

**BACHELOR OF VOCATION**  
**Public Services**  
**Subject: Science and Technology-I**  
**Subject Code: ST-501**  
**Semester: First**  
**December 2019**  
**Theory (External): 70 Marks**  
**Time: 03 hours**

---

**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

**Roll Number**

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**SECTION –A (OBJECTIVE TYPE QUESTIONS)**

**(10x2=20 Marks)**

- A A piece of cork is floating on water what is the net force active on it  
a) 0  
b) 1N  
c)  $\frac{1}{2}$  N  
d) None of the above
- B Which part of the electromagnetic spectrum has the largest penetrating power.  
a) X rays  
b) Y rays  
c) Infra red  
d) Ultraviolet
- C Which of the following have identical bond order? Two or more option may be correct  
a) CN  
b) NO<sup>+</sup>  
c) O<sub>2</sub><sup>-</sup>  
d) O<sub>2</sub><sup>2-</sup>
- D Where do you find Nuhn's glands?  
a) On liver  
b) On tongue  
c) in large intestine  
d) on pancreas
- E Which nutrient yields twice as many calories per gram as carbohydrates  
a) Protein  
b) Salt  
c) Carbohydrates  
d) Fat
- F Which vitamin is necessary for blood clotting?  
a) Vitamin A  
b) Vitamin C  
c) Vitamin D  
d) Vitamin K
- G What is the life span of human RBCs?  
a) 100days  
b) 200days  
c) 120 days  
d) 80day
- H What is the normal blood pressure of an adult man?  
a) 100/60mmhg  
b) 120/80mmhg  
c) 140/120mmhg  
d) 80/120mmhg
- I Choose the odd numeral pair/group justify your choice  
a) 34-43  
b) 55-62  
c) 62-71  
d) 83-92
- J If REQUEST is written as S2R52TU then how will ACID be written?

**SECTION –B (ESSAY TYPE QUESTIONS)**

**(5x10=50 Marks)**

- Q1 Give five practical examples from daily life which make use of the concept of impulse.
- Q2 Differentiate between nuclear fission and nuclear fusion. Which one of these process produces energy
- i) In nuclear reactor and ii) In the sun?
- Q3 What are the important features of the quantum mechanical model of ATOM?
- Q4 Explain the mechanism of breathing with neat labelled sketches and explain the role of neural system in regulation of respiration.
- Q5 If Chandrayan - 2 landed successful How would it contributed to India as science technique.
- Q6 i) In a row of 40 girls when Komal was shifted to her left by 4 places her number from the left end of the row became 10. What was the number of Swati from the right end if the row of Swati was three places to the right of Komal's original portion?
- ii) Consider the matrix and find the figure which fits into the blank part of the matrix

		?

Q7 Examine the following relationships among members of a family of six persons ABCDEF

- a) The number of males is equal to no. of families
- b) A and E are sons of F
- c) D is the mother of two, one boy and one girl
- d) B is the son of A
- e) There is one married couple in the family at present

What is the relationship between A and D?

Q8 From a number of apples, a man sells half the number of existing apples plus 1 to the first customer, sells  $\frac{1}{3}$ rd of the remaining apples plus 1 to the second customer and  $\frac{1}{5}$ th of the remaining apples plus 1 to the third customer. He then finds that he has 3 apples left. How many apples did he have originally?

\*\*\*\*\*End of Paper\*\*\*\*\*