17307

11718

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*
(2) Answer ***each*** *next main question on a* ***new*** *page.*
(3) Illustrate your answers with neat sketches ***wherever*** *necessary.*
(4) Figures to the ***right*** *indicate* ***full*** *marks.*
(5) Assume suitable data, if ***necessary****.*
(6) Use of Non-programmable Electronic Pocket Calculator is ***permissible****.*
(7) Mobile Phone, Pager and any other Electronic Communication devices are ***not permissible*** *in Examination Hall.*
(8) Use of Steam tables, logarithmic, Mollier's chart is ***permitted****.*

Marks

1. A) Attempt **any six**. **[12]**

a) Enlist the function of the frame.
b) List out the material used for frame manufacturing.
c) Classify the types of frames.
d) State the location of clutch in an Automobile.
e) Write the material for clutch lining.
f) List any four components of gear box.
g) State the function of propeller shaft.
h) Write a necessity of rear axle.

B) Attempt **any two**. **[8]**

a) Draw layout of front engine front wheel drive.
b) Explain working principle of centrifugal clutch with neat sketch.
c) Explain construction of fluid coupling with neat sketch.

2. Attempt **any four**. **[16]**

a) State any two application of multiplate plate clutch and centrifugal clutch.
b) Draw neat labelled sketch of variator drive and explain its operation.
c) Where and why we use multiplate clutch and explain working of multiplate clutch.
d) Differentiate between single plate clutch and multiplate clutch. (any 4 point).
e) Explain construction and working of clutch plate with neat sketch.
f) Describe the construction and working of transfer case.

P.T.O.

Marks

3. Attempt **any four**. **[16]**

a) Describe the working of four speed sliding mesh gear box.

b) Explain construction and working of Gear selector mechanism with gear lever on top of gear box.

c) Draw a proportionate sketch of 4 speed constant mesh gear box.

d) Draw a neat sketch of torque converter.

e) State two advantages and disadvantages of synchromesh gear box.

f) Explain a construction of a hollow propellor shaft in brief.

4. Attempt **any four**. **[16]**

a) State the function of the universal joint and slip joint.

b) Explain loads acting on rear axle.

c) State functions and types of constant velocity joint.

d) State various types of rear axle casing and explain any one with neat sketch in brief.

e) Explain tyre terminology with sketch.

f) Discuss with the help of simple sketch the construction of wired spoke wheel.

5. Attempt **any two**. **[16]**

a) Differentiate between Hotchkiss and Torque tube drive with the help of suitable sketch.

b) Explain working of differential with neat sketch.

c) Explain with neat sketch the full floating axle of a truck.

6. Attempt **any two**. **[16]**

a) i) Explain tubeless tyre and its features.

ii) Explain different types of pattern used in automobile.

b) Differentiate between cross ply and radial-ply type on basis of

i) Construction/trade pattern

ii) Materials/constituents

iii) Performance /efficiency

iv) Application/purpose.

c) Draw a neat labelled diagram of four wheel drive vehicle layout. State two merits and two demerits of four wheel drive over two wheel drive.
