

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MTECH
BRANCH: ECE**

**SEMESTER : I
SESSION : MO/18**

**SUBJECT: EC506 ELECTROMAGNETIC INTERFERENCE AND ELECTROMAGNETIC COMPATIBILITY
TIME: 3:00 HRS. FULL MARKS: 50**

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Discuss EMC and aspect of EMC problem with the help of suitable diagram. A 50-Ω oscillator is putting out a signal level of -20 dBm according to the meter on the instrument. If a 150-Ω load is placed across its terminals, determine the output voltage in dBμV. [5]
- Q.1(b) Discuss Radiated emission & Conducted Susceptibility. Outline the criteria an EMC compatible system should satisfy and ways to prevent interference. Compare Class A and Class B digital devices. [5]
- Q.2(a) Discuss Working and objectives of Line impedance stabilization network in detail. Derive an expression for Insertion loss of Power supply filter in terms of source and load resistance. [5]
- Q.2(b) Discuss Basic properties of power supply filters. Explain the working of buck regulator. [5]
- Q.3(a) Compare Differential mode current and common mode current. Explain the working of current probes. [5]
- Q.3(b) Discuss common mode current emission model. [5]
- Q.4(a) Define pigtailed and explain its use to terminate shield in cable connector. [5]
- Q.4(b) Discuss per unit length parameters for shielded wires. [5]
- Q.5(a) Discuss various methods to reduce the crosstalk in three conductor line. [5]
- Q.5(b) Discuss Shielding effectiveness. [5]

:::07/12/2018 M:::