In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn import metrics
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
```

In [4]:
```
import pandas as pd
df=pd.read_csv("student_data.csv")
```

In [6]:
```
df.head()
```

Out[6]:

	Marks 1	Marks 2	Admission
0	75	70	0
1	80	85	1
2	65	60	0
3	90	95	1
4	85	75	1

In [8]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 100 entries, 0 to 99
Data columns (total 3 columns):
 #   Column     Non-Null Count  Dtype
---  ------     --------------  -----
 0   Marks 1    100 non-null    int64
 1   Marks 2    100 non-null    int64
 2   Admission  100 non-null    int64
dtypes: int64(3)
memory usage: 2.5 KB
```

In [10]:
```
feature_cols = ['Marks 1', 'Marks 2']
X = df[feature_cols]
y = df.Admission
```

In [12]:
```
print(y.head())
```

```
0    0
1    1
2    0
3    1
4    1
Name: Admission, dtype: int64
```

In [15]:
```
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.25,random_st
X_train.shape
```

Out[15]:
```
(75, 2)
```

In [17]:
```
X_test.shape
```

Out[17]:
```
(25, 2)
```

In [20]:
```
m1 = LogisticRegression()
m1.fit(X_train,y_train)
```

Out[20]:
```
LogisticRegression
LogisticRegression()
```

In [22]:
```
y_pred=m1.predict(X_test)
y_test
```

Out[22]:
```
26    0
86    0
2     0
55    1
75    1
93    1
16    0
73    1
54    1
95    1
53    1
92    0
78    1
13    1
7     1
30    0
22    0
24    1
33    1
8     1
43    1
62    0
3     1
71    1
45    1
Name: Admission, dtype: int64
```

In [24]:
```
y_pred
```

Out[24]:
```
array([0, 0, 0, 1, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 0, 0, 1, 1, 1, 1, 0,
       1, 1, 1], dtype=int64)
```

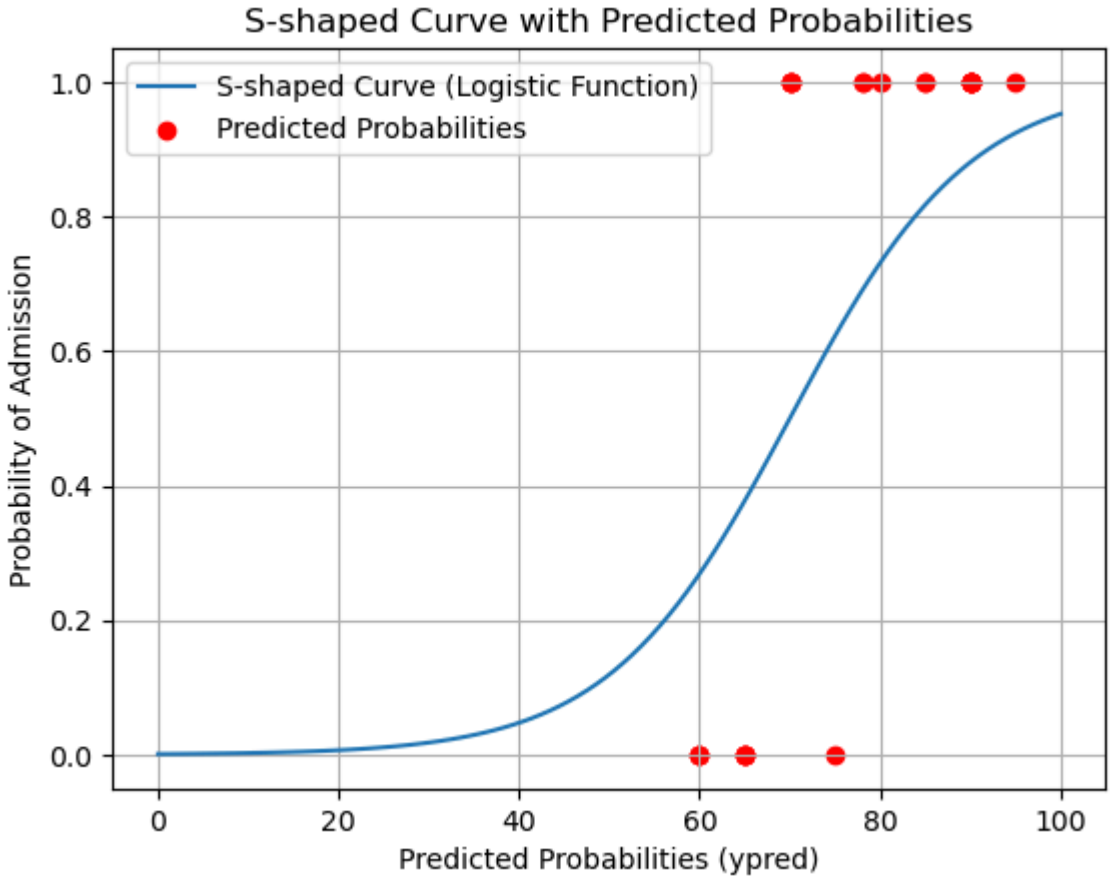
In [26]:
```
y_test
```

Out[26]:
```
26    0
86    0
2     0
55    1
75    1
93    1
16    0
73    1
54    1
95    1
53    1
92    0
78    1
13    1
7     1
30    0
22    0
24    1
33    1
8     1
43    1
62    0
3     1
71    1
45    1
Name: Admission, dtype: int64
```

In [28]:
```
print("Accuracy:",metrics.accuracy_score(y_test, y_pred))
print("Precision:",metrics.precision_score(y_test, y_pred))
print("Recall:",metrics.recall_score(y_test, y_pred))
```

```
Accuracy: 1.0
Precision: 1.0
Recall: 1.0
```

In [34]:
```
def logistic(x):
    return 1 / (1 + np.exp(-x))
x_values = np.linspace(0, 100, 100)
y_values = logistic((x_values-70)/10)
comb_marks=X_test['Marks 1']+X_test['Marks 2']
plt.plot(x_values, y_values, label='S-shaped Curve (Logistic Function)')
plt.scatter(X_test['Marks 1'], y_pred, color='red', label='Predicted Probab
plt.title('S-shaped Curve with Predicted Probabilities')
plt.xlabel('Predicted Probabilities (ypred)')
plt.ylabel('Probability of Admission')
plt.legend()
plt.grid(True)
plt.show()
```



In [ ]: