

KATHMANDU UNIVERSITY  
End Semester Examination [C]  
November, 2018

Mark scored:

Level : B.E  
Year : IV

Course : MEPP 412  
Semester: I

Exam. Roll No.:

Time: 30 mins.

F.M. : 20

Registration No.:

Date

NOV 15 2018

SECTION "A"

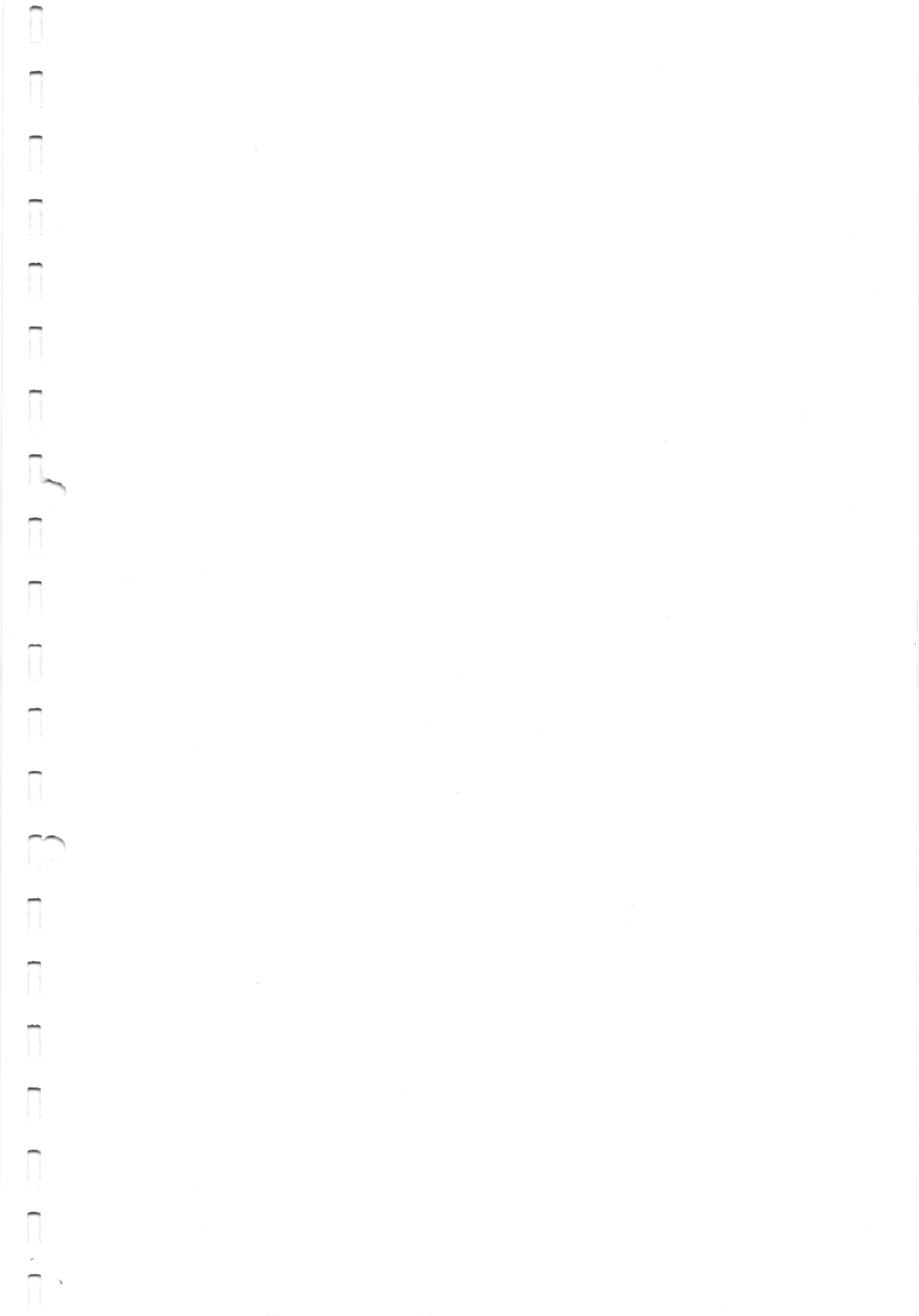
[20 Q.×1=20 marks]

1. What will happen if there is no king pin offset in a vehicle?  
 Braking effort will be high                       Starting steering effort will be zero  
 Starting steering effort will be high               Wobbling of wheels will increase
2. Where is the Hook's joint used in an automobile?  
 Between gear box and propeller shaft  
 Between flywheel and clutch  
 Between differential gear and wheels  
 Between clutch and gear box
3. What is the efficiency of hydraulic braking system?  
 20 to 30 percent                                       40 to 50 percent  
 65 to 75 percent                                       about 90 percent
4. The driving wheels of a vehicle are carried by  
 crank and slider                                       crankshaft  
 axles     propeller shaft
5. Engine and braking torque cause  
 lateral bending of side member  
 distortion of frame to parallelogram shape  
 Longitudinal torsion  
 bending of side members in vertical plane
6. The ration of the indicated thermal efficiency to the corresponding ideal air-standard efficiency is called  
 brake thermal efficiency  
 indicated thermal efficiency  
 volumetric efficiency  
 relative efficiency



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16. A separate \_\_\_\_\_ crankcase would result in saving weight also enabling cheaper and quick replacement.  
 nickel                       chromium                       iron                       aluminium
17. By which relation speed of piston can be calculated inside cylinder block?  
L-Length of stroke, D-Diameter, N-speed of engine)  
  $2LDN$                         $2LN$                         $2\pi LD$                         $2\pi L$
18. For retaining compression in the cylinder, a flat piece of \_\_\_\_\_ is placed between the cylinder head and cylinder block.  
 gasket                       rims                       cylinder liner                       invar strut
19. Why cylinder head cast as a separate piece?  
 Good compression ratio                       High efficiency  
 Prevent collision                       Easy removal
20. In vehicles with tilt steering, the steering column is pivoted in  
 Upper bracket                       Lower bracket  
 Tilt bracket                       Steering yoke joint



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Time : 2 hrs. 30 mins.

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Semester: I  
F.M. : 55

SECTION "B"

Attempt *ALL* the questions.

1. Describe with a suitable sketch the two stroke cycle spark ignition (SI) and compression ignition (CI) engine. How its indicator diagram differs? [5]
2. Explain briefly with neat sketch components of supercharger and turbocharger use in modern automobile. [5]
3. What do you mean by crankcase blowby? How can it be controlled? Illustrate your answer with diagrams. [5]
4. Explain briefly Elasto–hydrodynamic lubrication and boundary lubrication according to its application on automobile engine. [5]
5. What kind of cooling system is employed for mobile unites like automobile? Illustrate your answer with diagrams. [5]
6. Explain the working principle of MacPherson suspension system with sketch. [5]
7. Explain the working of a centrifugal and multiplate clutch with a suitable sketch. [5]
8. Explain briefly with a neat sketch the steering linkage for a conventional rigid axle suspension. [5]
9. Explain types and its various components of a battery ignition system. [7]
10. Describe with suitable sketches the following system of a modern carburetor. [4×2=8]
  - a) main metering system
  - b) idling system
  - c) economiser system
  - d) acceleration pump system

