
- Failed to check a blood glucose or urine dipstick on a dog who is polyuric and polydipsic, lethargic, and dehydrated

Explanation - The dog mentioned died from diabetic ketoacidosis. Due to the dog's critical nature, a blood sugar or urine dipstick should have been checked at time of the visit. The dog may have had a chance of survival if treatment for DKA had been initiated immediately. The other answer choices are not diagnostic procedures.

Question

Which of the following documents reports on the financial performance (i.e. income and expenses) over a period of time?

- Profit and loss statement
- Cash flow statement
- Balance sheet
- Net book value

Explanation - A **profit and loss statement** (sometimes called an income statement) is a report of income and expenses over a period of time.

A **balance sheet** is a report on the financial condition of a company (assets, liabilities) at a specific point in time.

A **cash flow statement** reports the sources of cash (i.e. loans, collections) and uses of cash (i.e. purchasing inventory, paying off debt) over a period of time. Note how this differs from profit and loss.

The **net book value** is another name for equity or the difference between assets and liabilities. This value is not necessarily the same as a practice's current value.

Question

You and your hospital are interested in purchasing a \$30,000 ultrasound machine. Which of the following factors will have the biggest influence on whether such a purchase will be profitable?

- The cost of insuring the machine
- Whether the machine is purchased vs. leased
- The interest rate on the loan for the purchase
- Marketing and pricing

Explanation - Determining whether to lease or purchase new equipment, current interest rates, and other costs are all very important considerations. However, the ability to make such a purchase profitable hinges on the ability to successfully market the product and services associated with it and the associated prices that will be charged.

Question

Which of these represents an open-ended question that a veterinarian with good communication skills might use at the beginning of an appointment?

- It sounds like your pet has been vomiting intermittently for several months.
- When did your pet's vomiting start?
- You seem very concerned about your pet's condition.
- Why didn't you bring your pet to the veterinarian when this first began last week?
- Can you tell me about what is happening with your pet?

Explanation - Can you tell me about what is happening with your pet? This is an example of an open-ended question that allows a client to tell their story in their own words without leading or prompting.

Why didn't you bring your pet to the veterinarian when this first began last week? Questions beginning with why should be avoided as they imply guilt or responsibility and may invoke a defensive response from a client.

It sounds like your pet has been vomiting intermittently for several months. This is an example of a reflective listening statement. While this can be very effective in communication, it is not an open-ended question.

When did your pet's vomiting start? This is a specific, pointed question rather than an open-ended one that will likely invoke a short response. This may allow the discovery of important information but should be reserved until after a client has explained the relevant history in their own words.

You seem very concerned about your pet's condition. This is an example of an empathic statement that is also used by veterinarians with good communication skills but it is not an open-ended question.

Question

What is the largest expense of a well-run veterinary general practice?

- Medical and surgical supplies
- Payroll
- Insurance
- Office supplies
- Rent or mortgage

Explanation - In a general practice, the payroll for all staff should make up close to 40-50% of the total practice expenses.

Question

The owner of an American Paint Horse that is frame overo has bred her horse to a Tobiano horse. The carrier rate for the autosomal recessive disease, ileocolonic aganglionosis (overo lethal white foal syndrome) is 90% in frame overo and 20% in Tobiano horses.

Based on these rates, what is the likelihood that the foal born from this mating will be affected by the disorder?

- About 15%
- About 5%
- 50%
- About 1%

Explanation - You do not need to know anything about the disease in this question in order to get the correct answer. You are told that the disease is recessive.

Because the trait is recessive, homozygotes will be the only individuals affected. In order for a foal to be born homozygous for the trait, BOTH parents MUST be carriers. The chances of both parents being carriers is 90% x 20% (or 0.9×0.2) = 0.18 or 18%.

For any autosomal recessive trait, if both parents are carriers, the offspring will have a 25% chance of being homozygous and affected by the disease.

