

## School of University Polytechnic

**Diploma in Civil Engineering  
Semester End Examination - Jun 2024**

**Duration : 180 Minutes  
Max Marks : 100**

### Sem II - N1DF201B - PHYE1010 - Applied Physics II

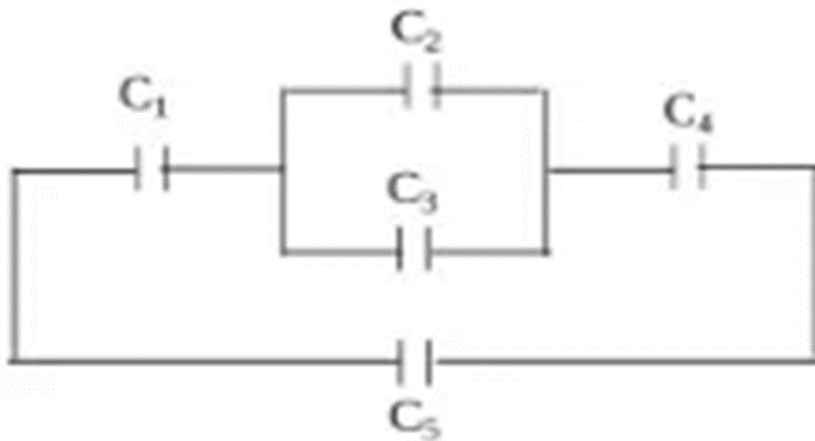
General Instructions

*Answer to the specific question asked*

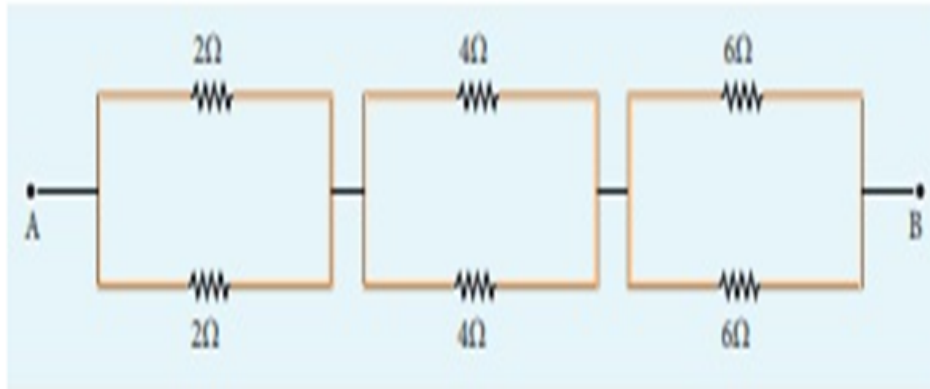
*Draw neat, labelled diagrams wherever necessary*

*Approved data hand books are allowed subject to verification by the Invigilator*

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|----|---|-------|
| 1) | Define Coherent source of light.  | K1(2) |
| 2) | Explain in details the properties of magnetic lines of force.   | K2(4) |
| 3) | Explain the methods to convert decimal number system into binary number system. Convert 127890.289 into binary  | K2(6) |
| 4) | Five capacitors, $C_1 = 2 \mu\text{F}$ , $C_2 = 4 \mu\text{F}$ , $C_3 = 6 \mu\text{F}$ , $C_4 = 5 \mu\text{F}$ , $C_5 = 10 \mu\text{F}$ , are connected in series and parallel. Evaluate the capacitance of a single capacitor that will have the same effect as the combination. | K3(9) |



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|----|--|--------|
| 5) | A galvanometer coil has a resistance of $12\Omega$ and it shows full-scale deflection at a current of 3 mA. How would you convert it into? (i) voltmeter of range 0 -18V (ii) an ammeter of range 0 - 6A | K3(9)  |
| 6) | Examine the equivalent resistance between A and B.   | K5(10) |



- 7) Analyze magnetic flux. The magnetic flux threading a coil change from  $12 \times 10^{-3} \text{ Wb}$  to  $6 \times 10^{-3} \text{ Wb}$  in 0.01s. Calculate the induced e.m.f. K4(12)
- 8) Examine Snell's law. Give the conditions for no refraction and bending of ray light. K5(15)
- 9) Examine material based optical fibres. Name the material based optical fibres with examples. Discuss the different types of optical fibres in details. K5(15)
- 10) Discuss an expression for equivalent capacitances of the network of a cell of given emf, when three capacitors of capacitances  $C_1$ ,  $C_2$  and  $C_3$  are connected in (i) Series (ii) Parallel. K6(18)