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Dental Microbiology
Exam #4
Wednesday, December 12, 2007
1:30-3:30 p.m.
Classrooms A and B, Old Dental School Building

The Temple University School of Dentistry is guided by an Honor Code. All students are expected to abide by the Honor Code published by the Dental Student Handbook and are expected to maintain a high standard of professionalism and ethics as defined by the Ethical Foundation for Professional Education and Behavior.

There are a total of 78 questions on 16 pages in this exam.

Please use your TUID number on the scan sheet.

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

1. The signs and systems associated with rabies virus infection are most likely due to:
 - A. disruption of neuronal cell DNA synthesis
 - ☒ B. inhibition of neurotransmission by the G protein via the acetylcholine receptor (ACR) and alteration of neuronal cell transcription or RNA synthesis
 - C. appearance of Golgi apparatus in cytoplasm of neuronal cells
 - D. cytopathic effect (CPE) in epithelial cells
 - E. all of the above

2. If a person is bitten by an animal that is suspected of being rabid, the best way to prevent rabies from developing in this patient is to:
 - A. immediately administer antiviral drugs
 - B. vaccinate once with a live attenuated vaccine
 - ☒ C. wash the site of the bite with soap and water, administer rabies immune globulin (RIG) and begin a post-exposure vaccination schedule
 - D. begin a pre-exposure vaccination schedule
 - E. Once the person has been bitten, infection cannot be prevented and is always fatal.

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

3. The current rabies vaccine used in the U.S. for pre- and post-exposure rabies prevention and prophylaxis is:
- A. a live attenuated vaccine produced in rabbits
 - B. killed rabies virus produced in rabbit brains
 - ☒ C. killed virus grown in human diploid WI38 cells (HDCV)
 - D. live virus produced in duck embryos (eggs)
 - E. killed virus produced in mouse brains
4. A positive diagnosis of rabies virus infection is best made by:
- A. the signs and symptoms, since these are always the same
 - B. the appearance of Golgi in the cytoplasm of nerve cells
 - ☒ C. detection of Negri bodies by histological staining or by RT-PCR
 - D. detection of virus G protein in the body fluids of patients
 - E. solely based on an electroencephalogram (EEG)

DIRECTIONS: Select the **ONE** lettered word or phrase that best matches the numbered word or phrase. Letters may be used once, more than once, or not at all.

- A. dengue virus
- B. eastern equine encephalomyelitis virus (EEV)
- ☒ C. hantavirus
- D. West Nile virus (WNV)
- E. yellow fever virus (YFV)

Regarding arthropod-borne viruses (Arboviruses), match the description below with the virus above.

5. A This virus has humans as a natural host and has multiple serotypes. Infection with a second serotype can trigger disseminated intravascular coagulation (DIC).
6. D This virus first appeared in the U.S. in 2000, has birds as a natural host, mosquitoes as a vector, and can be transmitted by organ transplantation.
7. E Infection with this virus can be prevented by vaccination with a live attenuated vaccine.
8. C This virus has rodents as a natural host, and infection is via the inhalation route.

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

9. You see a woman that has recurrent HSV-2 genital lesions. Regarding this infection:
- A. The virus remains latent in the trigeminal ganglia.
 - B. The lesions will become increasingly severe with time.
 - ☒ C. The recurrent infections can be reduced with acyclovir (ACV) therapy.
 - D. Anti-HSV-2 IgM antibodies would be detected.
 - E. It can be structurally distinguished from HSV-1 by electron microscopy.
10. The Epstein-Barr virus (EBV) has been associated with all of the following EXCEPT:
- A. infectious mononucleosis (IM) ✓
 - B. Burkitt's lymphoma (BL) in Africa ✓
 - ☒ C. lymphoproliferative disease (LPD) in immunocompromised patients
 - D. adult T cell leukemia in the Caribbean
 - E. oral hairy leukoplakia (OHL) ✓

DIRECTIONS: Select the **ONE** lettered word or phrase that best matches the numbered word or phrase. Letters may be used once, more than once, or not at all.

