ADVANCED LEVEL NATIONAL EXAMINATIONS, 2016,
TECHNICAL AND PROFESSIONAL STUDIES

EXAM TITLE: Transmission
OPTION: Motor Vehicle Mechanics (MVM)
DURATION: 3 hours

INSTRUCTIONS:

The paper is composed of three (3) main Sections as follows:

Section I: Sixteen (16) compulsory questions. 55 marks
Section II: Attempt any three (3) out of five questions. 30 marks
Section III: Attempt any one (1) out of three questions. 15 marks

Note:
Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.
Section I. Sixteen (16) Compulsory questions

01. List four (4) main types of springs commonly used in suspension system.  
   4marks

02. What could happen if a manual gearbox oil inspection is not done periodically?  
   2marks

03. What could be a possible cause of engine oil leakage from Clutch housing? Try to repair this fault.  
   4marks

04. Give the advantages of a Dual master cylinder compared to the normal master cylinder used on the brake system.  
   4marks

05. Explain briefly how to check static wheel balancing.  
   5marks

06. Explain briefly how the oil pump of an automatic gearbox is driven.  
   1mark

07. What could be the consequence if the gear box vent is clogged?  
   2marks

08. What is the function of shock absorber on the vehicle?  
   2marks

09. Give the symptom of a faulty brake booster and give the remedy.  
   2marks

10. Identify four possible causes of brake failure and give the remedy.  
    4marks

11. By using sketches, give four possible tire rotations.  
    4marks

12. Explain the following indication stamped on the outer side of the tire: 
    215/70R16  
    4marks

13. Explain the following: Camber, Toe.  
    4marks

14. Differentiate Positive caster from negative caster.  
    4marks

15. List six (6) main elements constituting automotive power train and their role.  
    6marks

16. What could be possible causes of a tachometer not reacting on the dashboard?  
    3marks

Section II. Choose and Answer any three (3) questions.

17. a) List seven (7) main troubles that cause excessive brake pedal travel. 
    b) Name three (3) types of proportioning valves, each designed to prevent early lock-up of rear wheels.  
    10marks

18. a) Name six (6) causes for possible torque converter failure. 
    b) What are the four (4) major functions fulfills the Torque converter?  
    10marks
19. What are the loads to which a chassis frame is usually subjected and their causes on the chassis? 10marks

20. a) List five (5) benefits of using rubber as a means of suspension.
   b) Name four (4) reasons that cause front end noise in suspension system. 10marks

21. Tyre vibration problems are divided into body shake, steering flutter and steering shimmy.
   a) Define body shake and steering shimmy
   b) What main effects are caused by:
      i) body shake problem? ii) steering shimmy problem? 10marks

Section III. Choose and Answer any one (1) question. 15marks

22. a) Outline the methods of removing the universal joint of a propeller shaft.
   b) All propeller shafts have a sliding joint and two universal joints. Explain how you would dismantle the sliding joint for cleaning and checking all parts for damage. 15marks

23. i) Name seven (7) causes of: (a) "noise in the rear axle"; (b) "Oil leakage" from the rear axle.
   ii) Briefly explain the procedure of changing oil in the rear axle. 15marks

24. a) Give the procedure to replace the “drive pinion oil seal” when a differential has lubricant leakage at the drive pinion seal.
   b) Name some six (6) precautions to be adopted during reassembly of drive pinion.
   c) Name the functions of final drive. 15marks