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**PG CBCS**  
**M.Sc. Semester-IV Examination, 2021**  
**PHYSICS**  
**PAPER: PHS 404B**

**Full Marks: 40**

**Time: 2 Hours**

**Write the answer for each unit in separate sheet**

The figures in the right-hand margin indicate full marks.  
 Candidates are required to give their answers in their own words as far as practicable

**404B.1: APPLIED ANALOG ELECTRONICS-II**

**Marks: 20**

**Answer any TWO questions of the following: 10×2=20**

1. Discuss the Characteristics of TE and TM wave and also derive cut-off frequency and phase velocity from the propagation constant. 10
2. (a) Explain with a schematic diagram the operation of the image orthicon TV camera tube.
- (b) Compare the image orthicon with the vidicon TV camera. 10
3. (a) What is an Ohmmeter? Explain the working principle and its applications.
- (b) Write a short note on Digital voltmeter. 10
4. Show the basic blocks of a TV transmitter and receiver and explain their functions. 10

**404B.2: APPLIED DIGITAL ELECTRONICS-II**

**Marks: 20**

**Answer any TWO questions of the following: 10×2=20**

1. Discuss the modulation and demodulation of pulse PAM and ASK system. 10
2. (a) What is sampling Theorem? What is Nyquist rate and Nyquist interval?
- (b) What are the types of digital modulation techniques? Explain. 10
3. (a) Explain the functions internal architecture of 8085 microprocessors.
- (b) Why are the program counter and the stack pointer 16-bit registers?
- (c) Define opcode and operand, and specify the opcode and the operand in the instruction MOV H, L. 10
4. (a) What is aliasing and how it is reduced?
- (b) Write short note on PWM. 10

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