- A. cytomegalovirus (CMV)
 - B. herpes simplex virus 1 (HSV-1)
 - C. human herpes virus 6 (HHV-6)
 - D. human herpes virus 8 (HHV-8)
 - E. varicella-zoster virus (VZV)
11. D This virus is associated with an Kaposi's sarcoma(KS) in patients with AIDS.
12. E A live attenuated vaccine is available to protect from infection with this virus.
13. A This virus is a major cause of retinitis, pneumonia and gastrointestinal disease in immunocompromised patients.

DIRECTIONS: For all the questions in this exam, select the **ONE BEST** answer in each case.

14. You are the primary care giver for a patient infected with HIV-1 and decide based on laboratory results to start high activity anti-retroviral therapy (HAART). You wish to have the patient's strain of HIV-1 anti-retroviral drug sensitivity phenotype determined in order to best choose which anti-retroviral drugs for HAART. Which of the patient's HIV-1 genes would you have sequenced to best determine HAART drug sensitivity?
- A. Gag gene
 - B. Env gene
 - ☒ C. Pol gene
 - D. LTR
 - E. Tat gene
15. In order to determine whether the HAART is likely to be effective against HIV-1 induced disease progression in the above patient it would be best to monitor which surrogate markers in this patient during HAART?
- A. Numbers of CD4 positive T lymphocytes.
 - B. Copy numbers of HIV-1 virion RNA in plasma.
 - ☒ C. Numbers of CD4 positive T lymphocytes and plasma HIV-1 RNA copy number.
 - D. Absolute numbers of CD8 positive lymphocytes.
 - E. HIV-1 proviral DNA levels in total circulating lymphocytes.
16. Which class of antiretroviral drugs inhibits a late post-translational stage of HIV-1 replication?
- A. Nucleoside inhibitors of reverse transcriptase (NIRT).
 - B. Non-nucleoside inhibitors of reverse transcriptase (NNIRT).
 - C. Fusion inhibitors
 - ☒ D. HIV-1 protease inhibitors *release*
 - E. Attachment inhibitors
17. Several days after attending a picnic an adult seeks medical attention due to a rapid onset of fever, nausea, abdominal pain, loss of appetite and jaundice. The symptoms eventually resolve. An investigation reveals that a number of others who attended the same picnic developed similar symptoms. For this case, choose the most likely characteristics of the causative agent below. *HepA*
- A. enveloped large DNA virus
 - B. enveloped single-stranded RNA virus
 - C. enveloped segmented RNA virus
 - ☒ D. non-enveloped single-stranded RNA virus
 - E. non-enveloped DNA virus

