Here are the short answers for all "Q.3" questions from the 2024, 2023, 2022, 2019, and 2018 veterinary pathology papers.

🏛️ 2024 Exam (Q.3)

3.1 Farcy Farcy is the cutaneous (skin) form of **Glanders**, a zoonotic disease of equines caused by *Burkholderia mallei*. It is characterized by the formation of pyogranulomatous nodules ("farcy buds") along the lymphatic vessels of the limbs and body, which ulcerate and discharge thick, oily pus.
3.2 Laboratory diagnosis of Rabies The gold standard is the **Fluorescent Antibody Test (FAT)** on fresh brain tissue (hippocampus, cerebellum) to detect viral antigens. Histopathology to identify **Negri bodies** (intracytoplasmic inclusions in neurons) is also used but is less sensitive. PCR can detect viral RNA.
3.3 Differentiate between Vesicular Stomatitis & Vesicular Exenthema Both are vesicular (blister-forming) diseases. **Vesicular Stomatitis** (VS) is a Rhabdovirus that affects cattle, pigs, and **horses**. **Vesicular Exanthema** (VE) of Swine is a Calicivirus that affects **only pigs**. The susceptibility of horses to VS is a key differentiator from FMD and VE.
3.4 Negri bodies Negri bodies are pathognomonic, eosinophilic, **intracytoplasmic inclusion bodies** found in the neurons of animals infected with **Rabies**. In dogs, they are most common in the hippocampus, while in herbivores, they are more common in the cerebellum.
3.5 Equine Plaque This likely refers to the "silver dollar plaques" seen in **Dourine**, a venereal disease of horses caused by *Trypanosoma equiperdum*. These plaques are raised, coin-shaped, edematous swellings (urticaria) on the skin that appear and disappear.
3.6 Prion Disease? give example A prion disease, or Transmissible Spongiform Encephalopathy (TSE), is a fatal neurodegenerative disorder caused by an abnormal, misfolded protein (PrPSc). This prion protein induces misfolding in normal host proteins, leading to neuronal vacuolation (spongiform change) and death.

- **Examples: Scrapie** in sheep, **Bovine Spongiform Encephalopathy (BSE)** in cattle, and **Kuru** in humans.

3.7 Differentiate between Avian inflammation and Mammalian inflammation The primary difference is the main inflammatory cell. In mammals, the first responder is the **neutrophil**, which forms liquid pus. In birds, the equivalent cell is the **heterophil**, which lacks liquefactive enzymes, resulting in the formation of solid, caseous (cheesy) exudate.
3.8 Explain why? Pus is not formed in poultry Poultry do not form liquid pus because their primary inflammatory cell, the **heterophil**, lacks the enzyme **myeloperoxidase** (which causes liquefactive necrosis in mammals). Therefore, avian inflammatory exudate is solid, dry, and caseous rather than liquid.
3.9 Explain why? Nodules are formed in oesophagus of bird in Vit. A deficiency Vitamin A is essential for maintaining epithelial integrity. A deficiency causes **squamous metaplasia** of glandular epithelium. In the esophagus and pharynx, the mucous glands become blocked and distended with keratin debris, forming raised, white nodules that resemble "pustules" (also known as nutritional roup).
3.10 Differentiate between ILT and Infectious Coryza ILT (Infectious Laryngotracheitis) is a *Herpesvirus* disease causing severe respiratory distress, coughing of bloody mucus, and intranuclear inclusions. **Infectious Coryza** is a *bacterial* disease (caused by *Avibacterium paragallinarum*) characterized by facial swelling, foul-smelling nasal discharge, and swollen wattles.

3.11 Differentiate between Orthomyxovius and Paramyxovirus Both are enveloped RNA viruses. **Orthomyxoviruses** (e.g., Avian Influenza) have a *segmented* genome, allowing for genetic reassortment ("antigenic shift"). **Paramyxoviruses** (e.g., Newcastle Disease) have a *non-segmented* genome and often cause syncytial (giant cell) formation.
3.12 Bovine spongiform encephalopathy Also known as "Mad Cow Disease," this is a fatal, neurodegenerative **prion disease** of cattle. It is caused by ingesting feed contaminated with the prion agent. It causes progressive neurological signs (aggression, ataxia) and is characterized microscopically by **spongiform change** (vacuolation) in the brainstem.

