

GANPAT UNIVERSITY

B.Tech. Sem V(BM & Inst.), Regular Examination NOV DEC-2010
BME-503 Electronic Measurement Systems

Max Time:3 hours

Max Marks:70

Instructions:

1. Answers to the 2 sections must be written in the separate answer books.
2. Figures to the right indicate marks.
3. Conventional terms or notations are used.

SECTION I

- Q.1
- (a) A component manufacturer constructs certain resistance to be anywhere between $1.14\text{k}\Omega$ and $1.26\text{k}\Omega$ and classifies them to be $1.2\text{k}\Omega$ resistors. What tolerance should be stated? If the resistance values are specified at 25°C . And the resistors have a temperature co-efficient of $500\text{ ppm}/^\circ\text{C}$, calculate the maximum resistance that one of these components might have at 75°C . (5)
- (b) Draw and explain the basic parts of magnetic tape recorder. And also explain the principle & advantages of it (7)
- OR**
- Q.1
- (a) State the difference between accuracy and precision. (2)
- (b) The resistor value of $330\ \Omega$ is specified at 25°C , and their temperature co efficient is $300\text{ ppm}/^\circ\text{C}$. Calculate the resistance for this resistor at 100°C . (4)
- (c) Explain the galvanometer type recorder. (6)
- Q.2
- (a) Explain Gas discharge plasma display. (4)
- (b) Enlist the types of printers. And explain with neat diagram laser printer. (6)
- (c) Enlist the features of the LCD. (2)
- OR**
- Q.2
- (a) Write the short note on electrophoretic image display (6)
- (b) Draw the block diagram of the digital DAS. And explain each block in detail. (6)
- Q.3
- (a) Enlist the losses in the fiber optics. And explain each loss in detail. (4)
- (b) Draw the neat diagram of non contact type shaft encoder and explain it. (5)
- (c) Enlist the types of recorders. (2)

SECTION II

Q.4

- (a) Explain the Working of Q Meter when Unknown component is connected in following manner: (8)
- Series Mode
 - Parallel Mode
- (b) Calculate the distributed capacitance a coil when following measurements are made: At Frequency of 2 MHz the tuning capacitor is set at $C_1 = 450\text{pF}$. When the frequency is increased to 6 MHz the tuning capacitor is tuned at 60pF . (4)

OR

Q.4

- (a) Explain the Following DVM in detail. (8)
- RAMP type DVM
 - Successive approximation type DVM
- (b) Explain true RMS reading Voltmeter in detail. (4)

Q.5

- (a) Write short note on dual trace oscilloscope. (6)
- (b) Explain in detail the function of (a) delay line, (b) time base generator, (c) vertical plate attenuator. (6)

OR

Q.5

- (a) Prove that the electron travelling through the vertical deflecting plates follow a parabolic path. (5)
- (b) Describe the Sources of error associated with the Q Meter. (4)
- (c) Describe any two techniques of period measurement (3)

Q.6

- (a) Draw the neat block diagram of frequency counter and explain its functioning (11)
- (b) What is the application of Q meter? Describe the Q meter in its direct mode of operation

END OF PAPER