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

18. An intravenous drug user (IVDU) has an acute onset of severe fever, nausea, abdominal pain and jaundice. The patient is hospitalized with fulminating hepatitis. This individual has experienced previous episodes of jaundice, but the current symptoms are by far "the worst he has ever had." Recovery is prolonged. Which of the following best describes the genome of the likely causative virus?
- ☒ A. A small approximately 377 base pair single-stranded RNA with secondary structure
 - ☐ B. A single-stranded segmented RNA with negative polarity
 - ☐ C. A circular double-stranded DNA with a single-stranded region
 - ☐ D. An approximately 5,100 base pair circular double-stranded DNA
 - ☐ E. A single-stranded non-segmented RNA with negative polarity
19. To prevent hepatitis B virus (HBV) infection, which of the following would be most appropriate?
- ☐ A. inactivated (killed) whole virus vaccine grown in cell culture
 - ☐ B. live attenuated whole virus vaccine produced in cell culture
 - ☒ C. genetically engineered single recombinant protein vaccine produced in culture
 - ☐ D. purified trivalent subunit vaccine from viruses grown in embryonated chicken eggs
 - ☐ E. purified viral DNA
20. Which of the following diseases would most likely be associated with hepatitis B virus (HBV) DNA?
- ☒ A. hepatocellular carcinoma (HCC)
 - ☐ B. Hodgkin's disease (HD)
 - ☐ C. Lung Cancer
 - ☐ D. cutaneous T cell lymphoma
 - ☐ E. Cervical carcinoma
21. The primary latent reservoir for replication competent HIV-1 in a patient with AIDS is:
- ☐ A. Naïve CD8⁺ T lymphocytes
 - ☐ B. B lymphocytes
 - ☐ C. Natural killer cells (NK cells)
 - ☒ D. CD4⁺ memory T lymphocytes
 - ☐ E. dendritic cells
22. The best way to distinguish between smallpox the disease and chicken pox or varicella is:
- ☐ A. The recurrent nature of the lesions; with smallpox they recur, whereas with chicken pox they do not.
 - ☒ B. Smallpox lesions are mainly on the extremities and face, whereas chicken pox lesions are mainly on the trunk. In addition, chicken pox lesions occur at all stages of development, whereas smallpox lesions develop uniformly.
 - ☐ C. Smallpox is rarely fatal, whereas chicken pox has a high mortality in adults.
 - ☐ D. Smallpox lesions rarely scar, whereas chicken pox lesions leave severe scarring.
 - ☐ E. Smallpox is easily transmissible, whereas chicken pox is not transmissible.

DIRECTIONS: Select the **ONE** lettered word or phrase that best matches the numbered word or phrase. Letters may be used once, more than once, or not at all.

- A. moist heat autoclaving at 15 lbs./sq.in. and at 121 °C (250 °F) for 30 min
- B. pasteurization at 63 °C for 30 min
- C. 75% aqueous solution of isopropanol (isopropyl alcohol)
- D. an iodophore (povidone-iodine) compound such as Betadine®
- E. sodium hypochlorite solution (e.g., household bleach or Clorox®) in 5-10% concentration
- F. hydrogen peroxide 3% aqueous solution
- G. chlorhexidine compounds (e.g., Hibiclens®, Hibitane®)
- H. hexachlorophene (e.g., Phisohex®)

23. G a phenolic type bactericidal disinfectant with low toxicity used as an antiseptic agent for skin disinfection, active against both Gram-positive and Gram-negative organisms
24. E a disinfectant used to decontaminate inanimate surfaces or glassware which are contaminated with blood or body fluids containing pathogenic bacteria, spores, and viruses such as polio, hepatitis, and HIV
25. A the best and quickest method or compound for ensuring sterilization of surgical instruments (kills both vegetative bacterial cells and spores, as well as fungi and viruses)
26. D a skin disinfectant (antiseptic) compound which has rapid and effective residual microbicidal activity best for use prior to venipuncture

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

27. Concerning disinfection and microorganism susceptibility to killing, all of the following statements are true EXCEPT:
- A. Moist heat in the form of steam is more effective than dry heat in killing microorganisms. ✓
 - B. Bacterial spores are more difficult to kill than vegetative bacteria. ✓
 - ☒ C. Pasteurization is highly effective for killing bacterial spores in liquids.
 - D. Ethylene oxide, an inflammable and potentially explosive gas, is an effective sterilizing agent. ✓
 - E. Ionizing radiation is one means of sterilizing surgical supplies such as gloves and plastic syringes. ✓
28. The mechanism of destruction of microorganisms most closely associated with ultraviolet irradiation is the:
- A. coagulation of cell protein
 - B. osmotic imbalance
 - ☒ C. formation of thymine dimers
 - D. cell wall destruction
 - E. interference with respiratory enzymes in the cytoplasmic membrane
29. A 68 year old female patient, who is addicted to "sweets," appears at the dental clinic 6 weeks after having a molar extracted. She complains that a hard, red, nontender swelling with a central "darkish" area appeared on the inside of her lower jaw within 3 weeks post-extraction. The outside of her jaw has now become fluctuate and there is a draining opening present. A visible examination of the discharge fluid reveals several yellowish particles approximately 1 mm in size. This patient
- ~~A.~~ likely has a root canal infection involving *Porphyromonas endodontalis*; a Gram stain showing Gram-negative rods in the discharge will confirm this diagnosis
 - B. probably contracted a contagious disease at the time of the extraction, caused by *Actinomyces radicidentis* which contaminated the surgical instruments used
 - ☒ C. likely has the granulomatous, chronic infection, actinomycosis, caused by an endogenous Gram-positive, club-shaped, filamentous bacterium
 - ~~D.~~ probably suffers from localized nocardiosis, an endogenous disease which can be transmitted to her dentist by respiratory droplets as well as by contact with the yellowish particles
 - ~~E.~~ likely is experiencing the effects of the acids produced by oral *Actinomyces* species from the dietary sugars she admits to consuming
30. Which commensal organism(s) below predominate(s) on the tooth surface, is/are (alone) cariogenic in gnotobiotic rats and is/are most likely involved in root surface caries formation in humans?
- A. *Actinomyces israelii* and *A. odontolyticus*
 - ☒ B. *Actinomyces viscosus* and *A. naeslundii*
 - C. *Rothia dentocariosa* and *Arachnia propionica*
 - D. *Corynebacterium matruchotii*
 - E. *Bifidobacterium* and *Streptococcus* species

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

31. Species of the genus *Actinomyces*
- ☒ A. are present as subgingival plaque flora and increase in proportion to Gram-negative, anaerobic species as periodontal lesions advance
 - B. have chemotactic and mitogenic properties which contribute to forming carious lesions in both dentine and on exposed root surfaces
 - ☒ C. have a "whip handle" appearance and can coaggregate with *Fusobacterium* and streptococcal species to form "corn cobs" *corynebacterium* *vigorous + naesslundii*
 - ☒ D. possess fimbriae, polysaccharide slime layers and ferment dietary carbohydrates, facilitating their adherence to the salivary pellicle and dissolution of dentine
 - E. comprise more than 80% of the cultivable periodontal plaque flora, rarely colonize the tooth surface but are associated with the "initial" or "soft" lesions of root surface caries
32. Species of *Norcardia*
- A. are Gram-positive and are often found in water and soil ✓
 - B. can produce granulomatous, opportunistic infections that resist penicillin therapy ✓
 - C. can produce systemic infections, when inhaled, that resemble tuberculosis ✓
 - D. that produce mycetomas generally gain entry by a foot injury ✓
 - ☒ E. All of the above are correct.
33. An asymptomatic 19-year-old female is diagnosed with cervicitis. Culture of a cervical specimen reveals the presence of a bacterium which can only be grown in cell culture. This organism is most likely:
- A. *Anaplasma phagocytophilum*
 - B. *Chlamydia psittaci*
 - ☒ C. *Chlamydia trachomatis*
 - ☒ D. herpes simplex virus type 1 (HSV-1)
 - E. *Neisseria gonorrhoeae*
34. Rocky Mountain spotted fever is caused by:
- A. *Bartonella henselae*
 - B. *Chlamydia psittaci*
 - C. Dengue virus
 - D. *Rickettsia prowazekii*
 - ☒ E. *Rickettsia rickettsii*
35. Infection with which of the following organisms results in the generation of autoantibodies to heart muscle possibly resulting in atherosclerosis?
- ☒ A. *Chlamydia pneumoniae*
 - ☒ B. coxsackie A virus
 - C. *Ehrlichia chaffeensis*
 - D. influenza A virus
 - E. rabies virus