In this example, there is an 18% chance that both parents are heterozygous carriers for the disease. Applying the 25% rate of passage of both diseased alleles, (0.18×0.25) = 0.045, or there is **4.5% chance that the foal will be affected.**

Question

A client comes to a veterinary clinic because their pet needs radiographs taken. The attending veterinarian orders the radiograph to be taken; a technician performs the radiographic procedure. A radiologist then reads the radiographs and the client pays for them. Whose property is the radiograph?

- The practice
- The client
- The attending veterinarian
- The radiologist
- The technician

Explanation - Radiographs are part of the patient's medical record and belong to **the practice** where they were taken and must be kept for a specified period of time depending on state laws.

Question

In which of these business arrangements could you be held personally financially responsible if your business partner is sued?

- Sole proprietorship

- General partnership
- Limited liability company (LLC)
- C Corporation
- S Corporation

Explanation - The key word in the question is "personally." This means that your personal assets could be taken if you or your business partner was sued.

A sole proprietorship provides no liability protection but by definition, indicates that there is no business partner. A general partnership also has no personal liability protection. In most cases, the risk of this can be minimized with adequate insurance.

S and C corporations and LLCs provide personal liability protection but have different tax consequences.

Key Points

- **Sensitivity (Sens)** of a test: The chance of testing positive if you truly have the disease (usually based on a "gold standard test")
- **Specificity (Spec)** of a test: The chance of testing negative if you truly do not have the disease (usually based on a "gold standard test")
- **Positive predictive value (PPV)**: The chance that you have the disease if you have a positive test
- **Negative predictive value (NPV)**: The chance that you do not have the disease if you have a negative test
- **Sensitivity and specificity are inherent characteristics of a test. The predictive value is highly dependant on the prevalence of the disease as well as the test itself**

Definitions

	Disease Positive	Disease Negative
Test Positive	A	B
Test Negative	C	D

True Positive (TP): A- Individuals with the disease that test positive

False Positive (FP): B- Individuals without the disease that test positive

False Negative (FN): C- Individuals with the disease that test negative

True Negative (TN): D- Individuals without the disease that test negative

Prevalence (Prev): Proportion of individuals with disease in a population $\frac{A + C}{A + B + C + D}$

The Calculations

Sensitivity = $\frac{A}{A + C} = \text{TP} / (\text{All individuals with the disease})$

Specificity = $\frac{D}{B + D} = \text{TN} / (\text{All individuals without the disease})$

Positive Predictive Value = $\frac{A}{A + B} = \text{TP} / (\text{All positive tests})$

Negative Predictive Value = $\frac{D}{C + D} = \text{TN} / (\text{All negative tests})$

Question

A farmer comes to you with a new test for detection of mastitis in his heifers. He claims that both the sensitivity and specificity of his test is 90%. Mastitis has a prevalence of 5% in his herd. The negative predictive value (NPV) is approximately _____.

- 99%
- 35%
- 3%
- 72%

Explanation - The correct answer is approximately 99%. The negative predictive value is the proportion of test-negative animals that are truly disease negative (unaffected) in this population. In the 2X2 table, where a= Disease +, Test +; b= Disease -, Test +; c= Disease +, Test -; d= Disease -, Test -. The NPV is $d/(c+d)$, or disease -, test - animals DIVIDED by all of the test - animals.

Question

Which of the following tests used to test a population of cats will yield the most false negatives?

- Sensitivity 100%, Specificity 50%
- Sensitivity 65%, Specificity 95%
- Sensitivity 95%, Specificity 65%
- Sensitivity 80%, Specificity 80%

Explanation - The correct answer is sensitivity 65%, specificity 95%. The sensitivity determines the number of false negatives because sensitivity looks at the animals that do have the disease of interest and is the percentage of them that will test positive. If 65% test positive, that means 65% are true positive and 35% are false negative. Specificity defines the number of true negatives and false positives.