🏛️ 2023 Exam (Q.3)

3.1 Anthrax toxins The *Bacillus anthracis* exotoxin has three parts: **Protective Antigen (PA)** (which binds to cells), **Edema Factor (EF)** (which causes edema), and **Lethal Factor (LF)** (which causes cell death and shock). PA must combine with either EF or LF to become toxic.
3.2 Gout Gout is the deposition of uric acid crystals (urates) in tissues, typically secondary to renal failure in birds and reptiles. **Visceral gout** is the deposition of urate "frosting" on serosal surfaces (heart, liver). **Articular gout** is the deposition of urates in and around joints.
3.3 Farcy (Repeat of 2024, 3.1) Farcy is the cutaneous (skin) form of **Glanders**, a zoonotic disease of equines. It's characterized by pyogranulomatous nodules ("farcy buds") along thickened, "cord-like" lymphatic vessels.
3.4 Meladycan reaction (Likely a typo for **M'Fadyean reaction**). This is a diagnostic stain for *Bacillus anthracis*. When a blood smear is stained with polychrome methylene blue, the large, square-ended rods are stained blue, and the surrounding **polypeptide capsule** stains a distinct pink/purple.
3.5 Thrush In poultry, Thrush is **Candidiasis** (*Candida albicans*), a fungal infection of the crop. It causes the mucosa to become thickened, white, and piled up, resembling a **"Turkish towel"**. In horses, it refers to a bacterial/fungal infection of the hoof frog.
3.6 Lesions of Tyzzer's disease Tyzzer's disease (*Clostridium piliforme*) is characterized by a "classic triad" of lesions: **miliary (multifocal) necrosis** of the **liver**, **necrotizing enterocolitis** (especially of the cecum), and (less commonly) **myocardial necrosis**.
3.7 Gross lesions of Copper toxicity In chronic copper toxicity in sheep, the primary gross lesions occur during the **hemolytic crisis**. This includes severe **icterus** (jaundice) of all tissues, **hemoglobinuria** ("port wine" urine), and a dark, swollen, **"gun-metal blue" kidney**.
3.8 Bacillary hemoglobinuria Also known as "Redwater Disease," this is an acute, fatal toxemia of cattle caused by *Clostridium haemolyticum* (*C. novyi* Type D). It is often triggered by **liver fluke migration**, which creates an anaerobic focus for the bacteria. The resulting toxin causes massive **intravascular hemolysis**, hemoglobinuria, and a large anemic infarct in the liver.
3.9 Prions (Repeat of 2024, 3.6) Prions are "proteinaceous infectious particles", which are abnormal, misfolded isoforms (PrPSc) of a normal host protein. They are the causative agents of Transmissible Spongiform Encephalopathies (TSEs) and cause fatal neurodegeneration by inducing spongiform change in the brain.
3.10 Gross lesions of Paratuberculosis (Johne's Disease) The classic gross lesion is in the ileum and colon. The intestinal wall is severely **thickened**, and the mucosa is thrown into deep, permanent, **corrugated (brain-like) folds**. The associated mesenteric lymph nodes are also enlarged.
3.11 Murine hepatitis virus Murine Hepatitis Virus (MHV) is a highly contagious **Coronavirus**

of mice. It primarily causes multifocal **necrotic foci in the liver** (hepatitis). In susceptible strains, it can also cause severe enteritis or systemic infection.
3.12 Gross lesions of spirochaetosis in poultry Avian Spirochetosis (*Borrelia anserina*) is a tick-borne bacterial disease. The primary gross lesion is a markedly **enlarged, mottled spleen** (splenomegaly), often described as "marbled" due to multiple necrotic foci.

🏛️ 2022 Exam (Q.3)