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

36. A patient with a *Neisseria gonorrhoeae* infection should also be treated for a possible infection with:
- ☒ A. *Chlamydia trachomatis*
 - B. herpes simplex virus type 2 (HSV-2)
 - C. human immunodeficiency virus (HIV)
 - D. *Neisseria meningitidis*
 - E. *Treponema pallidum*
37. With respect to viruses:
- A. they replicate by binary fission
 - B. all have DNA genomes
 - ☒ C. all have RNA genomes
 - D. all have envelopes
 - ☒ E. all have capsids
38. In what order do the following steps of poliovirus replication occur?
- 1. adsorption
 - 7 2. assembly
 - 4 3. early protein synthesis
 - 6 4. late protein synthesis
 - 5 5. nucleic acid (genome) replication
 - 2 6. penetration
 - 8 7. release
 - 3 8. uncoating
- ☒ A. 1, 8, 6, 3, 4, 5, 7, 2
 - ☒ B. 8, 1, 6, 3, 5, 4, 2, 7
 - ☒ C. 1, 6, 3, 8, 4, 5, 2, 7
 - ☒ D. 1, 6, 8, 3, 5, 4, 2, 7
 - ☒ E. 1, 6, 8, 3, 4, 5, 2, 7
39. Viral envelopes are composed of:
- A. virus coded lipid and host cell protein.
 - ☒ B. host cell lipid and virus coded protein.
 - C. virus coded lipid and virus coded protein.
 - D. virus coded protein with no lipid.
 - E. virus coded lipid with no protein
40. Neutralizing antibodies to an enveloped virus are directed against:
- A. host cell coded lipid
 - B. host cell coded protein
 - C. virus coded lipid
 - ☒ D. virus coded protein
 - E. virus nucleic acid.

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

41. Ehrlichiosis is transmitted to humans by:
- A. fleas
 - B. lice
 - C. mosquitoes
 - D. respiratory secretions
 - ☒ E. ticks
42. The poliovirus genome is
- A. double stranded DNA.
 - B. single stranded DNA.
 - C. negative polarity single stranded RNA.
 - ☒ D. positive polarity single stranded RNA.
 - E. double stranded RNA.
43. What nonstructural protein is found in virions with a negative polarity single stranded RNA genome?
- A. capsid
 - B. DNA polymerase
 - ☒ C. RNA polymerase
 - D. reverse transcriptase
 - E. none
44. Which type(s) of viral vaccines will induce a cytotoxic T-lymphocyte response?
- A. live attenuated virus only
 - B. inactivated virus only
 - C. live attenuated virus and inactivated virus
 - D. inactivated virus and subunit
 - ☒ E. live attenuated virus and DNA
45. Herpangina is caused by
- ☒ A. coxsackievirus type A
 - B. coxsackievirus type B
 - C. herpes simplex virus type 1 (HSV-1)
 - D. herpes simplex virus type 2 (HSV-2)
 - E. varicella-zoster virus (VZV)
46. Poliovirus infection(s):
- ☒ A. are asymptomatic in greater than 90% of those infected. ✓
 - B. of cardiac muscle tissue can result in myocarditis.
 - ☒ C. causes paralysis in greater than 20% of those infected.
 - D. usually occur via the respiratory route.
 - E. are most common in the winter.

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

47. A virus commonly associated with outbreaks of diarrhea on cruise ships is:
- A. adenovirus
 - B. coxsackievirus
 - ☒ C. norwalk virus
 - D. poliovirus
 - E. ¹ rotavirus
48. Symptoms of a rhinovirus infection are primarily
- A. gastrointestinal
 - B. lower respiratory
 - C. muscular
 - D. renal
 - ☒ E. upper respiratory
49. The segmented genome of influenza virus facilitates
- A. antigenic drift
 - ☒ B. antigenic shift
 - C. gene mutation
 - D. virus adsorption
 - E. virus release
50. Which of the following groups should **NOT** be given the influenza vaccine?
- A. individuals over 65 years of age ✓
 - B. children with asthma
 - C. individuals infected with HIV
 - ☒ D. individuals who are allergic to eggs
 - E. health care professionals
51. Swollen parotid glands are the most common clinical manifestation of infection with
- A. influenza virus
 - B. measles virus
 - ☒ C. mumps virus
 - D. respiratory syncytial virus (RSV)
 - E. rubella virus
52. Koplik's spots are pathognomonic for infection with
- A. influenza virus
 - ☒ B. measles virus
 - C. mumps virus
 - D. respiratory syncytial virus (RSV)
 - E. rubella virus

