1. Insect-bacteria symbiosis is found in:
   a) Vibrio cholerae and Aphids
   b) Buchnera aphidicola and Aphids
   c) Escherichia coli and Aphids
   d) Salmonella typhi and Aphids

2. Which one of the following is an example of protozoa-bacteria symbiosis?
   a) Pelomyxa and Sulfur bacteria
   b) Rhizopoda and Blue-green algae
   c) Mycetozoa and Spirochaetes
   d) Pelomyxa and Methanogenic bacteria

3. Fungal-bacterial endosymbiosis shows mutualistic relationship between a fungus and intracellular bacterial species residing within the fungus. The bacterium is:
   a) Pseudomonas sp.
   b) Rhizobium sp.
   c) Nocardia sp.
   d) Clostridium sp.

4. Symbiotic relationship between fish and bacteria can be found in:
   a) Gold fish with Purple non-sulfur bacteria
   b) Guppy fish and Sulfur bacteria
   c) Common carp with Bioluminescent bacteria
   d) Anglerfish and Bioluminescent bacteria

5. The bacterium present in human intestine that helps in producing vitamins:
   a) Escherichia coli
   b) Lactobacillus acidophilus
   c) Mycobacterium tuberculosis
   d) Clostridium tetani

6. In a mutualistic relationship between single celled marine microalga and a bacterium Rosebacter, the bacterium interactions with alga play a role in nutrient exchange. The name of the alga is:
   a) Chlamydomonas media
   b) Emiliania huxleyi
   c) Oedogonium aster
   d) Spirogyra adnata

7. In case of hornwort (Dendroceros crispatus), a type of algae is present in the dots on the thallus showing a mutualistic relationship. The name of the alga is:
   a) Nostoc sp.
   b) Oscillatoria sp.
   c) Anabaena sp.
   d) Gloeocapsa sp.

8. The pteridophyte which depends on the alga Anabaena, present in the leaf of the pteridophyte, for the fixation of nitrogen is:
   a) Selaginella sp.
   b) Lycopodium sp.
   c) Azolla sp.
   d) Pteris sp.

9. The plants engage in symbiosis with bacteria called Rhizobia that fix nitrogen from the atmosphere making it available to the plants. The type of plant family engaged in this association is:
   a) Rosaceae
   b) Magnoliaceae
   c) Asteraceae
   d) Leguminaceae

10. Coral is an example of symbiosis between:
    a) Symbiodinium and Marine vertebrates
    b) Fungi and Marine vertebrates
    c) Bacteria and Vertebrates
    d) Symbiodinium and Marine invertebrates

11. Lichen is a symbiosis between algae and fungi. An example of lichen is:
    a) Cytococcus sp.
    b) Puccinia sp.
    c) Ulothrix sp.
    d) Chlorella sp.

12. The ‘Coralloid roots’ have a symbiotic relationship with blue-green algae. In which plant species coralloid roots are found?
    a) Pinus sp.
    b) Cycas sp.
    c) Ginkgo sp.
    d) Gnetum sp.

13. Mycorrhiza is an example of mutualistic relationship found in roots of angiosperms that symbioses with:
    a) Algae
    b) Bacteria
    c) Fungi
    d) Bryophyte

14. Ant-fungus mutualism can be found in certain ant and fungal species which are dependent on each other for survival. A well known example of this symbiosis is:
    a) Leaf cutter ant
    b) Fire ant
    c) Bullet ant
    d) Carpenter ant

Answers:

1b  2d  3c  4d  5a  6b  7a
8c  9d  10d  11a  12b  13c  14a

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Radio Quiz

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1. The existence of radio waves was predicted in the 1860s by the Scottish theoretical physicist ___________.
   a) Alexander Graham Bell   b) Thomas Edison  
   c) Guglielmo Marconi   d) James Clark Maxwell

2. The famous Indian scientist, regarded as the ‘unsung hero of radio communication’, who first demonstrated wireless radio transmission:
   a) C. V. Raman   b) J. C. Bose  
   c) H. J. Bhabha   d) S. N. Bose

3. Who sent the first ever radio transmission across the Atlantic Ocean?
   a) Nikola Tesla   b) Mahlon Loomis  
   c) Guglielmo Marconi   d) Heinrich Hertz

4. This radio pioneer is acknowledged as the inventor of Frequency Modulation (FM).
   a) David Sarnoff   b) Edwin Howard Armstrong  
   c) Lee DeForest   d) Guglielmo Marconi

5. The inventor of space telegraphy, Audion and triode amplifier, also the first person to use the term ‘Radio’ was:
   a) Lee de Forest   b) Nikola Tesla  
   c) Nathan Stufflefield   d) Mahlon Loomis

6. If frequency of modulated wave is less than the frequency of carrier wave, then input signal is:
   a) Infinite   b) Zero  
   c) Positive   d) Negative

7. Which of the following receivers does not have an amplitude limiter stage?
   a) Amplitude Modulation   b) Frequency Modulation  
   c) Both a & b   d) None of these

8. In radio transmission, Frequency Modulation (FM) is advantageous than Amplitude Modulation (AM) because it has:
   a) Less signal-to-noise ratio   b) Constant amplitude  
   c) Less radiated power   d) All of the above

9. The disadvantage of FM over AM is that:
   a) Large bandwidth is required   b) High output power is needed  
   c) High modulating power is needed   d) Noise is very high for high frequency

10. In ___________ radio technology, an electronic waveform represents the sound on a carrier wave.
    a) Digital   b) Satellite  
    c) Analog   d) HD

11. What is the frequency range of radio waves in the Electromagnetic radiation spectrum?
    a) 300 GHz – 300 MHz   b) 300 GHz – 3 Hz  
    c) 30 EHz – 30 PHz   c) 300 THz – 300 GHz

12. In radio receiver, the maximum contribution to noise is from:
    a) Power amplifier   b) Power supply  
    c) Mixer stage   d) Equally from all of these

13. Guglielmo Marconi and Karl Ferdinand Braun were awarded Nobel Prize in Physics ___________ in recognition of their contributions to the development of wireless telegraph.
    a) 1902   b) 1905  
    c) 1907   d) 1909

14. The World Radio Day is observed every year on which date?
    a) February 12   b) February 13  
    c) February 14   d) February 15

15. What is the theme of the World Radio Day - 2018?
    a) Radio and Sports   b) Youth and Radio  
    c) Radio is You   d) Radio in Times of Emergency and Disaster

Answers

1) d  2) b  3) c  4) b  5) a  6) d  7) a  8) d  9) a  10) c  11) b  12) a  13) d  14) b  15) a

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