Sensitivity = True positives

Question

Which of the following tests has the highest specificity for 200 cats, 100 with the disease and 100 without?

- 95 true positive, 65 true negative, 5 false negative, 35 false positive
- 50 true positive, 80 true negative, 50 false negative, 20 false positive
- 85 true positive, 85 true negative, 15 false negative, 15 false positive
- 75 true positive, 95 true negative, 25 false negative, 5 false positive

Explanation - The correct answer is 75 true positive, 95 true negative, 25 false negative, 5 false positive. Specificity is determined by the percentage of true negatives versus false positives in cats that do not have the disease of interest.

Question

The positive predictive value is the _____.

- Proportion of disease-negative animals that are test-negative
- Proportion of test-negative animals that are disease-positive
- Proportion of test positive-animals that are disease-positive
- Proportion of disease-positive animals that are test-positive

Explanation - The correct answer is the proportion of test-positive animals that are disease-positive (affected). The negative predictive value (NPV) is the proportion of test-negative animals that are disease-negative (or unaffected). The proportion of disease-positive animals that are test-positive is the definition for test sensitivity. The proportion of disease-negative animals that are test-negative is the definition for test specificity.

Question

"Bark-field" is a large corporation that is buying a previously independent local feline veterinary practice and will be gaining control of that practice. This is an example of which of the following?

- Acquisition
- Buy-in
- Buy-out
- Merger
- Capital gain

Explanation - This is an acquisition because one entity (Bark-field) is acquiring control of another entity (the independent practice). Acquisitions are the most common form of transfer of practices and may be an internal purchase (associate buy-in) or from an external buyer.

A buy-in or buy-out refers to veterinarians of the practice. A buy-in is when an associate purchases a stake in the practice and a buy-out is when the practice purchases back that share from the associate.

A merger typically occurs when two practices on the same scale combine to create economies of scale. An example is two practices closing one location to operate out of a combined facility. A merger can also involve centralizing of tasks such as bookkeeping, inventory management, and practice management services.

Capital gains are the difference between an asset's purchase price and selling price, when the selling price is greater.

Question

A cat owner brings his 1-year old intact male cat to your clinic and is at his wit's end with his cat due to scratching and destruction of his furniture . He requests an onychectomy. He says he has "tried everything" including frequent nail trims, the use of nail caps, and installation of scratching posts. Which of the following is consistent with AVMA recommendations in such instances?

- Destruction of property is not a sufficient rationale to consider onychectomy in domestic cats
- Surgical tendonectomy should be considered as a more humane alternative
- Peri-operative analgesic use is imperative if onychectomy is performed
- Castration is likely to reduce scratching and should be considered first

Explanation - The AVMA position statement on onychectomy states that declawing of domestic cats should be considered only after attempts have been made to prevent the cat from using its claws destructively or when its clawing presents a zoonotic risk for the owner.

There are 7 specific points listed in the AVMA position statement as follows:

1. Scratching is a normal feline behavior, is a means for cats to mark their territory both visually and with scent, and is used for claw conditioning ("husk" removal) and stretching activity.
2. Owners must provide suitable implements for normal scratching behavior. Examples are scratching posts, cardboard boxes, lumber or logs, and carpet or fabric remnants affixed to stationary objects. Implements should be tall or long enough to allow full stretching, and be firmly anchored to provide necessary resistance to scratching. Cats should be positively reinforced in the use of these implements.
3. Appropriate claw care (consisting of trimming the claws every 1 to 2 weeks) should be provided to prevent injury or damage to household items.
4. Surgical declawing is not a medically necessary procedure for the cat in most cases. While rare in occurrence, there are inherent risks and complications with any surgical procedure including, but not limited to, anesthetic complications, hemorrhage, infection, and pain. If onychectomy is performed, appropriate use of safe and effective anesthetic agents and the use of safe peri-operative analgesics for an appropriate length of time are imperative. The surgical alternative of tendonectomy is not recommended.
5. Declawed cats should be housed indoors.
6. Scientific data do indicate that cats that have destructive clawing behavior are more likely to be euthanatized, or more readily relinquished, released, or abandoned, thereby contributing to the homeless cat population. Where scratching behavior is an issue as to whether or not a particular cat can remain as an acceptable household pet in a particular home, surgical onychectomy may be considered.
7. There is no scientific evidence that declawing leads to behavioral abnormalities when the behavior of declawed cats is compared with that of cats in control groups.

