



**COLLEGE OF ENGINEERING, SCIENCE & TECHNOLOGY (CEST)**

**SCHOOL OF ELECTRICAL & ELECTRONICS ENGINEERING**

**ELECTRICAL SERVICEMAN'S COURSE-STAGE 1**

**EEE211 APPLIED ELECTRICITY I**

**FINAL EXAMINATION PENSTER 1, 2016**

**DATE/DAY: TBA                      TIME: TBA**

**ROOM: BA CAMPUS                  DURATION: 2HRS, 10MINS**

**INSTRUCTIONS TO STUDENTS**

1. You are allowed **10 minutes** extra reading time during which you are **NOT** to write.
2. Begin each SECTION on a fresh page and use both sides of the sheet.
3. Write your candidate number at the top of each attached sheet.
4. Insert all written foolscaps, graph paper, drawing paper, etc. in their correct sequence and secure with a string.
5. For all sheets of paper on which rough/draft work has been done, cross it through and **ATTACH** these to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. Use of programmable calculator(s) is prohibited.
8. **ANSWER ALL QUESTIONS**
9. Show all working where necessary.
10. **ALWAYS CHECK YOUR WORK BEFORE YOU LEAVE THE EXAM ROOM**

**Section A**      **MULTIPLE CHOICE**

**(20 marks)**

*(Each question is worth 1 mark)*

1. Choose the instrument that is best used to measure the current drawn by any electrical circuit
  - a) Voltmeter.
  - b) Ohmmeter.
  - c) Ammeter.
  - d) Both a) and c).
  
2. Which component stores electric charge?
  - a) Resistor.
  - b) Capacitor.
  - c) Transformer.
  - d) Inductor.
  
3. Electrons have:
  - a) no charge.
  - b) Positive charge.
  - c) One Charge.
  - d) Negative charge.
  
4. Choose the cell that can be recharged:
  - a) Carbon – Zinc Cell.
  - b) Nickel Cadmium Cell.
  - c) Lead Acid Cell.
  - d) Both b) and c).
  
5. The outcomes of the magnetic field lines pattern for a straight conductor:
  - a) North to south of the conductor.
  - b) Into the page.
  - c) Concentric circles.
  - d) Out of page.
  
6. Which test instrument is used to measure electrical pressure?
  - a) Ohmmeter.
  - b) Ammeter.
  - c) Voltmeter.
  - d) Current meter.
  
7. What is the direction of the conventional current flow?
  - a) From negative to positive of the energy source.
  - b) From positive to negative back to positive of the energy source..
  - c) From positive to negative of the energy source.
  - d) None of the above.
  
8. What is the SI unit for capacitance?
  - a) Ohms.
  - b) Farads.
  - c) Capacitance.
  - d) Both b) and c).

9. Which of the following terms is associated with the flow of electrons?
- Resistance.
  - Voltage.
  - Inductance.
  - Current.
10. In any parallel circuit:
- Voltage is same.
  - Current is same.
  - Resistance is same.
  - None of the above.
11. Ammeters are always connected in:
- Series.
  - Parallel.
  - Direct.
  - Series/Parallel.
12. What equipment is used for testing the density of the electrolyte in a cell.
- Voltmeter.
  - Hydrometer.
  - Ammeter.
  - CRO.
13. In a closed circuit there is:
- Current flow.
  - No current flow.
  - Leakage current
  - Filter current
14. Materials that oppose the flow of electrons are known as;
- Insulators.
  - Conductors.
  - Semi-conductors
  - Super conductors
15. Which test instrument is used to measure the precise resistance of a resistor?
- CRO.
  - Voltmeter.
  - Ohmmeter.
  - Ammeter.
16. What would the value of resistance be if two 5 ohms resistors were connected in parallel?
- 6 ohms.
  - 3 ohms.
  - 2.5 ohms.
  - 1.5 ohms.

17. One of the characteristics of magnetic lines of force:

- a) Cross each other
- b) Line each other
- c) Never cross each other
- d) Crisscross

18. The unit of inductance is: .

- a) Volts.
- b) Hertz.
- c) Henry.
- d) Lux.

19. What type of cells can be recharged?

- a) Primary cells
- b) Resistance cells
- c) Carbon-zinc
- d) Secondary cells

20. One kilo-watt-hour is equal to:

- a) 3.6 MJ
- b) 1000 Watts
- c) 1 Watt
- d) 1 MJ

## Section B

(20 marks)

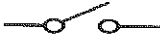





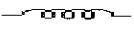



### PART A-MATCHING

- |                                |   |
|--------------------------------|---|
| 1. Series/ parallel connection | A. Conductor                              |
| 2. Protons                     | B. Have plenty free electrons             |
| 3. Power                       | C. A component that opposes current flow. |
| 4. Voltage                     | D. Methods of component connection.       |
| 5. Conductors                  | E. Electrical pressure                    |
| 6. Electrons                   | F. Positively charged particles           |
| 7. Energy                      | G. Watts                                  |
| 8. Copper                      | H. Negatively charged particles           |
| 9. Insulator                   | I. Product of power and time              |
| 10. Resistor.                  | J. Does not conduct electricity           |

(10 marks)

### PART B – SYMBOLS

Write down the name of the electrical symbol shown below.

