

**M. TECH.-II (ELECTRICAL -POWER SYSTEM) (CBCS – 2015  
COURSE) : SUMMER - 2018  
SUBJECT: DIGITAL PROTECTION OF POWER SYSTEM**

Day: **Wednesday**  
Date: **13/06/2018**

**S-2018-3015**

Time: **11.00 AM TO 02.00 PM**  
Max Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer to both the sections should be written in **SEPARATE** answer books.
- 4) Assume suitable data, if necessary.

**SECTION - I**

- Q.1** Draw and explain the architecture of modern digital relay bringing out the functions of each component. **(10)**
- OR**
- Q.1** Discuss about the necessity of fast and reliable protection scheme in today's power system. Also, discuss the importance of zone protection in power systems. **(10)**
- Q.2** Write the short notes on **(10)**  
(i) switched distance relay  
(ii) poly- phase relay
- OR**
- Q.2** Differentiate between static relay and digital relay. Draw and explain the static relay scheme. **(10)**
- Q.3** Explain the following conversion subsystems **(10)**  
(i) sampling theorem  
(ii) ADC  
(iii) DAC
- OR**
- Q.3** What is the function of multiplexer? Differentiate between the analog multiplexing and digital multiplexing **(10)**

**SECTION - II**

- Q.4** Describe the operation of following with the help of relevant protection scheme **(10)**  
(i) Travelling wave relay  
(ii) Distance relay used in transmission line.
- OR**
- Q.4** Differentiate following relaying scheme **(10)**  
(i) Amplitude comparison relay scheme  
(ii) Fundamental signal based relay scheme.
- Q.5** Why it is necessary to protect the transformer and synchronous generator in the power system? State the various protection scheme used for both. **(10)**
- OR**
- Q.5** Discuss about the various faults in transformer and synchronous generator. **(10)**
- Q.6** Explain the terms related with the relay **(10)**  
(i) plug setting multiplier  
(ii) time setting multiplier  
(iii) Importance of distance of relay.
- OR**
- Q.6** Explain the following terms with the reference **(10)**  
(i) computer graphics display  
(ii) man – machine interface subsystems.

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