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

53. Dental plaque biofilm is a soft, sticky deposit of groups of over 500 species of bacteria. Dental plaque initiates with gram _____ micro-organisms and matures with gram _____ micro-organisms.
- ☒ A. Positive cocci ...negative rods
 - B. Negative cocci ...positive rods
 - C. Negative cocci ...negative rods
 - D. None of the above
 - E. All of the above
54. Dental caries, the most prevalent world-wide health problem, requires which of the following for pathogenesis and development?
- A. *Streptococcus mutans*
 - B. Susceptible enamel of the teeth
 - C. Fermentable carbohydrates
 - ☒ D. All of the above
 - E. None of the above
55. Gingivitis is a reversible disease of the periodontium and results in no bone loss around the teeth. Periodontitis is an irreversible disease and bone loss can be seen radiographically.
- A. The first statement is true the second is false
 - B. The first statement is false the second is true
 - ☒ C. Both statements are true
 - D. Both statements are false
56. Periodontitis has recently been associated with increased risk for various systemic diseases and conditions. These include:
- A. Cardiovascular diseases
 - B. Respiratory diseases
 - C. Pre-term low birth weight babies
 - D. Gastric ulcers
 - ☒ E. All of the above
57. Dental plaque biofilm, if not removed by the patient, develops both qualitatively and quantitatively.
- ☒ A. True
 - B. False
58. The qualitative changes which occur during dental plaque maturation develop an econiche which differs between supragingival plaque and subgingival plaque. Subgingival plaque continues to develop in a primarily anaerobic environment.
- A. The first statement is true the second statement is false
 - B. The first statement is false the second statement is true
 - ☒ C. Both statements are true
 - D. Both statements are false

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

59. Dental plaque biofilm induction of gingival inflammation can result in cytokine production. What are cytokines?
- A. Hormones of inflammation
 - B. Glycoproteins
 - ☒ C. Both of the above
 - D. None of the above
60. Periodontitis exhibits which of the following characteristics?
- A. Irreversible disease
 - B. Seen radiographically
 - C. Correlates directly with inflammation
 - ☒ D. All of the above
61. There are significant gender differences as gingival inflammation progresses. In females, acceleration of inflammation can be seen in:
- A. Puberty
 - B. Birth control pills
 - C. Pregnancy
 - ☒ D. All of the above
62. Steroid hormones observed during various stages of gender differences in periodontal disease may spur re-growth of which group of bacteria?
- A. Streptococci
 - ☒ B. Bacteroides
 - C. Spirochetes
 - D. None of the above
63. The red complex of bacteria associated with periodontal disease activity includes which of the following?
- ☒ A. *P. gingivalis*, *B. forsythus*, *T. denticola*
 - B. *S. mitis*, *P. micros*, *V. parvula*
 - C. All of the above
 - D. None of the above
64. Bacteria invasion may require specific treatment plans for periodontal therapy. Many of these types of patients are referred to as having _____ or _____ periodontitis.
- A. Adult or childhood
 - B. Endo/Perio or Abscess
 - ☒ C. Aggressive or refractory
 - D. None of the above

