PASSIVE + BY/WITH

Task 1

1. Look at the sentences below. Are they in the passive or active voice?

- These tests were designed by EPA to mimic typical driving patterns.
- We designed the user survey questionnaire to capture the quality of service, average travel time, accessibility, comfort, and other service and system-related issues.
- Shadloo et al. designed a crank and slider mechanism to enhance the combustion performance of a four-stroke spark ignition (SI) engine.
- If the engine is poorly designed or is not in proper working order the proportion of unburned fuel rises.

2. Study the concordance lines drawn randomly from an automotive engineering corpus. For each line mark if the sentence is in the active (A) or passive (P) voice. Which form is more frequent?

A/P	No	Left	KWIC	Right
	1	advantage is that live traffic updates can be on an android phone through the help of an app	designed	with the help of app-inventor. Keywords– App-Inventor, Edge Detection, Traffic Congestion
	2	planning process and infrastructure is imposing obstructions and inconveniences,	designed	with solely mobility in mind, a child's rather than connecting people to opportunities.
	3	converter, the core is an open-channel monolith or commonly used honeycomb ceramic, is	designed	to ceramic maximize the surface either a metallic substrate an area the catalyst area (Figure 2
	4	had to function on a street system, according to historian John B. Rae, "that had never been	designed	for it and were about as poorly adapted to it as it was possible to be." Furthermore, all other
	5	was to get air-fuel ratios as close to stoichiometric as possible. However, even engines	designed	for low emissions and that are operating properly, may not have HC and CO emission levels
	6	as heads, cam changes, intake upgrades, and such are also available in house. Free shipping.	Designed	for 4 bolt differential flanges. The G37 sounds fantastic even when stock. If the customer is .
	7	economy and CO2 emissions using a set of standardized laboratory tests. These tests were	designed	by EPA to mimic typical driving patterns. EPA and the Department of Transportation use
	8	regularly scheduled day trips from West 42nd Street; they went out of business in the 1970s.	Designed	by John Roebling, the Brooklyn Bridge was the first link between Manhattan and the land
	9	rods, non-platinum tipped spark plugs, a higher voltage ignition coil, fuel injectors	designed	for a gas instead of a liquid, larger crankshaft damper, stronger head gasket material,
	10	Museum/Contemporary Art (Museo Universitario Arte Contemporáneo – or MUAC),	designed	by famed Mexican architect Teodoro González de León, inaugurated in late 2008. The Museo
	11	from Uttara and ends in Ramna covering around 18.5 km. The BRT stations and runways are	designed	in a way to satisfy the ever increasing public transport demand towards achieving a
	12	the Census data in Houston, Texas. A scene of a pedestrian's crossing in the work zone was	designed	for the driving test. Meanwhile, a wireless communication system called Drivers Smart
	13	main pain point associated with mechanical fixturing and stop stations has been that they are	designed	for specific models being produced. To launch a new platform or frame geometry, you have t
	14	of pick and place machines for use in automatic systems. This equipment is specifically	designed	for facilities needing ease of operation. Assembly Lines Special Purpose Machines (SPM) Pick

	15	A manufacturing system is defined in this book as a collection of integrated equipment	designed	for some special mission, such as machining a defined part family or assembling a certain
	16	high quantities. Final assembly plants for cars, trucks, and appliances are usually	designed	as product layouts. The transport system that moves the product is typically characterized as
	17	as the number of stations is increased (Section 16.3). Today, many transfer lines are	designed	for flexibility and ease of changeover so that (1) different but similar work parts can be
	18	can be increased or decreased to satisfy changing demand requirements. A FMS is usually	designed	with a production capacity that is greater than current demand. In other words, it is designed
	19	manufacturing cell (FMC), and (3) FMS. Single-machine automated cells (Section 14.2) can be	designed	for manufacturing flexibility and unattended operation, for example, by equipping a CNC
	20	due to its modularity. Depending on the customer's needs, the manufacturing system can be	designed	for high-mix, low-volume production (i.e., maximum flexibility) or for high-volume
	21	. The system's functionality can be easily changed. For example, the CNC machine tools are	designed	with more axes for greater versatility. • Scalability. An RMS is designed so that its
	22	. • Modularity. The components of the RMS (hardware and software) are modular. They are	designed	for ease of assembly into alternative system configurations that match the changing
	23	output values, this is hardly a limitation in practice, since the storage register can be	designed	with a sufficient number of bits to achieve the required resolution for nearly any application
	24	Collaborative Robots for Small Part Assembly and Inspection FANUC offers a variety of robots	designed	for use across the car manufacturing process. One popular option among automakers are
	25	between fast processing and a high-quality surface finish is essential. Explicitly	designed	for high-speed and 5-axis machining, FANUC's complete line of CNC control systems, from 0i-F
	25	Clinic. Give freedom to the Senior Citizens and physically challenged person. Specially	designed	for people with restricted ability to move. Great way to add life in to their lives and be with
	27	of robotic welding services, including an extensive array of bespoke robot welding solutions	designed	for the automotive industry. Recent Posts Knowledge Hub Discover the cutting-edge ways in
	28	efforts aimed at preventing COVID-19 infection, Honda began offering customized vehicles	designed	for safe transportation of infected people. The first deliveries were made in Tokyo to Minato
	29	in which the piston rods extend and retract to create linear motion. The piston rods are also	designed	with carriages that move on the cylinder tube or guideway. Compared to other linear
	30	However, the turning point for industrial robotics was due to the genius of George Devol, who	designed	in 1954 a "Programmable Article Transfer" (this was the name given when the patent request

Task 2

1. Study the lines again. What propositions follow the verb *design* in the passive sentences? Which preposition is most frequent?