3.1 Wry neck Wry neck (or **torticollis**) is a clinical sign, not a specific disease. It is the twisting of the head and neck to one side. It is caused by any condition affecting the vestibular system (inner ear/brainstem), such as otitis media/interna (e.g., *Pasteurella* in rabbits) or viral encephalitis (e.g., Newcastle disease).
3.2 Ascoli's Test (Repeat of 2019, 3.6) The Ascoli test is a **thermoprecipitin test** used for the post-mortem diagnosis of **Anthrax**. It involves boiling tissue to extract heat-stable antigens and layering this over antiserum. A **precipitin ring** at the interface indicates a positive result.
3.3 Osteopetrosis Osteopetrosis ("marble bone disease") is a condition where bones become abnormally dense due to a defect in osteoclast function. In poultry, it is one form of the **Avian Leukosis Virus (ALV)**, leading to a gross, symmetrical thickening of the long bones.
3.4 Blue breast This term (also "Blue Comb") refers to **Avian Cyanosis**. It is a clinical sign where the comb, wattles, and skin turn a bluish-purple. It is associated with acute, systemic diseases causing circulatory collapse, such as **High Pathogenic Avian Influenza** (HPAI) or **Fowl Cholera**.
3.5 Cannibalism Cannibalism is a behavioral problem in poultry where birds peck, bite, and consume the tissues of others. It is often triggered by overcrowding, nutritional deficiencies, or stress. It can lead to vent-pecking, feather-pulling, and severe injuries.
3.6 False layer A "false layer" is a hen that appears to be in production but does not lay eggs. This is often due to a non-functional or occluded oviduct (salpingitis). The hen may ovulate, but the ova are reabsorbed in the body cavity (**internal laying**).
3.7 Weepy eye of rabbits "Weepy eye" (epiphora) in rabbits is the chronic overflow of tears, matting the fur. The most common cause is **dacrocystitis** (inflammation of the tear duct), which is often secondary to dental disease (molar root elongation) or *Pasteurella* infection ("snuffles").
3.8 Negri bodies (Repeat of 2024, 3.4) Negri bodies are pathognomonic, eosinophilic, **intracytoplasmic inclusion bodies** found in the neurons of animals infected with **Rabies**.
3.9 Black Disease Black Disease (Infectious Necrotic Hepatitis) is an acute, fatal toxemia of sheep caused by *Clostridium novyi* Type B. The disease is precipitated by **liver fluke migration** (*Fasciola hepatica*), which creates an anaerobic tract for the clostridial spores to germinate and release toxins.
3.10 Mycotoxicosis (Repeat of 2019, 3.3) Mycotoxicosis is a disease caused by the ingestion of toxins (mycotoxins) produced by fungi (molds) growing on feed. Examples include **Aflatoxicosis** (liver damage) and **Zearalenone toxicosis** (estrogenic effects).
3.11 Bastard strangles "Bastard strangles" is a metastatic form of **Strangles** (*Streptococcus equi*) in horses. Instead of being confined to the head and neck, the infection disseminates, forming **abscesses** in distant organs like the lungs, liver, spleen, or brain.
3.12 Takes "Takes" is a term used in **Fowl Pox** vaccination. It refers to the successful, localized inflammatory reaction (a small swelling or scab) at the site of inoculation (usually the wing web) 7-10 days after vaccination, confirming the vaccine has "taken."

🏛️ 2019 Exam (Q.3)

3.1 Mad itch "Mad itch" is another name for **Pseudorabies** (Aujeszky's disease), caused by a Herpesvirus. In secondary hosts (cattle, dogs, cats), it is fatal and causes intense, localized **pruritus** (itching). The animal will frantically rub or chew the area, leading to severe self-mutilation.
3.2 Braxy Braxy is an acute, fatal toxemia of sheep caused by *Clostridium septicum*. It occurs after the ingestion of frosted forage, which damages the abomasal lining, allowing the bacteria to invade and cause **hemorrhagic and necrotic abomasitis**.
3.3 Mycotoxicosis (Repeat of 2022, 3.10) Mycotoxicosis is a disease caused by ingesting toxins (mycotoxins) produced by fungi on feed. Common examples are Aflatoxicosis (liver necrosis), Ergotism (gangrene), and Zearalenone toxicosis (estrogenic syndrome).
3.4 Shipping fever Shipping fever (Bovine Respiratory Disease Complex) is a respiratory disease of cattle, typically following stress (like "shipping"). It usually involves a primary viral infection followed by a severe, secondary bacterial pneumonia, most commonly caused by *Mannheimia haemolytica*.
3.5 Negri bodies (Repeat of 2024, 3.4 & 2022, 3.8) Negri bodies are pathognomonic, eosinophilic, **intracytoplasmic inclusion bodies** in neurons, and are a key diagnostic feature of **Rabies**.
3.6 Ascoli test (Repeat of 2022, 3.2) The Ascoli test is a **thermoprecipitin test** for the post-mortem diagnosis of **Anthrax**. It detects heat-stable antigens from *B. anthracis* in tissue extracts by forming a precipitin ring with antiserum.
3.7 Fatty liver syndrome (Fatty Liver Hemorrhagic Syndrome - FLHS) This is a metabolic disease of high-producing, caged laying hens. It is caused by a positive energy balance, leading to massive fat deposition (hepatic lipidosis). The liver becomes extremely large and friable, and can spontaneously **rupture**, causing fatal internal hemorrhage.
3.8 Crazy chick disease "Crazy Chick Disease" is **Encephalomalacia**, a form of **Vitamin E deficiency** in chicks. The deficiency leads to antioxidant breakdown and necrosis of cerebellar tissue, causing severe neurological signs like ataxia, falling backward, and head-twisting.
3.9 Thrush (Repeat of 2023, 3.5) In poultry, Thrush is **Candidiasis** (*Candida albicans*), a fungal infection of the crop. It causes the mucosa to become thickened and white, resembling a **"Turkish towel"**.
3.10 Nutritional roup Nutritional roup is a manifestation of **Vitamin A deficiency** in poultry. The deficiency causes squamous metaplasia of glandular epithelium, leading to the formation of white, **caseous "pustules"** in the pharynx, esophagus, and larynx.
3.11 Star gazing "Star gazing" (opisthotonos) is a clinical sign where the head and neck are held back in a rigid, upward-pointing position. It indicates a severe CNS disorder. In poultry, it is the classic sign of **Thiamine (Vitamin B1) deficiency**.
3.12 Egg bound condition Egg binding (dystocia) is a condition in birds where the hen is unable to pass an egg. It is a common emergency. Causes include hypocalcemia, oversized eggs, obesity, or infection/trauma of the oviduct.

