

ITEMS PAST PAPERS
TECHNICAL

SIR ARTHUR LEWIS COMMUNITY COLLEGE
DIVISION OF TECHNICAL EDUCATION AND MANAGEMENT STUDIES

EXAMINATION SESSION : May 2015 Alternate Examination
TUTOR (S) : Mr. Rohan John Baptiste
PROGRAMME TITLE : Automotive Engineering
PROGRAMME CODE : 3ME-AUT-AD
COURSE TITLE : Automotive Theory and Practice
COURSE CODE : EGP 217
CLASS (ES) : Year 2's
DATE : May, 2015
COMMENCEMENT TIME :
DURATION : 2 ½ hours
INVIGILATOR (S) :
ROOM :



INSTRUCTIONS:

SECTION I: Multiple Choice

One mark for each correct answer. Use the answer sheet provided.

SECTION II: Fill in the blanks one mark each.

SECTION III - Essay questions, marks are awarded accordingly.

- Students are reminded to read **all** questions and instructions in each section very carefully
- Please number your responses accordingly
- **Note: Bags, Books as well as writing paper not given by the invigilator should be deposited at the front of the examination room or as otherwise indicated.**
- **All cell phones must be turned off during the exam**

Students must **not** write their names on their answer sheets, only their **ID number**

SECTION I MULTIPLE CHOICE

1. Which of the following is not part of a simple circuit?
 - a) Wheatstone bridge
 - b) Load
 - c) Power source
 - d) Conductors
2. The three elements of electricity are
 - a) Watts, volts, and ohms
 - b) Current, voltage, and resistance
 - c) Both A and B
 - d) Neither A nor B
3. As battery temperature drops, battery power is _____.
 - a) Increased
 - b) Reduced
 - c) Unaffected
 - d) Fluctuates up and down
4. An automotive battery produces:
 - a) Hydrogen gas
 - b) Voltage
 - c) Direct current
 - d) All of the above
5. During a load test, if the amp-hour rating is given, you should load the battery to _____ its rating
 - a) Two times
 - b) Three times
 - c) Four times
 - d) Five times
6. All of the following criteria must be used when selecting a replacement battery, except:
 - a) Battery must fit properly
 - b) Power rating must be equal to factory recommendations
 - c) The tray edge must not cut through the plastic case
 - d) Power rating must be less than factory recommendations.
7. All of the following are parts of the field frame, except:
 - a) Field coils
 - b) Centre housing
 - c) Commutator
 - d) Pole shoes

8. A single click sound, without cranking, may be due to all of the following, except:
- a) Burned solenoid contacts
 - b) Engine mechanical problems
 - c) Weak overrunning clutch
 - d) Bad starter motor
9. All of the following are symptoms of a faulty starter motor, except:
- a) Fast cranking
 - b) No cranking
 - c) Starter cable overheating
 - d) Abnormal noises while cranking.
10. All of the following are advantages of the alternator, except:
- a) Smaller than a dc generator
 - b) Heavier than a dc generator
 - c) More dependable than a dc generator
 - d) Has higher output than a dc generator.
11. All of the following are main components in a typical alternator, except:
- a) Rotor assembly
 - b) Brush assembly
 - c) Charge indicator
 - d) Housing
12. All of the following are charge indicators, except
- a) MIL light
 - b) Warning light
 - c) Voltmeter indicator
 - d) Ammeter indicator
13. A problem described as a no-charge condition may be caused by a _____.
- a) Shorted starting motor
 - b) Battery drain
 - c) Worn starter pinion
 - d) Both A and B
14. Technician A says you must polarize an alternator after repairs, Technician B says you must polarize a dc generator. Who is correct?
- a) A only
 - b) B only
 - c) Both A and B
 - d) Neither A nor B