2. Study the sentences below drawn for the corpus. Try to change them to the active voice. What is the difference in the grammatical functions and meanings of the nouns preceded by the prepositions *by* and *with* and *for*?

a. Virtually all modern production equipment is **designed with** some form of computer controller to execute its respective processing cycles.
b. This type of robot arms is **designed with** different payload capabilities and reach to make them suitable for assembling different products.
c. Manual assembly lines can be **designed with** three alternative levels of pacing: (1) rigid pacing, (2) pacing with margin, and (3) no pacing.
d. We deal in all kinds of refurbished robots and robot spare parts **designed by** top-of-the-line companies like Motoman, Kawasaki, Abb, and Fanuc.
e. Beyond its role as polluter and artifact, the automobile has transformed the city and the countryside as much as or more than any technology **designed by** humans.
f. The engine was **designed by** English inventor Herbert Akroyd Stuart.
g. The car was **designed for** speed, not fuel efficiency.
h. However, even engines **designed for** low emissions and that are operating properly, may not have HC and CO emission levels low enough to meet clean air standards.
i. The catalytic converter was shown to be successful and consistent in decreasing noxious tailpipe emissions, and it was **designed for** use in trucks, buses, automobiles, motorbikes, and other construction vehicles.

3. Based on the examples above match the prepositions with the semantic roles they mark.

for	AGENT
by	MANNER
with	PURPOSE

Task 3

Complete the gaps below with the preposition *by* or *with* or *for*.

a. At the present time, the paint robots are designed _____ loads from 6 to 8 kg.
b. But a new all-electric, pollution-free car ferry designed _____ the EU-funded E-ferry project has proven capable of effectively replacing these diesel models.
c. Diesel engines are designed _____ commercial market and hence durability, reliability, and fuel economy drive their development.
d. In programmable automation, the production equipment is designed _____ the capability to change the sequence of operations to accommodate different part or product configurations.
e. Most current production vehicles have many ECUs with predetermined functions, often designed _____ different suppliers.
f. Thus, manufacturing systems are designed _____ varying degrees of automation; some are highly automated, others are completely manual, and there is a wide range between the two.

Task 4

1. Study the frequency information about verbs in the passive that can be followed by prepositions *by* or *with*. Is one of the prepositions always more frequent than the other?

verb	***by***	***with***
achieved	17	88
designed	22	41
fueled/fuelled	44	78
manufactured	20	11
operated	38	12
provided	122	38
replaced	52	29
used	174	43

2. Study the following example sentences with the verbs from the table. Can you see the same differences in function and meaning between the prepositions *by* and *with* as in the case of the verb *designed*? Find two examples when the preposition *by* does not mark an agent.

a. The engine was made to run, and it operated much more quietly than the standard engine even though it was **fuelled with** petrol.
b. Performance and emissions of direct injection diesel engine **fueled with** diesel fuel containing dissolved methane.
c. Almost all vehicles **fuelled by** petrol are convertible to LPG vehicle operation at a reasonable cost.
d. Our air traffic control system is **operated by** the federal government, while airports are typically locally run authorities.
e. An electric engine refers to a locomotive **operated by** electricity.
f. Combustion and exhaust emission characteristics of a dual fuel compression ignition engine **operated with** pilot diesel fuel and natural gas.
g. Specific urban structures can be **achieved with** specific transport systems.
h. This can be **achieved by** reducing speed, through engine and fuel innovations, or through electrification.
i. Substantial reductions in noise can be **achieved by** changing the design of roads and their surroundings, that is, by appropriate urban planning.
j. The driver is typically **provided with** a switch and can select which fuel they choose to use.
k. The information about congestion and noise is **provided by** the traffic sensors (videocameras and inductive loops).
l. The following engine components can produce significant noise when modified or **replaced with** aftermarket components.
m. In a growing number of areas in industry, conventional industrial robots are being **replaced by** or backed up with collaborative robots.
n. Over time, the word "automobile" fell out of favour in Britain, and was **replaced by** "motor car".
o. Researchers have studied on alternative fuels that can be **used with** gasoline and diesel fuels.
p. Cobots are **used by** the automotive industry to ensure product quality.
q. The briefing also presents an updated summary of the different types of measures **used by** countries to reduce noise.
r. These automotive parts get **manufactured with** different raw materials and undergo diverse manufacturing processes to fabricate the desired vehicle.
s. Its joints are **manufactured with** two bolts with more than ten joints.
t. In June 1964, the board approved four exhaust devices **manufactured by** nonautomotive manufacturers.