



- Q.17 Draw the profile of involute teeth by Prof. Unwin's method having 24 teeth, module pitch 10 mm and pressure angle 25° . Draw at least four teeth.
- Q.18 A cam, with a minimum radius of 40 mm, rotating clockwise at a uniform speed is required to give a knife edge follower, the motions as described below:
- To move outward through 50mm during 100° rotation of the cam
 - To dwell for the next 80° .
 - To return to its starting position during next 90° .
 - To dwell for the rest period of a revolution i.e. 90° .

Draw the profile of the cam. The displacement of the follower is to take place with uniform acceleration and deceleration.

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3rd Sem / Auto
Subject:- Automobile Engineering Drawing

Time : 3Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. Attempt any eight questions. $(8 \times 2 = 16)$

- Q.1 The difference between the maximum material limits of the mating parts is called _____
- Deviation
 - Allowance
 - Tolerance
 - Actual deviation
- Q.2 Minimum clearance is the difference between _____ size of the hole and the _____ size of the shaft.
- minimum , maximum
 - minimum, minimum
 - maximum, maximum
 - maximum, minimum
- Q.3 If the allowance is negative, which of the following is true between the mating parts?
- Minimum clearance
 - Maximum clearance
 - Minimum interference
 - Maximum interference

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- Q.4** Deep groove ball bearings creates a lot of noise.
- Yes
 - They create very less noise
 - Depends on the application
 - No reference frame for comparison is mentioned
- Q.5** Which of the following cannot take radial load?
- Cylindrical Roller bearing
 - Taper roller bearing
 - Thrust ball bearing
 - None of the listed
- Q.6** Which types of joints are used when the shafts are inclined?
- Universal joint
 - Hinge joint
 - Ball and socket joint
 - Pivot joint
- Q.7** Which of the following does not relate to spark ignition engine?
- Spark plug
 - Carburetor
 - Fuel injector
 - Ignition coil
- Q.8** Which of the following is the need of the gearbox?
- To vary the speed of the vehicle
 - To vary the torque of the vehicle
 - To vary the power of the vehicle
 - To vary the acceleration of the vehicle

- Q.9** The angle between the direction of the follower motion and a normal to the pitch curve is called
- pitch angle
 - prime angle
 - base angle
 - pressure angle
- Q.10** Which of the following firing order is commonly used for the four-cylinder vertical engine?
- 1-2-3-4
 - 3-4-1-2
 - 4-3-2-1
 - 1-3-4-2

SECTION-B

- Note:** Draw free hand sketches of any three (3x8=24)
- Q.11 Side valve mechanism
- Q.12 Master Cylinder
- Q.13 Universal joint (Front view & side view)
- Q.14 Single plate clutch

SECTION-C

- Note:** Attempt any two questions. (2x30=60)
- Q.15 Draw front and side view of four stroke petrol engine piston by assuming appropriate dimensions.
- Q.16 Details of Plummer block is shown in Fig. below
Assemble all these parts and draw following view:-
- Front elevation right half in section
 - Side view left half in section
 - Top view