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

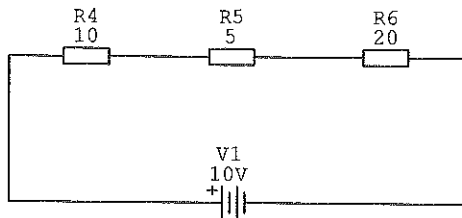
(10 marks)

## Section C

(30 marks)

1. For the given circuit diagrams and determine:

- a) Total resistance,  $R_T$  in  $\Omega$ . (2 marks)
- b) Total Current,  $I_T$  in A. (2 marks)
- c) Voltage across  $R_1$  (2 marks)

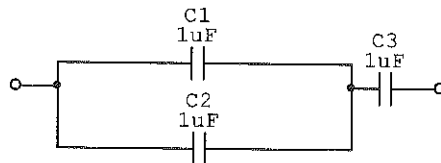


2. When the maximum value of an alternating current is 15A, determine:

- a) Average value? (2 marks)
- b) R.M.S. value? (2 marks)
- c) Peak value? (2 marks)
- d) Peak – to – peak value? (2 marks)

3. From the given circuit, determine:

- a) total capacitance,  $C_T$  (3 marks)



- b) Outline one characteristic for each of the following (3 marks)

- 1) Conductors.
- 11) Insulators.
- 111) Permanent Magnet.

4. Determine the value of the resistor 4-band color codes:

- a) Brown, black, red, gold. (2 marks)
- b) Violet, green, black (2 marks)
- c) Red, violet, orange, silver. (2 marks)
- d) Yellow, black, yellow, gold. (2 marks)

5. Find the total voltage if six batteries are connected in series, and all have the same voltage of 1.5Volts? Also draw the electrical symbol to indicate all the six batteries.

(2 marks)

## Section D

(30 marks)

1. What is Ohm's Law? (3 marks)
2. List four factors that affect the resistance of any conductor and explain the relationship of each with respect to resistance.

(8 marks)

3. Draw an a.c waveform and show the following values:

- a) Peak value.
- b) RMS value.
- c) Average values

(8 marks)

4. Draw the magnetic field lines and show the direction with the indication of an arrow head of two bar magnets.



(5 marks)

5. Draw a circuit diagram to connect the appropriate meters to measure the following quantities:

- a) Voltage.
- b) Current.
- c) Resistance.

(6 marks)

**END OF PAPER**



EQP RECEIPT CHECKLIST FORM

Particulars	Details/Comments (To be filled by Unit Lecturer)	Tick if present on EQP (To be filled by exams staff)
<b>Cover Page</b>	-	
Fiji National University with Logo	YES	✓
College	YES	✓
School	YES	✓
Program	YES	✓
Unit Code	YES	✓
Unit Name	YES	✓
Examination Period	YES	✓
Duration of Examination	YES	✓
Instructions	YES	✓
Total Number of Pages	YES	✓
<b>Other Pages</b>	-	
Footer	YES	✓
Page Number	YES	✓
Unit Code	YES	✓
Examination Period	YES	✓
<b>Last Page</b>	-	
The End	YES	✓
<b>Overall</b>	-	
Proper Print	YES	✓
Examination Requirements (FNU/E-1)	YES	
Moderator's Report (FNU/E-3)	YES	✓
ERRS (Class List)	YES	✓
Unit Coordinator/Principal Lecturer's Name	NIRANT A. CHAND	✓

DISPATCHED BY (SCHOOL REP)

NAME: WILSON

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DATE: 12/04/10

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Class Listing

School of Electrical & Electronics Engineering

Ba campus

Penster1

2016

EEE211 Applied Electricity 1 NL

StudentID	Name	Status	Mon	Sponsor	Outstanding Fee
<b>Certificate in Electrical Servicesman's Course 0</b>					
2016137639	Ajnesh Narayan	ER			276.00
2016135148	Arvin Kumar	EA			
2016136798	Edward Jan Bhurrah	ER			26.00
2016135998	Jovesa Manakiwai Junior	ER			276.00
2016136850	Kaveni Nadromalu Jnr	EA			
2016134979	Kishen Kritešh Lal	EA			
2016136266	Nilesh Pillay	ER			276.00
2016134584	Rajneel Prasad	EA			
2016136742	Ranit Ronil Kumar	EA			
2016136338	Ratu Jeremaia Kalokaló Vuiyasawa	ER			276.00
2016136458	Ravnit Shelvin Chand	ER			276.00
2016134569	Rynal Rinesh Lal	EA			
2016136140	Sawan Kumar	EA			
2016136610	Setareki Varo	ER			276.00
2016135552	Shamal Nikil Sharma	ER			276.00
2016133955	Shaneel Raj Gopal	EW			276.00
2016137366	Shaneel Shivendran Samy	EA			
2016134021	Shazil Shameel Ali	EA			
2015133232	Sheik Mohid Ali	EA			
2016135833	Shiv Neel Goundar	EA			
2016135611	Shivnil Shivam Ram	EA			
2016136119	Shrish Kumar	EA			
2016134302	Simon Finau Kotoilakeba	EA			
2016137710	Sonal ****	ER			276.00
2014121256	Timoci Naleke Tuikubulau	ER			276.00
		25		<b>Total Owing:</b>	<b>2,786.00</b>
	<b>Total Count:</b>	25		<b>Grand Total:</b>	<b>2,786.00</b>