Ref: AVMA position statement on the declawing of domestic cats - April 15, 2003

The only answer choice here that is in agreement with these points is that peri-operative analgesic use is imperative if onychectomy is performed. Scratching is considered a normal behavior and is not considered to be hormonally driven; therefore, castration is not likely to prevent further scratching.

Question

A cat owner brings her 8-month old female spayed cat to your clinic and is concerned about the cat's scratching and destruction of her furniture. She is concerned about potential adverse effects associated with onychectomy and asks for your advice with this problem. Which of the following statements is consistent with the American Veterinary Medical Association's (AVMA's) position on the declawing of domestic cats?

- Onychectomy should be avoided whenever possible due to the high rate of complications, hemorrhage, infection and pain
- Declawed cats should be housed exclusively indoors

- Scratching is an abnormal behavior and it is recommended to attempt to modify the cat's behavior and prevent scratching before considering surgery
- Declawing is associated with an increased risk of developing behavioral abnormalities
- Surgical tendonectomy should be considered as an alternative to onychectomy

Explanation - The AVMA position statement on onychectomy states that declawing of domestic cats should be considered only after attempts have been made to prevent the cat from using its claws destructively or when its clawing presents a zoonotic risk to the owner.

There are 7 specific points listed in the AVMA position statement as follows:

1. Scratching is a normal feline behavior. It is a means for cats to mark their territory both visually and with scent, and is used for claw conditioning ("husk" removal) and stretching activity.
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3. Appropriate claw care (consisting of trimming the claws every 1 to 2 weeks) should be provided to prevent injury or damage to household items.
4. Surgical declawing is not a medically necessary procedure for the cat in most cases. While rare in occurrence, there are inherent risks and complications with any surgical procedure including, but not limited to, anesthetic complications, hemorrhage, infection, and pain. If onychectomy is performed, appropriate use of safe and effective anesthetic agents and the use of safe peri-operative analgesics for an appropriate length of time are imperative. The surgical alternative of tendonectomy is not recommended.
5. Declawed cats should be housed indoors.
6. Scientific data indicates that cats that have destructive clawing behavior are more likely to be euthanatized, or more readily relinquished, released, or abandoned, thereby contributing to the homeless cat population. Where scratching behavior is an issue as to whether or not a particular cat can remain as an acceptable household pet in a particular home, surgical onychectomy may be considered.
7. There is no scientific evidence that declawing leads to behavioral abnormalities when the behavior of declawed cats is compared with that of cats in control groups.

Ref: AVMA position statement on the declawing of domestic cats - April 15, 2003

The only answer choice here that is in agreement with these points is that **declawed cats should be housed indoors**. The remaining statements all contradict one of these points.

Question

You are applying to a job at a feline-only practice. You negotiate to be paid based on commission-only at a rate of 20%. The average monthly gross production of the associates in the clinic is \$35,000. If you can match this amount, what would your monthly salary be?

- \$6,000
- \$5,000
- \$7,000
- \$3,500

Explanation - When paid on a percentage of commission, your monthly salary will be: (Monthly gross production) x (commission rate)

In this case, if you match the average associate's production, this would be: $\$35,000 \times 0.20 = \$7,000$

Question

Which of the following is the most common reason that dog and cat owners choose a particular veterinary practice?

- Size of the practice
- Relationship with their primary veterinarian
- Location
- Cost of services
- Types of equipment and services available

Explanation - The most common reason for a small animal pet owner to select a particular practice is its location.