15. A direct ignition system has an ignition coil mounted _____ each spark plug.
- a) On the sides
 - b) Over the top of
 - c) Under
 - d) In the middle of
16. Which of the following is not a possible function of the ignition distributor?
- a) House the ignition coil
 - b) Power the engine oil pump
 - c) Transfer high voltage to the coil
 - d) Distribute coil pulses to each plug wire.
17. If a strong spark is present, the engine no-start problem may be due to _____.
- a) Engine trouble
 - b) Fouled spark plugs
 - c) Fuel system problems
 - d) All of the above.
18. Spark plug cleaning is _____.
- a) Preferred over replacement with new plugs
 - b) Highly recommended by most manufacturers
 - c) Accomplished by blasting
 - d) Accomplished with a spark plug cleaner.
19. This not a common type of pressure plate.
- a) Coil spring pressure plate
 - b) Diaphragm spring pressure plate
 - c) Both of the above are correct
 - d) None of the above is correct.
20. What type of damage can be caused to a flywheel by overheating?
- a) Surface cracks
 - b) Hardened areas
 - c) Warped areas
 - d) All of the above
21. Abnormal sounds from the clutch only when the clutch is disengaged may be from a bad_____.
- a) Throw-out bearing
 - b) Disc
 - c) Flywheel
 - d) Pilot bearing

22. During gear engagement, the _____ rubs on the side of the gear cone, setting up friction between the two.
- a) Synchronizer sleeve
 - b) Output shaft
 - c) Shift fork
 - d) Blocking ring
23. Which of the following is not a problem that can cause gear grinding during shifts?
- a) Worn or damaged synchronizers
 - b) Excess wear in shafts
 - c) Worn shift forks
 - d) Low or contaminated lubricant
24. Many problems that seem to be caused by the transmission can be due to problems with the _____.
- a) Clutch
 - b) Linkage
 - c) Driveline
 - d) All of the above
25. A(n) _____ is part of a modern torque converter
- a) Impeller
 - b) Turbine
 - c) One-way clutch
 - d) All of the above
26. The _____ is operated by the driver's shift lever.
- a) Manual valve
 - b) Pressure regulator
 - c) Modulator
 - d) Governor
27. Automatic transmission mushy shifts are frequently caused by _____
- a) Worn bands or clutches
 - b) Valve body problems or low oil level
 - c) Misadjusted linkage
 - d) All of the above.
28. _____ adjustment is needed to set the correct clearance between the friction material and the drum.
- a) Clutch
 - b) Servo
 - c) Converter
 - d) Band

29. _____ is a type of driveline with an exposed drive shaft that operates a rear axle assembly mounted on springs
- Constant velocity
 - Torque tube
 - Variable velocity
 - Hotchkiss
30. Vibration is caused by problems that affect drive shaft _____.
- Angle
 - Runout
 - Straightness and balance
 - All of the above.

SECTION II Fill in the blanks

- _____ is needed to control the flow of current in a circuit.
- A (n) _____ allows current to flow in one direction.
- _____ is a mixture of sulphuric acid and distilled water.
- A (n) _____ test will determine if the battery is sulphated and the plates ruined.
- A (n) _____ is made up of invisible magnetic lines of force.
- If the neutral safety switch is open, current cannot flow from the _____ to the starter solenoid.
- Small _____ hold the brushes in contact with the slip rings.
- A rotor winding short-to-ground test measures the _____ between the shaft and windings.
- A (n) _____ spark plug is self-cleaning due to its long insulator tip, which burns off deposits.
- Normally a bad pick up coil will show _____
- The clutch _____ allows the driver to disengage the clutch with a foot pedal.
- _____ or _____ removal is needed to service the clutch.
- A manual transmission is designed to change the vehicle's _____ and torque in relation to _____ and torque.
- A grinding sound when shifting is commonly caused by incorrect transmission _____ or a (n) _____ clutch.
- An automatic transmission performs the same functions as a manual transmission, but it _____ and _____ automatically.
- An ignition system _____ circuit is used to supply direct battery voltage to the system during starting motor operation.

SECTION III Essay questions

- What is a semiconductor? (2 marks)
- What does a simple battery cell consist of? (4 marks)
- What is a battery drain test? (4 marks)
- Summarize starter solenoid operation. (4 marks)
- List the causes of a humming sound after momentary engine cranking. (4 marks)
- What is overcharging? (2 marks)
- List four cause of a bad alternator rotor. (4 marks)
- What are the advantages of a distributorless ignition? (10 marks)
- What is a direct ignition system? (2 marks)
- How do you check for secondary wire insulation leakage? (6 marks)
- Explain the purpose of the throw-out bearing. (2 marks)
- Define clutch free travel. (2 marks)
- In your own words, describe a manual transmission. (4 marks)