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

65. The clinical implication of bacterial transmission of plaque biofilm is a concern. This implication indicates why periodontal diseases may run in families or between spouses/mates.
- A. The first statement is true the second statement is false.
 - B. The first statement is false the second statement is true.
 - ☒ C. Both statements are true
 - D. Both statements are false
66. Microbial acids are an important tool to identify plaque biofilm bacteria. Which of the five forms of microbial acids provides antibiotic sensitivity testing?
- A. Microscopic
 - ☒ B. Culture
 - C. Immunologic
 - D. Nucleic acid probes
67. Macrophages secrete which of the following chemical mediators of inflammation?
- A. Fatty acids[?]
 - B. Interleukin-1 (IL-1)_✓
 - C. Tumor necrosis factor alpha (TNF α)_✓
 - ☒ D. All of the above
68. Which percent of all premature deliveries are thought to be due to infections?
- A. 10 – 30%
 - ☒ B. 30 – 50%
 - C. Over 75%
 - D. None of the above
69. Orange juice causes cavities due to the presence of:
- A. xylitol
 - B. sugar only
 - C. acid only
 - ☒ D. acid and sugar
 - E. mannitol
70. Which of the following statements is true of dental caries?
- A. Sugar directly causes demineralization.
 - B. If *Streptococcus mutans* is present the patient will always develop caries.
 - C. *Streptococcus mutans* is the only causative agent of caries.
 - ☒ D. Remineralization can repair some of the damage caused by acids.
 - E. Fluoride does not affect *Streptococcus mutans*.

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

71. All of the following increase the risk of dental caries EXCEPT:
- A. consumption of soft drinks
 - ☒ B. fluoride mouthwashes
 - C. genetic factors
 - D. reduced salivary flow rates
 - E. the presence of *S. mutans* in the dental plaque (biofilm)
72. A cavity is characterized as
- A. a white spot
 - ☒ B. the presence of a lesion with a soft floor
 - C. demineralization
 - D. decay around a filling
 - E. a fractured tooth
73. Microorganisms frequently found in Endodontic infections of intact, traumatically devitalized teeth include which of the following?
- A. *Streptococcus mutans*, *Staphylococcus* species, *Haemophilus* species
 - ☒ B. *Fusobacterium nucleatum*, *Prevotella (Bacteroides)* species, *Actinomyces* species
 - C. *Escherichia coli*, *Actinobacillus actinomycetemcomitans*, *Treponema* species
 - D. *Streptococcus sanguis*, *Neisseria* species, *Pseudomonas* species
74. The presence of certain organisms in Endodontic infections has been associated with clinical signs and symptoms. These organisms include:
- A. *Fusobacterium nucleatum*, *Enterococcus faecalis*
 - B. *Streptococcus mutans*, *Lactobacillus casei*
 - C. *Eubacterium lentum*, *Actinomyces viscosus*
 - ☒ D. *Peptostreptococcus magnus*, *Porphyromonas (Bacteroides) gingivalis* (*melaninogenicus*)
75. In examining the root canals of teeth that have not healed following root canal therapy, which organism is most frequently detected?
- A. *Bacteroides (Prevotella) melaninogenicus*
 - ☒ B. *Enterococcus faecalis*
 - C. *Fusobacterium nucleatum*
 - D. *Peptostreptococcus magnus*
76. The likelihood that the root canal of an intact, traumatically devitalized tooth is infected is related to which of the following?
- A. The presence of a periapical radiolucency
 - B. The severity of the traumatic injury causing the devitalization
 - C. The length of time that the non-vital tooth remains untreated
 - ☒ D. All the above

DIRECTIONS: For the following questions, select the **ONE BEST** answer in each case.

77. The gram-negative, asaccharolytic, pigmented, obligate anaerobic bacteria that are found in Endodontic infections can be differentiated from the *Bacteroides* species (among which they were originally classified) due to the fact that:
- A. *Prevotella* species are bile-sensitive, whereas *Bacteroides* species are bile-resistant
 - ☒ B. *Porphyromonas* species are bile-sensitive, whereas *Bacteroides* species are bile-resistant
 - C. *Bacteroides* species are fermentative, whereas *Prevotella* species are not
 - D. *Porphyromonas* species are motile, whereas *Bacteroides* species are not
78. A microorganism found in infected root canals, which is composed of obligately anaerobic, asaccharolytic/minimally saccharolytic, gram-positive cocci, arranged in chains might be:
- ☒ A. *Peptostreptococcus* (*Fingoldia*) *magnus*
 - B. *Enterococcus faecalis*
 - C. *Actinomyces israelii*
 - D. *Streptococcus mutans*