🏛️ 2018 Exam (Q.3)

3.1 Post Parturient Hemoglobinuria This is a metabolic disease of high-yielding dairy cows, typically occurring 2-4 weeks after calving. It is caused by severe **hypophosphatemia (low phosphorus)**. This leads to fragility and lysis of red blood cells (intravascular hemolysis),

resulting in **hemoglobinuria** (port wine urine) and anemia.
3.2 Sway back Swayback (or Enzootic Ataxia) is a neurological disease of lambs and kids caused by **Copper deficiency** in the dam during gestation. The deficiency impairs myelin formation in the CNS of the fetus, resulting in progressive, ascending **hind-limb paralysis** and incoordination.
3.3 Koch's blue bodies Koch's blue bodies are the pathognomonic diagnostic stage of **Theileriosis** (East Coast Fever), caused by *Theileria parva*. They are the **schizont** stage of the parasite, seen as aggregates of blue-staining merozoites within the cytoplasm of infected lymphocytes on a lymph node biopsy smear.
3.4 Rickets Rickets is a metabolic bone disease of **young, growing animals** caused by a deficiency of **Vitamin D3** or an imbalance of calcium and phosphorus. This prevents the mineralization of bone matrix, leading to soft, pliable bones and skeletal deformities like bowed legs.
3.5 Puply Kidney disease (Typo for **Pulpy Kidney Disease**) This is **Enterotoxemia** in sheep, caused by *Clostridium perfringens* Type D. The epsilon toxin causes systemic vascular damage, leading to rapid post-mortem autolysis of the **kidney**, making it extremely soft and "pulpy". Glycosuria (sugar in urine) is also a key finding.
3.6 Bollinger bodies Bollinger bodies are large, eosinophilic, **intracytoplasmic inclusion bodies** found in epithelial cells infected with **Avian Pox (Fowl Pox)** virus. They are large aggregates of replicating virus particles.
3.7 Gout (Repeat of 2023, 3.2) Gout is the deposition of uric acid crystals (urates) in tissues, typically secondary to renal failure in birds and reptiles. It can be **visceral** (on organs) or **articular** (in joints).
3.8 Limberneck "Limberneck" is the classic sign of **Botulism** in poultry, caused by ingesting the toxin of *Clostridium botulinum*. The toxin causes a progressive **flaccid (limp) paralysis**, preventing the bird from being able to hold its head up.
3.9 Turkey egg kidney This is a gross lesion seen in **Hog Cholera (Classical Swine Fever)** and African Swine Fever. It consists of numerous **petechial hemorrhages** on the surface of the kidney, giving it a speckled "turkey egg" appearance.
3.10 Vent disease "Vent disease" is **Rabbit Syphilis**, caused by the spirochete bacterium *Treponema paraluiscuniculi*. It is a venereal disease that causes crusty, scabby, ulcerative lesions on the external genitalia (vent), as well as on the nose and eyelids.
3.11 Wet tail "Wet tail" is a lay term for **proliferative ileitis** in hamsters, a highly fatal disease. It is caused by the intracellular bacterium *Lawsonia intracellularis*. The disease causes severe, watery diarrhea and a "wet" appearance of the tail and perineum.
3.12 Old dog encephalitis Old Dog Encephalitis (ODE) is a rare, chronic, progressive neurological disease of older dogs. It is caused by a persistent, defective **Canine Distemper Virus (CDV)** infection in the brain, leading to progressive cognitive and motor deficits.